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LAMB — DEROS 31 DEC

REPLACEMENT — MONKEY

USARV SURGEON AND STAFF
DECEMBER, 1967, LONG BINH, VIETNAM

DIVISION PSYCHIATRY, 9th INFANTRY DIVISION
January - October 1967

Captain William Baker, MC*

CHARACTERISTICS OF THE DIVISION

One way in which the 9th Infantry Division differs from other divisions is that there is little spread in DEROS dates since most of the division deployed to Vietnam within a two month period. This has resulted in many units having "line" troops with nine to ten months in-country, at the same time.

In the first eight months, we saw a bit of everything as far as psychiatric diagnosis categories go. Most problems being situational, reactive, or chronic characterlogical problems. In the first three or four months nothing seen resembled the classic description of "combat fatigue." In reaction to combat stress, we saw brief, acute episodes of anxiety, often somatized to hyperventilation and minor functional gastrointestinal symptoms, etc.

COMBAT FATIGUE

By August, certain units were in combat nearly every day and a few cases of "classic" combat fatigue occurred. Some were treated by battalion surgeons as they had been taught at Ft. Sam and by my instruction. The surgeons said it was never a large problem in terms of numbers and the results of sedation and rest were almost always successful.

I saw from four to twelve of these a month from about the fifth to the ninth month in combat. Most of them treated in the recommended fashion responded and were returned to duty. Three or four of them, after recovering from acute psychotic symptoms (hallucination, regression) were still so anxious that I recommended a change in duty.

PSYCHOSIS

With regard to "true" psychosis, such as schizophrenia and manic depressive psychosis, the incidence has been low and remarkably constant, at an average of one per cent of the case load. There appears to be no relationship to stress and the onset of psychosis (with the exception of rare cases of combat fatigue in which there are brief periods of psychotic symptoms). But cases diagnosed as schizophrenia, for example, were usually not subjected to unusual stress. It has been exceedingly rare for a true psychosis to appear in obvious response to external stress.

DELAYED ANXIETY, INFUSION, SHORT TIMERS

During my ninth month in Vietnam (10 months for most troops) there were several changes in the case load both qualitative and quantitative (98 cases in August, 149 in September). There was an increase in number for three reasons, in my opinion.

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1. In the previous month there had been a drop in case load, which in retrospect were picked up in September. Part of the reason for this is that nearly a battalion of the division utilized ships as their "base camp" and it was often more difficult for them to refer cases. They docked early in September and rotated the units so that certain units just coming off of the ships had a backlog of patients to refer. There were other instances where transportation problems (due to roads being closed for the elections) created a fluctuation in the rate of referral (low in August, high in September).

2. The infusion program, referred to by troops as the "confusion program" was very active during this time. The idea was for various division battalions to exchange troops in order to spread out somewhat the DEROS dates.

Infusion resulted in many anxiety and/or depression syndromes. For example, some troops with marginal motivation were kept "straight" by loyalty to buddies or fear of "losing face." They lost these external controls as a result of infusion to a new unit. Almost invariably the soldier felt the new unit was not as good as the old unit. They operated differently, therefore, "wrong." "The officer and NCO do not know what they are doing" and "They will get us all killed," etc.

3. This problem from infusion was combined in many troops with what my office people called short timer syndrome. This was generally an infantryman with ten months line duty who wanted off the line because of a feeling that he had outlived the odds. There is at least a degree of realism here to the extent that a man could look about him and see perhaps only one or two other members of the platoon he started off with. It is natural in such a situation to feel it is his turn next. Of course, many of the missing comrades had left because of wounds, reassignments, infusion, medical profiles, etc. There were individual units which had suffered, in fact, near 100 per cent casualties and the few survivors of these actions (often a single action) had most of the fight scared out of them as a result. For example, June 19, there was a large fire fight and heavy casualties in many units, but one company had very nearly 100 per cent casualties. Over the next few months we saw several of the survivors, many of whom had been wounded and returned to duty, who had functioned well up until that particular experience, but now suffered real anxiety for the first time. The syndrome is also expressed as, "I am too short to take any chances." Of the various "war stories" the sort that seems to strike the most terror and revulsion are the ones where a man is killed just prior to his DEROS date.

All of the above problems were treated in about the same way as combat fatigue, and nearly all improved to at least a degree and returned to duty. A number of others represented more striking symptoms apparently from the same stresses as described above, and these I will now describe.

THE TEN MONTH VETERAN

The symptoms of this syndrome are so nearly constant, from one man to another, that I feel it is a syndrome produced by the type of stress encountered here. It is different from the classic combat fatigue syndrome because of the difference in the nature of the stress. The typical case is as follows: He is an infantryman, has been with the division since basic training at Fort Riley. He has been in Vietnam ten months. He had a normal degree of fear and anxiety during most of that time. Recently there has been a considerable increase in anxiety, to a degree impairing markedly his ability to function, often in spite of continued motivation. Referral notes from battalion surgeons often indicated that the man repeatedly went out in the field and was non-effective and/or had to be evacuated because of symptoms. He complains of all the usual "short timer" feelings, or in other words a sense of impending doom. He fears he will "get someone killed" by making a mistake, sleeps poorly, has recurrent bad dreams in which he sees again some specific horror. He has functional anorexia, nausea, and often "dry heaves" or cramps. Some have been evacuated with a diagnosis of appendicitis. Often there is a fear of artillery noise, even outgoing, which seems to be more of a conditioned response than rational fear. For example, some of them develop "dry heaves" in response to such noise. One interesting case became anxious in the middle of the night when the base camp artillery opened up. He ran from his tent, wandered in what he regarded as an aimless fashion, but he found himself at my office. he broke into the building and we found him the next morning sleeping peacefully on the floor.

DREAMS

The patient is often more distressed by his recurrent dreams than by fear of returning to combat. Often patients say they will return to combat willingly if only they could sleep without "those dreams." Usually the dreams are not fantasy of what may happen, but are "reruns" of something that did happen. Examples are quite specific to the individual, such as being splashed with a friends brains, etc. The horror and terror caused by dreaming each night, one or more times the same dream(s) is just as real and uncomfortable to the man as the actual experience, if not more so. The past history of these soldiers indicates good to superior duty performance and social adjustment. They are a different type than the ones seen in earlier months who tended to be character disorders more manipulative than sick.

With ventilation, night time sedation, a few days of rest and recreation in the division base camp most of these soldiers improved. The principle symptoms to work on are the 1) insomnia-nightmare problem, and 2) the functional GI symptoms. For the latter, combid spansules, compazine, probanthine, donnatol have been helpful. Compazine in the form of a combid spansule given TID 30-45 minutes before meals, being my own favorite. Most important, however, appears to be the treatment of the recurrent dreams. If

these are "cured" the soldier seems to be able to function, and to tolerate his residual anxiety. Treatment consists of h-s sedation. We used, mainly, 100-200 mgm Seconal with excellent results. Other drugs worked, too. It appears that anything which alters the sleep pattern tends to break up the recurrent dream cycle. In some cases it appeared to help them to talk about their dreams but my impression was that mild sedation altered the sleep pattern and stopped the recurrent dream. There were some "transference dreams." For example, one soldier kept seeing himself as the only unhurt man in his squad, going around trying to find someone not dead nor hopelessly wounded, trying futilely to help some of them. Later I was in the dreams as sort of a "super-medic," restoring and protecting life, "you were there protecting us, no one could hurt us."

We did not admit these men to the hospital. We simply kept them in the base camp by giving them return appointments for two or four days. They stayed with their detachments or with the replacement center. This was partly because we felt they did not need hospitalization, but mainly because they did better if NOT hospitalized. They could move about, use the recreation facilities which we actively encouraged them to do.

There were some of them, a minority, but an appreciable number who after several days of this sort of treatment had such persistence of symptoms that we recommended a change of non-combat duty. This policy came about through experience. If they were returned to duty, usually they were non-effective and would either be returned to us or removed from combat status by the unit. For example, a platoon leader or company commander would put the man on permanent KP or other base camp duty because after trying him in the field again he regarded the man as a liability. We, therefore, felt it was better to ask AG to reassign the man so that the unit would be eligible for a replacement.

In many cases, the increase and/or onset of symptoms is gradual, but in many, perhaps the majority, there seems to be some event, e.g., a buddy's getting severely wounded which is a "turning point." Usually this is the thing the recurrent dreams are concerned with.

SUDDEN ANXIETY

Another rather infrequent syndrome is a soldier who has probably had much less overt or conscious anxiety than normal until he is wounded, often a trivial wound, then he is flooded with all the anxiety he has repressed. It is sort of a, "My God it CAN happen to me!" reaction.

FATIGUE

We treated many cases of fatigue which were not really "combat fatigue" with psychopathology other than as a direct result of simple fatigue. This was because some units drove their men very hard and they very simply did not have the opportunity to rest. They would come into their base camp after a patrol and be assigned to details, bunker guard, etc., and never get a day of rest. The guard duty is often poorly planned. I saw a few

cases where a man was placed on guard duty when he was already suffering from severe sleep deprivation. Often these fatigued men will sleep fourteen to sixteen hours or more a day for one or more days, if given the opportunity, with marked change in energy, optimism, general mental function, and "personality." In some units guard duty is two hours awake, two hours sleep, etc. Many men were just unable to adapt to this unphysiological sleep pattern, and were therefore fatigued after their night of "rest" on guard duty and started out on the next day's patrol to repeat the cycle. We saw some cases where there were some rather marked psychopathology which was "cured" in dramatic fashion by one day of sleep. This situation improved after units gained experience, after I wrote several forceful certificates, and after several chats with the IG and division surgeon.

OTHER MINOR PROBLEMS

There is a "post R&R depression" which is almost universal, but seldom of enough severity to warrant special attention. Sometimes it appears to be a precipitating event for other reactions, however.

Sometimes units have apparently tried to "treat" anxiety and depression by sending the man on R&R. I do not know how often it works, but I do know that many times it does not work and the man, if anything, is more apprehensive and/or depressed than before.

SUMMARY

This is a brief informal summary of the types of reaction seen in response to combat stress in the 9th Division, January-October 1967. "Classic" combat fatigue is uncommon. Modified forms of stress reaction to combat are seen, and it appears the incidence is related to chronic stress or the incidence increases rapidly after nine or ten months in combat. This is in part related to "short timer" psychology, and perhaps, in part, due to the particular personnel infusion practices. Most can be returned to duty in 48-72 hours with sedation, rest, recreation, supportive psychotherapy. Some should be reassigned when symptoms do not promptly remit, rather than sent back to a unit where they are detrimental.

WHY PUBLISH IN USARV MEDICAL BULLETIN

The value of the USARV Medical Bulletin over stateside professional publications is that a practical article about work in Vietnam gets rapid professional comment, correction, and pertinent additions from other professional faced with similar tasks in Vietnam. Some of these comments are published, others are passed directly to the author. This increases the value of any article later expanded for publication in the international medical literature.

MEDICAL ASSISTANCE TO THE VIETNAMESE

LTC Floyd W. Baker, MC *

INTRODUCTION

The ultimate goal of medical assistance rendered to the Vietnamese is to have the Vietnamese themselves capable of maintaining a satisfactory level of preventive and therapeutic medicine. Although much has been contributed by U.S. medical efforts, these efforts, at times, result in only temporary relief of a situation and contribute little to the long term improvement in the health status of the Vietnamese.

There are Vietnamese officials who have the responsibility for the health matters in the area which they serve. The exercise of this responsibility and the use of the resources available within the Vietnamese system is essential if progress is to be made.

The case report which follows is an account of how one episode was handled so that The Medical Civic Action Program (MEDCAP) and other U.S. resources were used effectively to make progress toward the ultimate goal. The lessons learned in this case can be applied in much of the medical assistance work to make that support more effective.

CASE REPORT

On 2 November SGT B, a medic on a district advisory team, learned of a possible plague outbreak in one of the district villages. He informed the District Health Chief who allowed him to notify the nearby Air Force base prior to conducting any investigation.

On 3 November SGT B and the District Health Chief visited the village and found about thirty persons ill in one hamlet. They were told that three had died recently. Word of the outbreak reached the Regional Public Health Office and Field Force Headquarters that evening.

On 4 November the U.S.Agency for International Development/Civil Operation for Revolutionary Development Support (USAID/CORDS) Assistant Health Officer, Region II, and two members of a Free World Force preventive medicine team visited the area to evaluate the situation. The Province Health Chief accompanied the group and took along immunization supplies. Health workers from the district dispensary joined the group. The following was found:

1. A MEDCAP team from the Air Force base was preparing to hold sick call and to give immunizations.

2. A team from a U.S. military hospital was ready to work with the Air Force team and to search the hamlet for cases, obtain specimens for laboratory study, and administer treatment.

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3. SGT B was attempting to organize the efforts of the others.

4. The District Health Chief had not been there that day but had remained in the district dispensary holding routine sick call. He accompanied the Regional Health Office team to the hamlet.

It was decided that the Vietnamese health workers, who had accompanied the Assistant Health Officer from the Province Health Chief's Office, would begin immunizations, assisted by some of the MEDCAP personnel, while others of both groups held a screening sick call. This effort was begun. The Assistant Health Officer, the Province Health Chief, the District Health Chief, members of the regional preventive medicine team and U.S. military personnel proceeded through the hamlet to search for persons who might have plague and to assess the conditions in the hamlet.

Each time the group found a patient the Assistant Health Officer would present the problem to the Province and District Public Health Chiefs and have them provide a solution. The fact was stressed repeatedly that this was a District - Province - Ministry of Health Problem and that the solutions needed to come from those responsible for the corresponding health activities.

The problem of putting the burden of decision on the Vietnamese was time consuming, and the progress through the hamlet was quite slow. Fears of the patients and the families limited the number of specimens that could be obtained and made the patients very reluctant to go to the hospital. Some of the Americans criticized the Assistant Health Officer for taking so much time. They advocated taking the initiative and completing the survey and treatment quickly since American resources could do the job much more efficiently. There seemed to be little awareness that the training of the Vietnamese to run their own health service was necessary.

After the hamlet survey had been completed, the Assistant Health Officer spent about two hours discussing the entire problem of plague control with the Province Health Chief, the District Health Chief and the Hamlet Chief. By the end of that time the following plan had been decided upon by the Vietnamese and concurred in by the Assistant Health Officer.

1. Dusting with 10% DDT would start 6 November by the villagers under the control and direction of the District Health Chief.

2. Rat control by killing would be directed by the Village Chief under supervision of the District Health Chief.

3. Health education by the Provincial Health Educator would be initiated on 6 November.

4. A regional public health team, Military Provincial Hospital Assistant Program a (MILPHAP) representative and the Provincial Health Chief would return to the hamlet for follow-up observation and discussion on 8 November.

On the return visit on 8 November the regional team arrived at the province headquarters and learned that the district advisor was not satisfied with the program and had enlisted the aid of the Air Force base and the local

support command without coordinating with the MILPHAP team or public health personnel. DDT powder had been requisitioned through U.S. channels although plenty was on hand at the province headquarters. They had not started to do the planned dusting when the team arrived at the hamlet.

The team found the following:

1. The villagers had dusted many of the homes by hand, but the amount of DDT was insufficient.

2. Health education posters depicting the danger of rats and fleas causing plague were posted throughout the hamlet.

3. The hamlet inhabitants had an acute awareness of the health problem of plague and showed an enlivened interest in establishing protective measures. This was in contrast to their actions shown on the previous visit at which time little interest was shown in learning what to do other than be immunized to prevent the disease.

No new cases of plague were found.

At the close of the second visit the following plan had been developed:

1. Redusting of the village would be done on the following day by the villagers under the supervision of the GVN/Provincial Sanitarian and a Region Public Health Division advisor.

2. Ministry of Health (MOH) equipment and supplies would be sent from Region Headquarters to the province.

3. A rat and flea control program planned for the province would commence the following week. The problems, mistakes, and successes observed in the present outbreak would be used as part of the training. It would provide an excellent example of the need to have a step wise progression and integration of efforts.

4. The district advisor would withhold any further civic action activities until the need for them was demonstrated by the GVN/MOH/Provincial Health Services.

A third visit was conducted on 12 November 1967. A party of 15 district health chiefs and health workers was taken to the hamlet as part of the rat and flea control training program which was in progress. Redusting of the hamlet was done by villagers recruited on the spot and trained by the region sanitarians in the use of hand operated dusters. They learned with ease and showed much enthusiasm in the work, giving evidence that a minimum of advisory effort and technical assistance could produce marked advances in this type of disease control.

At this third visit a number of posters on the prevention of plague were still in evidence in the hamlet. More were distributed.

At a fourth visit on 16 November, district health workers were observed

in a training course on rat and flea control. No new cases of plague were found in the village. The hamlet chief and inhabitants continued to be interested in measures to protect themselves from the disease.

DISCUSSION

This case illustrates how progress can be made in improving the long term Vietnamese health status through proper coordination of all resources. Assisting the responsible district and province health chiefs develop a program and utilizing the hamlet inhabitants and the native health workers, supplemented where necessary by MILPHAP or MEDCAP resources to carry it out, has resulted in a higher level of basic health education in the hamlet and more skilled Vietnamese health personnel. The task of treating patients, immunizing the hamlet inhabitants and dusting the houses could have been accomplished more rapidly and efficiently by the MEDCAP and other civic action teams, but such a program would have contributed nothing to the long term health of the hamlet, district or province.

There are many resources within the GVN/MOH/Provincial health systems which can be effective. These resources need to be called into play as the primary means of dealing with Vietnamese health problems. MEDCAP can then be used as a supplement to support the Vietnamese efforts by appropriate treatment, training and education.

The MILPHAP (or PHAP) teams have a primary mission of assisting the Vietnamese in their provincial health programs. They know where the military medical effort is needed to supplement the Vietnamese effort. To be most effective MEDCAP must be coordinated with the Vietnamese programs through the MILPHAP teams.

SUMMARY AND CONCLUSIONS

Word of an outbreak of plague in a hamlet precipitated prompt, vigorous response by U.S. Military units without prior coordination with the existing Vietnamese health services. Had this effort gone unchecked, the majority of patients would have been treated; the hamlet residents would have been immunized, and the village would have been dusted quite rapidly. The plague outbreak would have been stopped-the fire would have been put out. The hamlet would not have been any better off however, in its ability to avoid further outbreaks nor would the Vietnamese health workers have gained proficiency in their ability to handle future situations.

Through the technique of assisting the Vietnamese to analyze the problem and provide solutions to be accomplished primarily by Vietnamese, assisted only where necessary by U.S. and Free World Resources, the hamlet inhabitants were able to learn something about protecting themselves against the plague; and the existing Vietnamese health system personnel gained experience. A contribution was made to the long term improvement in the health status of the community.

The following specific lessons were learned from the case:

1. Reports of disease need to be investigated at the local level before notifying the higher neadquaters.

2. Well planned measures can result in more efficient and more effective results than can hysterical use of all measures at once.

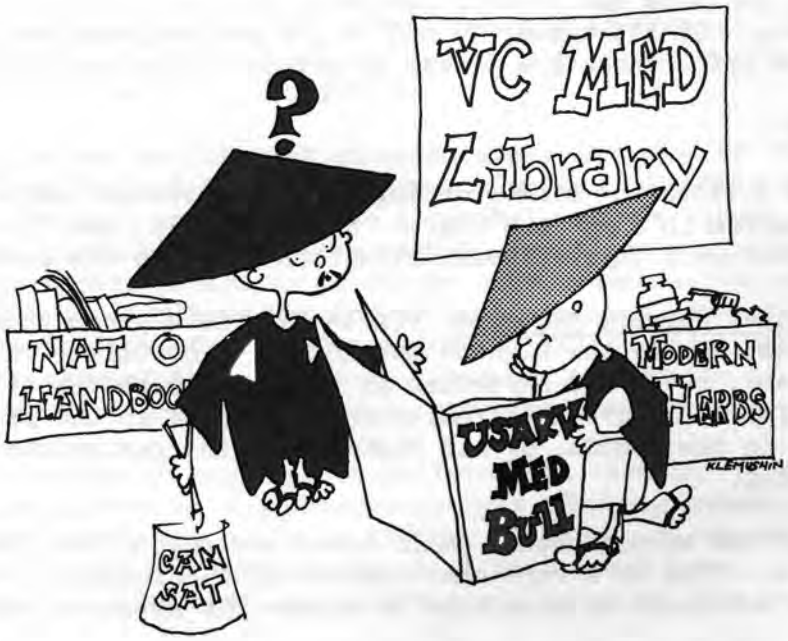
3. There are many resources within the GVN/MOH/Provincial Health systems which can be effective if given a chance and the proper type of assistance.

4. MEDCAP needs to be coordinated through MILPHAP for proper integration into the entire health program if maximum value is to result.

ACKNOWLEDGEMENTS

Doctor James M. Lynch, Assistant Health Officer, Region II, was instrumental in the organization and direction of the medical assistance to the Vietnamese which was discussed in this case. The study was prepared from my observations while accompanying Doctor Lynch on the visits and from reports prepared by him.

Doctor Henry Essex, Chief Health Officer, Region II, provided valuable suggestions during discussions of the case and assisted greatly through his review of the manuscript.



"NO CAN UNDERSTAND THIS ISSUE—
—NOT ENOUGH PICTURES!"

PATIENTS REMOVED FROM EVACUATION FLIGHTS FOR ADDITIONAL TREATMENT

LTC Gene V. Aaby, MC*

INTRODUCTION

Treatment by stages or echelons has proven very effective in handling large numbers of combat casualities. The course of treatment is written in chapters, each of which is influenced by those preceding but unfortunately the authors probably will not have an opportunity to read the entire script.

Feed back information is helpful in judging the results of treatment and may point out the need to modify the therapy. Accordingly, a group of patients was studied who were removed from the evacuation system prior to their destination. The findings form the basis of this report.

MATERIALS AND METHODS

The USARV Surgeon's Office receives the names and destination of all out of country medical evacuees. Those removed for further stabilization at the casuality staging facility, Clark Air Force Hospital, are also identified. During a three month period 175 names were collected. This represents about 7.5 per cent of IRHA cases evacuated via Clark. (Estimates were used to obtain this figure; its validity will be determined.)

The narrative summaries were reviewed and cases grouped according to the most important diagnosis or cause for removal from the evacuation system. Many patients had several problems, but each case was placed in a single group. Of 175 cases, 79 had documented evidence to justify having been pulled off. These are listed by groups in the tables.

DISCUSSION

Table I lists the nine groupings and the average number of days of hospitalization in USARV and Clark. Significantly, the 79 cases required an additional 10.1 days of hospitalization prior to disposition.

Abdominal Surgery Required (Table II) As a group these were the most ill patients; having the highest morbidity and mortality rate (30 per cent). Of nine cases, seven had infection as the main component of the complication. Five were febrile above 102°; harboring abscesses in the pelvis, below the diaphragm, in the wounds, or had fistulae of the gastrointestinal tract or urinary tract.

A Richter's hernia caused small bowel obstruction at the colostomy site in one case. This is a rare complication of a colostomy. Most USARV surgeons have not found it necessary to suture the serosa of the colon to the

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peritoneum when performing colostomies in adult patients. The case in question most likely had an inordinately large opening created for the colostomy. (Stenosis of the colostomy or ischemia of the bowel has occurred several times in Vietnam from too tight an exit for the colon.)

Intra-abdominal abscesses continues to be one of the major complications of extensive abdominal wounds. Massive thoracoabdominal wounds with injury of the diaphragm, liver, and colon on the right, or diaphragm, spleen, and colon on the left have a 25-30 per cent chance of developing a subdiaphragmatic abscess. The incidence of pelvic abscesses following severe rectal wounds is also about 30 per cent. Most abdominal abscesses have a common denominator: postoperative oozing, contamination, and poor drainage. It has been noted often that the drain exit is constricting, thereby precluding drainage. For rectal wounds the presacral space must be adequately drained. Again, the presence of a drain is not proof of adequate drainage. Drains need careful positioning, an ample exit wound and should be moved when drainage stops.

A more frequent use of sumps is recommended; even bilateral sumps for severe pelvic wounds.

Rectal wounds with pelvic fractures are challenging and the morbidity is higher than with other abdominal wounds. Postoperative bleeding, fecal contamination, loose bone fragments, and urinary tract injuries make a fertile field for infection and other postoperative complications. Missing injuries of the bladder, ureter, urethra, and rectum is a constant threat. If one is uncertain about rectal perforation or if there is severe contusion and hematoma of the rectum, a colostomy is indicated.

Acute cholecystitis following an extremity wound is unusual. This case did not have cholelithiasis or evidence of cystic duct obstruction. Perhaps this represented hematogenous cholecystitis.

The evisceration was not through an exploratory incision but through a large defect in the abdominal wall caused by a missile. Multiple organs are usually injured when a portion of the abdominal wall is ripped away. In these cases postoperative bleeding is common, fecal contamination is widespread, and the defect is apt to be closed under tension. An abscess and/or fecal fistula is likely to develop in this setting. Marlex mesh has been the best substitute for missing abdominal wall. For massive wounds on the right side of the abdomen an ileostomy, resection of the right colon, and a transverse colostomy should be strongly considered.

Evisceration through an exploratory incision has been infrequent. The majority of surgeons adhere to the recommendations of using retention sutures. However, retention sutures are not a substitute for a secure wound closure, only an addition. There is a high incidence of incisional hernias when retention sutures alone have been the mainstay of the wound closure.

Fortunately duodenal fistulae have been infrequent. Many candidates for the development of the complication have sustained lethal wounds and succumb from other causes. Inadequate closure of the duodenum, infection,

and obstruction are the common causes of duodenal fistulae. Decompression of the duodenum either by a separate duodenostomy tube or transgastric tube is an important prophylactic measure.

The group of cases requiring abdominal surgery at Clark needed an average nineteen days hospitalization prior to disposition. In retrospect none of the cases were sufficiently stable to have been evacuated. The obvious question is, "When is a patient ready for evacuation?" Following gastrointestinal surgery, patients with existing or impending complications will almost invariably have either malfunction of the GI tract or fever. Accordingly, patients are usually not ready for evacuation until the GI TRACT IS FUNCTIONING PROPERLY and they are AFEBRILE.

Cases with acute joint pathology (Table III) Three cases were in this group. One had a fracture dislocation of the elbow and because of pain and swelling was pulled off the evacuation flight. Surgery was performed at Clark with removal of the head of the radius. Another patient had a dislocation of the right shoulder which was reduced. The third patient had a septic knee joint from a retained foreign body.

Cases requiring amputation or reamputation (Table IV) Two cases were reamputations. The other two cases had failure of vascular repairs and required amputation at Clark.

Cases with anemia (Table V) Eight cases were in this category, having hematocrits ranging from 23-29. Four cases from other groups also were anemic making a total of twelve or about 15 per cent of all patients. An average of two units of blood were given to each patient. The hospital stay at Clark for the group averaged 2.9 days.

Cases with CNS pathology (Table VI) Seven cases were pulled off because of CNS problems. Three were medical cases; two had encephalitis and one had typhus. One case (RD) had infection following craniectomy; redebridement of the brain and reclosure of the dura was necessary. Case JM had a lethal head injury and died four days after admission.

Cases with fever without a cause (Table VII) For this analysis, a temperature above 101° was considered significant. Thirty-five cases or 45 per cent of the patients had a temperature above 101°. The bulk of these had more serious conditions and were placed in other groups. A specific cause for the fever was not established in five cases. Each had a debridement and irrigation (D&I), however, gross infection was not described in the narrative summary.

Cases with ileus (Table VIII) Eight cases had ileus which were successfully treated by nasogastric suction. An average of 8.25 days of additional hospitalization was required by the group; indicating that the patients were quite ill. As noted previously, following abdominal surgery, a non-functioning gastrointestinal tract is usually a contraindication for evacuation (a professor of gastroenterology once remarked that "almost all serious disorders of the gastrointestinal tract have symptoms related to the mouth or anus.")

Cases requiring major debridement or multiple D&Is (Table IX) This was the largest group of cases. To be included in this group extensive necrosis or infection was found at surgery or multiple D&Is (debridement and irrigation) procedures were necessary. Fifteen of 26 cases or 58 per cent had a temperature above 101°. The findings at surgery were generally extensive muscle necrosis, infection, or loose necrotic fragments of bone. Maggots were found in two cases. There were two deaths; one was due to sepsis, but the cause of death in the other case was unknown. It either represented an anaphylactic reaction following blood transfusion or alveolar capillary membrane failure secondary to over-transfusion. The average hospital stay was 9.6 days for the group.

Cases with pulmonary pathology (Table X) This group of cases had a compromised respiratory system. One had acute status asthmaticus which required emergency treatment, including steroids. The other eight cases were IRHA. Four had a temperature above 101°, and four had a pneumothorax. Three cases required prolonged hospitalization; two for decortication and one required multiple closed thoracostomies for a persistent pneumothorax. The average hospital stay, at Clark, was 13 days.

SUMMARY AND RECOMMENDATIONS

A small chapter in the story of combat surgery has been presented. One's initial impression is that careless surgery is being practiced in Vietnam. The incidence of overlooked injuries, inadequate debridements, and poor repairs is inversely proportional to the experience and professional competence of the surgeon. It should be remembered, however, that these cases are a select group - cases too ill to continue with the evacuation. It is easy to be critical of cases admitted from "elsewhere general hospital." Rendering the same additional care to one's own cases is called "good medicine."

Approximately 7-8 per cent of the patients being evacuated out of country harbor problems, perhaps one-half of these or 4-5 per cent of all IRHA patients are medically unfit for the trip when being loaded on the plane.

About 75 per cent of the 79 cases had either a temperature above 101°, ileus, anemia, or compromise of the respiratory system. Evacuating such cases could have been prevented by using the information obtained from a thermometer, stethoscope, hematocrit or chest x-ray.

Hopefully this report has brought knowledge to the ignorant, humility to the arrogant, and benefit to the patient.

PATIENTS REMOVED AT USAF CLARK FOR FURTHER STABILIZATION

TABLE I

TYPE OF CASE	NO. CASES	DAYS HOSP USARV	DAYS HOSP CLARK
ABDOMINAL SURGERY REQUIRED	9	9.5	19.2
ACUTE JOINT PATHOLOGY	3	3.0	6.7
AMPUTATION OR REAMPUTATION REQUIRED	4	3.7	9.5
ANEMIA	8	5.0	2.9
CNS PATHOLOGY	7	8.7	11.3
FEVER WITHOUT SPECIFIC CAUSE	5	5.2	6.0
ILEUS	8	8.3	8.3
MAJOR DEBRIDEMENT REQUIRED	26	6.3	9.6
PULMONARY PATHOLOGY	9	10.1	13.0
TOTALS	79	7.2	10.1

CASES REQUIRING ABDOMINAL SURGERY

TABLE II

CASE	RANK	TYPE OF INJURY	DAYS HOSP USARV	TEMP	HCT	FINDINGS AND/OR TREATMENT AT CLARK	DAYS HOSP CLARK
CB	SP-4	ABDOMINAL	10			INTESTINAL OBSTRUCTION: RICHTER'S HERNIA	24
DC	PFC	ABDOMINAL	6	103	31	PELVIC ABSCESS	26
ED	PFC	EXTREMITY	10	102^{4}		ACUTE CHOLECYSTITIS, SUBPHRENIC ABSCESS	28
EF	SP-4	RECTAL	7			PRESACRAL ABSCESS, WIDE DEBR'T SACRUM	8
CN	SP-4	ABDOMINAL SOFT TISSUE	5			CLOSURE OF PARTIAL EVISCERATION	6
FR	PFC	ABDOMINAL	6	103		LAPAROTOMY, DRAINAGE OF PELVIC ABSCESS	13
MG		ABDOMINAL CHEST	7	104		URINARY FISTULA, STRESS ULCER, FLANK ABSCESS <u>DEATH</u>: DUE TO SEPSIS	24
GL	SP-5	ABDOMINAL	10	100^{6}		DUODENAL FISTULA, STRESS ULCER, NECROSIS ABD. WALL, LAPAROTOMY: JEJUNOSTOMY, SPLENECTOMY, EVACUATION HEMATOMA, <u>DEATH</u>: DUE TO SEPSIS MULTIPLE COMPLICATIONS	29
DS	PFC	ABDOMINAL	25	104		URINARY FISTULA, STRESS ULCER, PELVIC BLEEDING <u>DEATH</u>: DUE TO SEPSIS, STRESS ULCER	15
NO. DAYS HOSPITALIZED			9.55			NO. DAYS HOSPITALIZED	19.22

CASES WITH ACUTE JOINT PATHOLOGY

TABLE III

CASE	RANK	TYPE OF INJURY	DAYS HOSP USARV	TEMP	FINDINGS AND/OR TREATMENT AT CLARK	DAYS HOSP CLARK
IA	MAJ	ORTHO	3		FRACTURE DISLOCATION HEAD OF RADIUS TREATMENT: EXCISION OF HEAD	16
JD	SGT	ORTHO	4		ANTERIOR DISLOCATION RT. SHOULDER	1
RM	SP-4	ORTHO	2	101^{6}	REMOVAL OF INFECTED FRAGMENT LT KNEE	3
NO. DAYS HOSPITALIZED			3		NO. DAYS HOSPITALIZED	6.7

CASES REQUIRING AMPUTATION OR REAMPUTATION

TABLE IV

PG	SGT	ORTHO	4	101	NECROTIC MUSCLE & BONE: REAMPUTATED	2
DH	PFC	ORTHO, VASCULAR	2	100^{4}	THROMBOSED GRAFT, AMPUTATED LT ARM, D&I 2x	14
TS	SGT	ORTHO, VASCULAR	5		AMPUTATED LT LEG, D&I 2x	8
BW	SP-4	ORTHO	4	102	REAMPUTATION LT LEG, AMPUTATED RT FOOT	14
NO. DAYS HOSPITALIZED			3.7		NO. DAYS HOSPITALIZED	9.5

CASES WITH ANEMIA

TABLE V

CASE	RANK	TYPE OF INJURY	DAYS HOSP USARV	TEMP	HCT	UNITS TRANSF	DAYS HOSP CLARK
AB	SP-4	ORTHO	8		25	2	1
ED	SP-4	CHEST, SOFT TISSUE	5	101^{6}	29	2	4
RG	SGT	SOFT TISSUE, ORTHO	3		?	2	2
JK	SGT	SOFT TISSUE	4		27	1	1
WK	SFC	ORTHO	12		28	2	2
CS	PFC	ORTHO	3		23	3	4
CT	PFC	SOFT TISSUE, ORTHO	3		24	?	4
VW	SP-4	CHEST, ABDOMEN	2		24	2	5
NO. DAYS HOSPITALIZED			5.0				2.9

CASES WITH CNS PATHOLOGY

TABLE VI

CASE	RANK	TYPE OF INJURY	DAYS HOSP USARV	TEMP	HCT	FINDINGS AND/OR TREATMENT AT CLARK	DAYS HOSP CLARK
RB	SP-4	NONE	2	104^{6}		ENCEPHALITIS	16
LC	SGT	NONE	2	102		CNS A-V MALFORMATION	20
PC	PFC	NONE	10			ENCEPHALITIS	11
RR	SP-4		17	103		MENTAL CONFUSION, DIAGNOSIS: TYPHUS	20
RD	SGT	HEAD INJURY	9	101^{8}	21	"BRAIN EXTRUDING" FROM HEAD WOUND, BRAIN DEBR'T	5
BT	SP-4	HEAD INJURY	5			POST-CRANIECTOMY GRAND MAL SEIZURE	3
RM	2LT	SEVERE HEAD INJURY	16	102^{4}		SUPPORTIVE TREATMENT, DEATH	4
NO. DAYS HOSPITALIZED			8.7			NO. DAYS HOSPITALIZED	11.3

CASES WITH FEVER WITHOUT SPECIFIC CAUSE

TABLE VII

JA	1LT	ORTHO	7	102	32	D & I	5
RC	SGT	ORTHO	3	102		D & I	5
AH	PFC	ABDOMINAL, SOFT TISSUE	5	102		D & I	9
BP	SP-5	SOFT TISSUE	6	102^{8}		BLOODY DRESSING, D & I	2
DW	SP-4	SOFT TISSUE, ORTHO		103		D & I	9
NO. DAYS HOSPITALIZED			5.2			NO. DAYS HOSPITALIZED	6.0

CASES WITH ILEUS

TABLE VIII

CASE	RANK	TYPE OF INJURY	DAYS HOSP USARV	TEMP	FINDINGS AND/OR TREATMENT AT CLARK	DAYS HOSP CLARK
HA	SP-4	ABDOMINAL	12		ILEUS, N G TUBE 4 DAYS	7
KD	PFC	ABDOMINAL	3		ILEUS, OBSERVATION	5
RD	1LT	ABDOMINAL	5		ILEUS, N G TUBE 2 DAYS	5
GL	SP-4	ABDOMINAL, SOFT TISSUE	12		ILEUS	8
SM	PFC	ABDOMINAL	9	101[6]	ILEUS	6
JD	PFC	ABDOMINAL	21	100[2]	ILEUS	8
RD	PFC	ABDOMINAL	2		ILEUS, WOUND ABSCESS	22
VW	SP-4	ABDOMINAL	2		ILEUS, ANEMIA (HCT 24), TRANSFUSED 2 Units D&I	5
NO. DAYS HOSPITALIZED			8.25		NO. DAYS HOSPITALIZED	8.25

CASES REQUIRING MAJOR DEBRIDEMENT OR MULTIPLE D&Is

TABLE IX

CASE	RANK	TYPE OF INJURY	DAYS HOSP USARV	TEMP	HCT	FINDINGS AND/OR TREATMENT AT CLARK	DAYS HOSP CLARK
AA	PFC	MULTIPLE WOUNDS	2	100		D & I 4x	13
JA	PFC	ABDOMINAL, BUTTOCKS	11	102		REMOVAL NECROTIC MUSCLE AND BONE, D&I 4x	48
JB	SP-4	ORTHO, VASCULAR	6			FASCIOTOMY, DEBRIDE NECROTIC MUSCLE, D&I 3x	5
RB	PFC	ORTHO, "K" NAILING	5	101		MUSCLE NECROSIS, INFECTION, D&I 2x	6
JC	PFC	ORTHO	6			BONE INFECTION, D&I 4x	19
RC	SP-4	EXTREMITY	6			REMOVAL LARGE FRAGMENT LT THIGH	2
VC	SGT	SOFT TISSUE	4	102^4		REMOVAL 1 INCH FRAGMENT RT ILIUM	2
RD	SGT	ORTHO, VASCULAR	6	103		MULTIPLE D&Is	14
GF	PFC	ORTHO, SOFT TISSUE	7	101^6		EXTENSIVE NECROSIS, D&I 4x	11
PG	SP-4	MAX-FACIAL	10			REMOVE LOOSE TEETH, REDUCTION MANDIBLE	27
PG	PFC	ORTHO	3	101		REMOVE INFECTED BONE FRAGMENT, D&I 2x	5
CH	SP-4	ORTHO	6	102	27	MUSCLE NECROSIS, TRANSFUSED 3 units	2
JH	SP-4	ORTHO	3	101^2		MULTIPLE D&Is	20
RH	PFC	ORTHO	2		27	D&I 2x, TRANSFUSION	5
WJ	PFC	ABDOMINAL, CHEST	5	101		D&I 2x	7
JK	SP-5	ORTHO	1	101		NECROTIC SCAPULA AND MUSCLE	9
JL	SP-4		4			HEMATOMA, NECROSIS OF FOOT, D&I	2

CASES REQUIRING MAJOR DEBRIDEMENT OR MULTIPLE D&Is
(Continued)

CASE	RANK	TYPE OF INJURY	DAYS HOSP USARV	TEMP	HCT	FINDINGS AND/ORTREATMENT AT CLARK	DAYS HOSP CLARK
EL	PFC	CONTUSIONS, SOFT TISSUE	3	102		I'D ABSCESS GLUTEAL AREA, 300 cc	7
RL	PFC	ABDOMINAL, SOFT TISSUE	13			D&I, WOUND LOADED WITH "MAGGOTS"	2
RM	PFC	ORTHO	6	101^{6}		"MAGGOTS" IN WOUND, D&I	7
CM	SFC	ORTHO	5	UP?		NECROTIC FOOT MUSCLES	2
JP	PFC	ORTHO	8			FOUL DRESSINGS, MARKED INFECTION, D&I	5
EW	PFC	ABDOMINAL, SPINAL CORD	16	103		WOUND ABSCESS, 250 cc, RENAL FAILURE	21
PW	SGT	ORTHO	3	103		D&I 2x	3
AG	CPT	ORTHO, AMPUTATION	16	104		DEBRIDEMENT NECROTIC MUSCLE, DEBRIS, METAL D&I 2x, DEATH: DUE TO SEPSIS	5
TM	SP-4	SOFT TISSUE	?			D&I, DEVELOPED FEVER AND ? ANAPHYLACTIC REACTION AFTER BLOOD TRANSFUSION, DEATH	2
NO. DAYS HOSPITALIZED			6.3			NO. DAYS HOSPITALIZED	9.6

CASES WITH PULMONARY PATHOLOGY

TABLE X

CASE	RANK	TYPE OF INJURY	DAYS HOSP USARV	TEMP	FINDINGS AND/OR TREATMENT AT CLARK	DAYS HOSP CLARK
RA	PFC	NONE	?		ACUTE STATUS ASTHMATICUS, STERIODS	3
DB	PFC	CHEST	12	102^{8}	DECORTICATION	49
LD	PFC	CHEST, SOFT TISSUE	6	103	DECORTICATION	16
EE	PFC	CHEST, SPINAL CORD	5	100^{6}	PNEUMOTHORAX, CLOSED THORACOSTOMY	6
MB	SP-4	CHEST, ABDOMEN, ORTHO	24	101^{2}	RT EMPYEMA, MULTIPLE CLOSED THORACOSTOMIES	6
PM	PFC	CHEST, HEAD	11		PNEUMOTHORAX, ASPIRATED	2
MR	PFC	CHEST	8		SUSPECTED PNEUMOTHORAX	2
HW	PFC	CHEST, CNS	6	102	50% PNEUMOTHORAX, CLOSED THORACOSTOMIES	25
BW	SP-4	CHEST, ABDOMEN,ORTHO	9		THORACENTESES, D&I 2x	8
NO. DAYS HOSPITALIZED			10.1		NO. DAYS HOSPITALIZED	13.0

CONTROL OF CASUALTY EVACUATION IN VIETNAM UTILIZING RADIO COMMUNICATIONS

Captain Hubert G. Farr, MSC *

The need for reliable communications has been recognized by the tactical elements of the Army for quite some time as evidenced by the slogan "Move, Shoot, Communicate." Now the field army medical service in Vietnam is similarly integrating communications with patient care.

THE FIELD MEDICAL REGULATOR

Operating in support of highly mobile, separate, brigade-size task forces, the 55th Medical Group has developed, through necessity, a non-TOE Medical Regulating Section, composed of senior NCO's and specialists (91C40) who act as liaison with the brigade medical company or clearing station. This liaison NCO or Field Medical Regulator (FMR) is attached to the surgeon of the supported unit for duty. It is the FMRs responsibility to:

1. Establish and maintain contact with 55th Medical Group treatment facilities, aeromedical evacuation units (Dust Off element and 903d Aeromedical Squadron), and the (MRO).

2. Assure that the physician has assigned an evacuation precedence to each patient and in the event a Medical Corps officer is not available, assist the supporting medical company in assigning a precedence.

3. Arrange, coordinate, and direct the evacuation process. As a representative of the 55th Medical Group MRO he assumes control for evacuations from the division level medical service to fixed treatment facilities at field army level as follows:

a. The Medical Corps officer at the clearing station gives the FMR the diagnosis and evacuation precedence of the casualties.

b. The FMR radios the Group MRO, relaying the diagnosis and the evacuation priority. The MRO takes into consideration the diagnosis, possibility of a surgical backlog, distribution of workload, availability of beds, and most important of all getting the casualty to the professional team best prepared to attend his injury. A destination hospital is decided upon and the evacuation of the casualty to that hospital is coordinated with "Dust-Off" or the 903d Aeromedical Evacuation Squadron of the Air Force. (Note: Evacuation by ground ambulance to the rear is virtually non-existent in Vietnam due to the insecurity of roads, the terrain, and the time factor.)

c. The MRO radios the name of the destination hospital and the ETA of the evacuation mission to the FMR, all within a matter of minutes.

* Assistant Operations Officer, 55th Medical Group.

55th MEDICAL GROUP FMR, SSG HERBERT WRIGHT, COORDINATING THE EVACUATION OF CASUALTIES FROM THE 4th INFANTRY DIVISION UTILIZING RADIO COMMUNICATIONS.

LESSONS LEARNED

During 1966, the 55th Medical Group supported ten combat operations in II CTZ (N). Evacuations were controlled by placing a field medical regulator with the division level medical service, usually located at the forward support area (FSA). The following significant operations supported by this group reveal clearly the need for fast, efficient and reliable radio communications:

1. Operation Hooker II (Phase II Operation Henry Clay) (U) 12 July - 31 July 1966.

a. Mission - provide medical support for the 1st Cavalry Division and the 1st Bde, 101st Airborne Division conducting surveillance and ambush operations vicinity Ban Blech and Cheo Reo.

b. Remarks - the use of FMRs to coordinate the evacuation of casualties from supported units to receiving hospitals was proven necessary and feasible during this operation, but the major problem encountered was one common to all regulating in Vietnam - poor communications. The 55th Medical Group recommended that appropriate radio equipment be made available to accomplish the regulating mission. On 25 September 1966, they procured two RT-718/FRC-93 (Collins KWM-2A Single side band) radios which gave direct communications with the FMR in the support area, and greatly facilitated the regulating of casualties.

2. Operation Thayer (Phase I) (U) 13 September - 1 October 1966.

a. Mission - provide medical support for the 1st and 2d Brigades of 1st Cavalry Division conducting a search and destroy operation in Northern Binh Dinh Province, Vietnam.

b. Remarks - During this operation the danger of total reliance on aeromedical evacuation was demonstrated. Weather conditions on at least three occasions precluded evacuation from the FSA. All phases of the operation were hampered by lack of reliable communications.

3. Operation Hawthorne (U) 20 May - 10 October 1966.

a. Mission - to provide medical support for the 1st Cavalry Division operation in the vicinity of Dak To.

b. Remarks - during the initial stages the lack of direct radio communications between forward FMRs and the 55th Medical Group FMRs and medical evacuation units, impaired the medical regulating operation. Messages between the Group MRO and FMRs were transmitted by teletype, a slow and laborious process under the circumstances. Land lines were not initially available and FM radio relay through units was utilized. It was found, however, that relay introduced error and misunderstanding and it should only be utilized as a last resort.

4. Operation North Carolina (U) 7 October - 3 December 1966.

a. Mission - provide medical support for the 1st Battalion 503d

Regiment, 173d Airborne Brigade while they furnish physical security for the logistical complex at DA Nang.

b. Remarks - this was a standard medical support mission with the new concept of long range direct radio communications being utilized and successfully providing direct contact with the FSA.

5. Current operations.

The 55th Medical Group acquired additional RT-718/FRC-93 (Collins KWM-2A) transceivers during 1967, and has supported as many as nine separate brigade-size task forces simultaneously. Currently the 55th Medical Group is supporting the 1st Cavalry Division (AM), 4th Infantry Division, 173d Airborne Brigade, and Americal Division utilizing FMRs and direct radio communications. The brigade usually operate independently and are subject to rapid displacement, creating a need for equal flexibility of medical support.

55TH MEDICAL GROUP COMMUNICATIONS ROOM

Each move requires reestablishing lines of evacuation from division level medical service to field army medical service. In order to meet such a commitment, direct radio communications is of the utmost importance in accomplishing the mission.

RADIO EQUIPMENT AND ITS UTILIZATION

Terrain and distances involved are major considerations when radio communication is to be established.

For short distance and ground to air communications (Dust-Off); AN VRC-46/47 are utilized. This FM transceiver provided reliable short range, two-way communications.

Within the 55th Medical Group the FM transceivers have been utilized to facilitate coordination between the hospital and incoming medical evacuation helicopters. Their employment by hospitals has reduced "waiting time" for professional personnel in the emergency room and permitted other personnel to be utilized more efficiently. Direct communications between the Dust Off helicopters and the hospital, or a relay by the group station to the hospital, gives the hospital a firm arrival time when the evacuation craft is within ten to fifteen minutes to touchdown, thus insuring assembly of the necessary personnel and equipment to care for the casualties.

For long distance communications over all types of terrain and distances varying from several miles to hundreds of miles, the RT-718/FRC-93 (Collins KWM-2A) is being employed with excellent results utilizing frequencies in the 7 megacycle range.

The RT-718 transceiver is unmatched for versatility, dependability, and mobility. This transceiver has provided outstanding communications throughout 55th Medical Group's area of responsibility. The unit is lightweight and easily transportable in its CC-2 Samsonite carrying case.

SUMMARY

Medical Groups are responsible for coordination of casualty evacuation from the division level medical service to field army level treatment facilities. To accomplish this mission the 55th Medical Group employs FMRs attached to the supported medical unit. These FMRs utilize AN VRC/46 FM transceivers and RT-718/FRC-93 SSB transceiver to maintain constant communication with the medical regulating office at group level. Through the FMR, the MRO coordinates patient evacuation, distributes the workload, and directs the casualty to the professional team best prepared to care for his injury with the least possible delay.

The AN VRC/46 FM transceivers have been found to be the most valuable in establishing communications between hospitals and the incoming "Dust Off" helicopters. Their use in this manner contributes to the efficient utilization of available manpower and insures that necessary personnel and equipment will be assembled to care for incoming casualties.

The RT-718/FRC-93 (Collins KWM-2A) single side band transceivers provide long range communications. They have made it possible for the MRO to maintain constant contact with the FMR and major treatment facilities. This equipment provides the means by which casualties are regulated to the hospital and professional team most capable of caring for them. Hours and minutes may be lifesaving, and communications are helping to shorten the "hit to hospital" time.

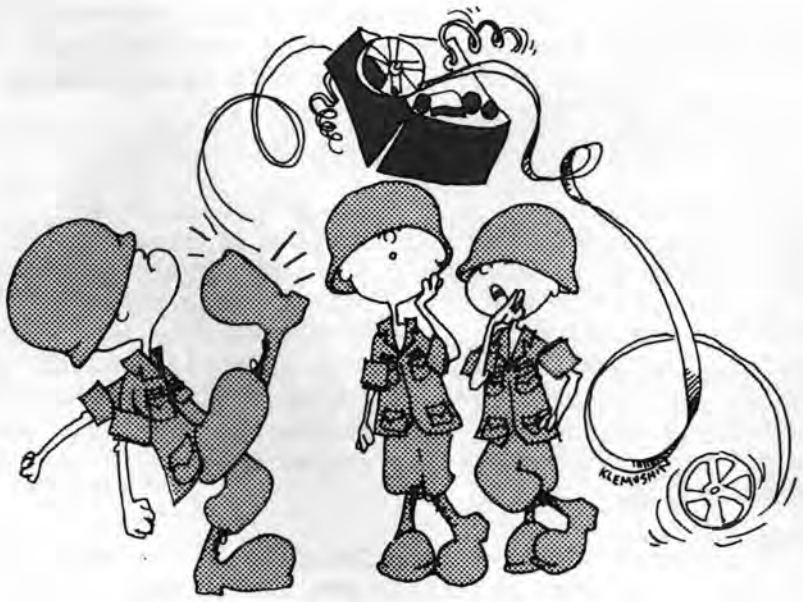
CONCLUSIONS

Adoption of the field medical regulator concept utilizing radio communications throughout Vietnam would facilitate the coordination and control of casualty evacuation.

The field army medical services should have adquate organic communications equipment capable of fast, reliable long range communications (0-500 miles).

A special course of instruction at medical brigade level to train selected field medical regulators should be initiated. This instruction would include a review of field army facilities and their capabilities, principles of triage and casualty evacuation, and radio communications.

An awareness program should be initiated within the medical service to acquaint commanders and staff officers with the presence, capabilities, and utilization of radio communications in the control of casualty evacuations.



"HE JUST GOT A ...
DEAR JOHN TAPE."

A MICROBIOLOGY GUIDE FOR HOSPITALS AND DISPENSARIES

Colonel Hinton J. Baker, MC*

The following notes are a guide to help laboratory supervisors budget the microbiology effort of limited medical laboratory resources for the most meaningful results.

1. Laboratory results are provided for the medical officer only to help establish or disestablish a diagnosis that has been arrived at by a careful history and physical examination. If the patient load is overwhelming for the doctor it can be just as overwhelming for the laboratory. Triage is the only solution in such instances and only the medical officer can perform the triage. The medical officer who supervises the medical laboratory is responsible for establishing the priorities. Laboratory technicians must develop procedures to fit those priorities.

2. The priorities for procedures are based on how much the laboratory result will influence the decision of the medical officer in care of the patient and the importance of that decision. For instance, the result of a malaria smear on a febrile case influences the decision for the kind of therapy far more than a gram stain of a urethral discharge from a patient with characteristic history of acute, burning sensation on urination and a very recent urethral discharge. Furthermore, a misdiagnosis of the fever would more often have serious consequences than misdiagnosis of the urethral discharge.

3. A number of procedures in microbiology are recommended to provide meaningful results.

a. Blood culture should be stressed as important in fevers with elevated WBC or in typhoidal cases. The information derived can be life saving in melioidosis. The decision for blood culture should be reached prior to administration of antibiotics. Extreme asepsis should be exercised in skin preparation and transfer of the blood so that a valid interpretation is made of growth that appears. The bottle should not be disturbed during incubation until visible growth appears. Blood culture should be repeated as indicated by evidence of continued sepsis. Rewarding information is obtainable in some febrile cases from examination of buffy coat or skin lesions.

b. Urinary tract infection should be detected by collection of voided urine (mid-stream portion) in sterile glass container with cover. A sterile 6.5 mm diameter loop is used to place a drop on a clean slide. Also, a drop of the urine sediment from a sterile centrifuge tube with stopper placed on the same slide at a point marked "S" also with the 6.5 mm sterile loop. The drops are allowed to dry, fixed with heat and stained by methylene blue. Any bacteria seen in the unsedimented specimen indicate significant bactiuria and require culture. Absence of bacteria in the sediment precludes culture. In cases of recurrent urinary tract infection showing cocci in the sediment, seek to identify enterococci. The results of culture should be consonant with the findings in the stained slide.

*Commanding Officer, 9th Med Lab

c. Wound infection - the most serious kind of wound infection is clostridial, involving muscle. The specimens should be taken from wounds that involve skeletal muscle and particularly those associated with fracture or compromised arterial blood supply. The specimen should be taken at first dressing after debridement. Exudate should be wiped away and a dry sterile swab put onto or into the exposed muscle and left for a period of seconds to be thoroughly soaked. This swab is agitated in 1 ml of cold sterile nutrient broth until swab content and broth are thoroughly mixed. The swab is wrung dry on the side of the tube and removed. Using a 6.5 mm sterile loop, one drop of the broth mixture is placed on a clean slide which is fixed and stained as in the attached direction. Any blunt ended, parallel sided Gram positive bacilli seen can be assumed to be clostridia and represent one million per milliliter of the patient's muscle at the point of sampling. This is a significant infection and indicative of need for further debridement. The contaminated broth is kept cold until the slide examination is completed. If Gram positive rods are seen, the broth is streaked on egg yolk blood agar plates and incubated in an anaerobic jar. The clostridia can be identified as to species by colonial morphology. The type of hemolysis and reaction with the egg yolk. Staphylococci and streptococci can also be identified on this medium.

The microorganisms of primary concern in wound infections are the proteolytic Gram negatives, Pseudomonas and Proteus. These can be readily identified on an aerobic EMB plate streaked from the cold broth. Pseudomonas aeruginosa is particularly important in the ecology of the wound flora in that it has an affinity for perivascular spaces and compromises the vital exchange between small vessels and tissues.

All plates should be streaked by a standard method to provide a quantitative estimation of each bacterial species. This estimate provides a key to assessing the significance of each microorganism. Although the procedure appears detailed and complicated, the simplicity lies in the primary assessment of the Gram stain from the tissues. The culture attempts only follow the significant findings made in the primary Gram stain. Hence many costly but meaningless culture attempts are eliminated.

d. Enteric infection - only two bacterial infections of the bowel are regularly known to persist in our soldiers in Vietnam. These are typhoid and paratyphoid. These infections are found among cases of FUO with abdominal distress. The dysenteries, on the other hand, are far more common but of shorter duration. The bacillary dysenteries are self-limiting in Americans and essential therapy of fluid and electrolyte replacement is most frequently determined by clinical rather than laboratory findings. The identification of the causative agent is of use for disease prevention. Although the identity of the agent provides some satisfaction to the physician, the information is rarely available to influence decisions on specific patient care. Since the major aim of identifying these agents is to effect hygiene in military compounds rather than in the indigenous population, these agents associated with multiple cases from a particular unit are of greatest significance. Even though the cases are seen by different doctors, a system in outpatient services or dispensaries that promptly reflects multiple cases of the same type from the same unit can yield valuable information. However, it

is only necessary to obtain stool swabs from a representative sampling of cases in such outbreaks to identify a single causative agent. Such specimens should be placed in holding medium and marked "Disease Outbreak" to assure reporting to all concerned in disease outbreak control.

With the exception of an outbreak within a single unit, the most efficient way to identify bowel pathogens among sporadic cases is to treat symptomatically for 48 hours. If symptoms have not diminished after that time a careful laboratory examination is indicated for both intestinal protozoa and bacterial enteric pathogens. More than 80 per cent of diarrheal disease in Vietnam will abate under symptomatic therapy. From this large group of cases few pathogenic microbes can be identified by our laboratories. On the other hand in cases with persistent symptoms for 48-hours in spite of symptomatic therapy the laboratory can be very effective and the results rewarding. Under the reduced load of material, the laboratory has the opportunity to produce the quality work required. Some signs and symptoms of the disease in the request will sharpen the focus in the search for a particular type of pathogen.

e. Spinal fluid is first examined by a Gram stain of the sediment, or an India ink preparation, if indicated so that an immediate report can be made. The Gram stain will indicate the media and conditions required for culture and sensitivity studies.

If the bacteriological culture facilities are limited place 0.1 ml of the sediment into a tube of Carey-Blair transport medium and send to the 9th Medical Laboratory or to one of its branches. If no bacteria are seen in the spinal fluid, draw an acute phase serum specimen and mark the case for a repeat serum sample in 14-21 days. Send both sera and a request for antibody titer for meningeal disease to the 9th Med Lab.

f. Pneumonia - make a smear of the sputum and stain by the Gram method. Culture the sputum on blood agar and "melioidosis" medium. Seek to identify Pneumococcus pneumoniae, staphylococcus aureus, Streptococcus hemolyticus, Hemophilus influenzae or Klebsiella on the blood agar plate. Interpret the culture results consonant with findings on the Gram stain. Any growth on the "melioidosis" medium should be sent immediately to the 9th Med Lab or its branches for confirmation of Ps. Pseudomallei. In suspect cases of Ps. pseudomallei draw an acute phase serum and send to the 9th Med Lab for test of Ps. pseudomallei antibodies. Draw a serum for such test weekly until such tentative diagnosis is abandoned.

g. Gonorrhea - smears for Gram stain of urethral discharge should be limited to cases where the history for gonorrhea is atypical or where the patient has failed to respond to conventional therapy. There there is clear evidence of continuing infection, rather than reinfection, a swab of the urethral discharge is placed in Carey-Blair transport medium and delivered within 12-hours to the 9th Med Lab or to one of its branch laboratories. These cultures are useful in surveillance for N. gonorrhea strains resistant to conventional therapy or for the identification of other agents of urethral infection. The efforts devoted to such studies would be more meaningful than routine Gram stains of all urethral discharges.

h. Serological studies are based on the demonstration of an increase in antibodies formed in response to a specific infection. These antibodies do not reach significant levels until at least ten days after onset. Serum samples collected earlier than this time are most often negative for that episode and such negative result has no diagnostic significance. The request slip should note date of onset of disease.

i. Lindsey clearing technique - for the clearing of smears made from wound exudates:

Method

1. Air dry smear at room temperature
2. Fix dried smear for one minute with 95 per cent ethanol
3. Rinse smear in chloroform for five to ten minutes
4. Soak for five to fifteen minutes in tap water (Time varies with the amount of blood, protein, etc. in the smear)
5. Air dry the smear at room temperature
6. Gram stain. Air dry again
7. Clear the smear with a mixture (1:1) of methyl salicylate and methyl benzoate.

Optimum clearing varies from five minutes to six hours or more, depending on the density of the smear. Normally a twenty minute clearing will suffice. If more clearing is needed, return the slide to the mixture; if the slide is over decolorized, restain and clear again.

4. These notes are set forth as a guide to provide within the capability of medical laboratories in Vietnam which could most often contribute to the welfare of the individual patient and to the prevention of disease in the population of soldiers. Comments are welcomed as are contributions to the improvement of the guide.

HEARING AID MAINTENANCE

Medical units should be familiar with the provisions of AR 40-3, para 112 concerning the repair and replacement of defective hearing aids. Only the replacement of hearing aid batteries can be accomplished in country. All requests for hearing aid maintenance (other than the replacement of batteries) should be forwarded to the nearest evacuation hospital medical supply officer. In turn he will determine the need for repair with the Audiology and Speech Center, Walter Reed Army Medical Center.

All individuals who wear hearing aids should have a spare in their possession before departing CONUS. In the event that an individual has only one in his possession, arrangments for the procurement of the second one should be made in accordance with the procedure outlined above.

NEUROSURGICAL NURSING IN A COMBAT ZONE HOSPITAL

Captain Margarethe Hawken, ANC*

The heart and the art of nursing as well as the technical skill and knowledge is of the essence in the field of neurosurgical nursing, in a combat zone hospital. Unlike neurosurgical patients in stateside medical facilities the combat wounded neurosurgical patient usually has multiple wounds requiring the attention of numerous specialists along with the neurosurgeon. The multiplicity of wounds must be cared for utilizing a hierarchical system of priorities in order to provide the patient with the best possibilities for survival and recuperation. Wounds inflicting insult to back or extremities usually have a lower position on the priority scale than wounds to the brain, chest, abdomen or circulatory system. The responsibility for assessing the needs of the patient lies with the attending medical officer who, in turn, depends greatly upon the nursing staff to keep him informed of any change or deterioration in the patient's condition. Such surveillance extends from the moment the medical helicopter delivers the wounded man, woman or child to the heliport at the 24th Evacuation Hospital to the time the patient leaves the hospital. The majority of patients are further evacuated by air to CONUS or in the case of Vietnamese patients to their homes. Even in the case of civilians the majority of wounds are inflicted by mortar fragments, mines, booby traps and sometimes by vehicular accidents not directly the result of enemy actions.

It is imperative that besides the specially selected nursing staff on the neurosurgical ward the nurses in attendance in the emergency room, pre-op ward, operating room, and sometimes even on the general postoperative or orthopedic ward be cognizant of the total needs of the patient with neurosurgical problems. Basic principles of pre- and postoperative care are the same for all surgical patients—a patent airway, control of hemorrhage, prevention or treatment of shock, maintenance of proper fluid and electrolyte balance, proper hygiene, and prevention of infections or further traumatic insult to the body. In addition, the neurosurgical assessment of the vital signs include a mental status classification, careful observation for signs or symptoms of increased intracranial pressure, irrational and even violent behavior, and level or degree of consciousness.

The terrain in which the solider finds himself when trauma is inflicted militates against keeping the wound completely free of infectious agents. The jungle or marshland, the infested hamlets and tunnels, etc., commonly abound in virulent strains of such organisms as Pseudomonas or Klebsiella which are frequently resistant to the majority of the most commonly used antibiotics. Only by scrupulous attention to proper hand washing procedures coupled with a continued awareness of the lurking danger from cross infection can the hospital staff combat these forces of evil. Compounding the problems the patient brings with him to the hospital ward is the lack of facilities for running water and scrub sinks. Alternate methods of hand washing such as basins of water and germicides have to be employed, at the present time. Frequent changing of solutions is a must and all personnel must be kept aware of this fact.

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The typical picture of the neurosurgical battle casuality at this hospital is a person with multiple wounds, internal injuries, infections, head or spinal cord trauma, frightened and in pain at times, helpless or disoriented at other times. These proffer all the ingredients needed to cook up a batch of nursing personnel devoted to giving bedside care and adhering to the highest principles of the nursing profession. This is the caliber of nurse and nursing assistant we seek when making ward assignments.

When the neurosurgical patient arrives on the ward his condition is carefully evaluated by the nurse and the nursing assistant. A report of the patient's condition comes with the patient from the Recovery Room nurse and is important to the ward nurse before the patient is even moved from the litter to the gatch bed on the neurosurgical ward. If no back injury is involved the patient's head is immediately elevated 30 degrees. This facilitates venous return, thereby helping to reduce intracranial pressure. If unconscious, the patient is placed in a coma position and turned at least every two hours to prevent stasis pneumonia and decubitus ulcers. All wounds and dressings are checked for drainage and bandages reinforced or changed as required.

All brain injury patients are placed on neurological vital signs every hour for at least twenty-four hours. As the patient's condition stabilizes and the level of consciousness rises this requirement changes to every two hours and later to every four hours. Spinal cord injury patients are observed for extremity movement as well as routine vital signs.

Neurological vital signs include mental status or level of consciousness, movement of extremities, pupillary equality and reaction, blood pressure, pulse, respirations and temperature. Changes or variations in any of these signs may be of life saving or threatening importance and must be reported immediately to the neurosurgeon for it may be necessary to return the patient to the operating room with haste to alleviate increased intracranial pressure.

At this hospital a mimeographed sheet entitled "Mental Status Classification" is kept on every ward but especially in the areas receiving the majority of neurosurgical patients. The sheet reads:

ALERT: Normal.

AWAKE: May sleep more than usual but is fully oriented when aroused or may be confused at times.

LETHARGIC: Drowsy but when stimulated obeys simple commands.

STUPOROUS: Very hard to arouse - looks around when stimulated - may obey commands at times. May curse or say "Don't" when stimulated.

SEMICOMATOSE: Purposeful movements when stimulated. Doesn't obey commands or answer questions. Doesn't talk at all.

COMA: Decorticate - Draws hands up onto chest when stimulated - but NOT PURPOSEFUL.

Decerebrate - Extends arms and legs, arches neck and internally rotates hands and arms when stimulated.

Unresponsive - No response to any stimulus - the deepest state of coma. Usually precedes death.

The medical treatment of neurosurgical patients follows a pattern. Five days of intravenous therapy with massive doses of antibiotics are standard postsurgically. Then oral and intramuscular medications are given in conjunction with Dilantin and sometimes Decadron. If the patient remains incapable of accepting oral fluids, a nasogastric tube is inserted and tube feedings initiated for as long as necessary. For the patients having tracheostomies certain practices have been instigated not only to prevent cross infections but also to decrease the incidence of tracheitis. Along with routine tracheostomy care which involves regular cleaning and instillation of saline every four hours two small necked bottles (IV bottles work well) are set up at the bedside. One contains Zephiran Chloride 1:1000 in which the suction catheter is soaked after use. The other contains water for cleaning and soaking the catheter prior to insertion into the tracheostomy tube for sucitioning. This washing is done in an effort to prevent tracheitis.

The neurosurgical ward knows no night nor day. The intensive nursing care continues unabated around the clock. Besides the technical aspects of the work performed the mundane tasks of feeding, bathing, turning, positioning, oral hygiene, aiding bowel and bladder elimination, skin care to prevent pressure sores and changing bed linens continue steadily throughout each twenty-four hour period. This requires nursing art as well as scientific knowledge and skill.

The third dimension for neurosurgical nurses involves the extra something that the nurse must give to the patient without ever being sure that it is not simply wasting time. This includes reading letters from home to patients who show no visible sign of understanding what is being said. It is writing letters for patients who take ages to go from one word to the next and also to be sure the letters are understandable when they reach loved ones back home. It is to be sympathetic and kind and patient even when overburdened with ward tasks so that an emotional crisis for the patient does not end in a display of exasperation which would be embarrassing to all concerned. The hopelessness that floods over the soldier with an inoperable cervical spinal wound can be overwhelmingly traumatic for both the patient and the young man or woman who is giving him nursing care. Also, the hopelessly childlike condition of many of those with brain damage can cause stress to all concerned, and who are in daily contact with these patients for long hours. One must use heart and head in equal proportions in order to complete successfully a tour of duty on a neurosurgical ward in a combat zone.

Teamwork, esprit de corps, devotion to duty, a sense of humor and a good strong back are the requirements for surviving a year of nursing in Vietnam and nowhere is this mixture more necessary than on the nursing service of a neurosurgical ward.

DIVERSE MANIFESTATIONS OF MELIOIDOSIS

Captain Richard A. Krebs, MC*

Disease caused by Pseudomonas pseudomallei is being diagnosed with regularity in the Republic of Vietnam III Corps area. Several articles have appeared in USARV publications that describe the clinical picture and approach the treatment of this disease. (1,2,3)

Brief case histories of patients recently hospitalized at the 12th Evacuation Hospital will be presented to demonstrate a spectrum of clinical syndromes seen in melioidosis.

Case 1 - D.V.

A 19 year old enlisted man entered the hospital with a one day history of fever, chills and cough with expectoration of dark red sputum. Examination revealed a toxic dyspneic patient with a temperature of 104°F. A chest radiogram showed a diffuse bronchopneumonia. He was treated with penicillin and colistin without benefit. A sputum culture grew gram negative rods, later identified as P. pseudomallei, sensitive to Chloramphenicol and Kanamycin. The antibiotic regimen was replaced with Kanamycin (4 gms daily) and Chloramphenicol (8 gms daily). There was improvement in the temperature, roentgen and clinical appearance. On the sixth day, however, anuric and azotemic supervened. He was transferred to the Renal Unit at 3d Field Hospital where the renal failure was successfully managed by peritoneal dialysis. He became afebrile and the chest radiogram cleared completely without the need for further antibiotic therapy. His renal function was eventually restored completely.

Case 2 - W.C.

A 20 year old enlisted man noted the onset of left pleuritic pain on the day of admission. He was acutely ill with a temperature of 104°F. His chest radiogram showed a small infiltrate in the left mid-lung zone. On the following day, a large pleural effusion appeared containing mostly lymphocytes and sterile on culture. Bronchial washings also showed no growth. The hemagglutination (HA) titer for melioidosis was greater than 1:1280. He was treated with aqueous penicillin (40 M units daily) and repeated thoracenteses. The pleural effusion and pulmonary infiltrate cleared within three weeks.

Case 3 - J.F.

A 35 year old soldier was admitted with a four day history of anorexia, nausea, epigastric pain and fever. He was febrile (102°F) and had splenomegaly. Malaria smears, blood and urine cultures, serological tests for leptospirosis, dengue and scrub typhus all were negative. Chest radiogram, upper GI series and IVP were normal. Melioidosis HA titer was greater than 1:1280. Treatment with Tetracycline (2 gms daily) resulted in a complete clinical remission. He was treated for two weeks and remains well on outpatient follow up.

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Case 4 - W.J.

A 35 year old male had a two week history of intermittent pleuritic chest pain, cough and diaphoresis and was noted, on admission, to have a temperature elevation to 104°F as the only abnormal physical sign. Normal laboratory findings included CBC, urinalysis, malaria smears, blood cultures as well as serologic studies for dengue, leptospirosis, and scrub typhus. An ECG showed ST elevation suggestive of pericarditis. The SGOT rose to 80 units. He continued to have spiking temperature elevations to 104-105°F for two weeks after which there was gradual improvement without specific therapy. The results of HA titer for melioidosis obtained after the patient was discharged was 1:1280. He has remained well and is followed as an outpatient.

Case 5 - K.M.

This 36 year old male was admitted after three week history of daily temperature elevations to 100-101°F. Physical examination was normal as were the routine serologic studies for a febrile illness. The initial chest radiogram was normal but after two weeks an infiltrate developed at the right lung base; this progressed in size and density over the next five days. Bronchial washings and blood cultures were sterile. The melioidosis HA titer 1:1280 prompted the use of Tetracycline (2 gms daily). The temperature lysed to normal abruptly and the infiltrate cleared within two weeks. Treatment was continued four weeks. He remains well on outpatient observation.

Case 6 - M.H.

This 20 year old male gave a history of pleuritic type chest pain for approximately one month. Physical examination was normal but chest radiogram showed several small, thin-walled cavities with surrounding infiltrate in the left lung apex. No sputum was produced and a percutaneous aspiration of the area was bacteriologically sterile. PPD intermediate skin test was non-reactive. Within one week, under symptomatic treatment alone the chest radiogram showed a decrease in the size of the cavities. At two weeks no cavities were noted and the infiltrate diminished; within three weeks it had cleared completely. Chest pain gradually resolved and the patient remained afebrile. The melioidosis titer was greater than 1:1280.

Case 7 - L.C.

A 26 year old male was admitted because of chills and fever. He had fallen and injured his head several days before. Physical examination revealed a temperature of 103°F and a large subcutaneous hematoma of the right frontoparietal region. Routine laboratory studies were normal. Treatment was symptomatic although he continued to spike fevers daily. Purulent fluid was aspirated from the scalp lesion. This material grew P. pseudomallei; the HA titer for melioidosis was greater than 1:1280. The area was incised and debrided. Chloramphenicol (4 gms daily) was instituted. The patient was evacuated out of country but he is reported to have done well on the above therapy.

Case 8 - J.G.

A 20 year old male entered the hospital with a one month history of a cutaneous leg ulcer. The ulcer (8 x 10 mm) was noted to have an infected base with rolled edges and had been refractory to wet dressings. A biopsy of the edge was interpreted as showing non-specific inflammation. Cultures repeatedly grew P. pseudomallei. The melioidosis titer was initially 1:5120 and within ten days was 1:10,240. The ulcer was treated with local debridement, continuous saline dressings and topical bacitracin. The ulcer healed completely in six weeks.

Case 9 - J.J.

This 22 year old male was admitted with a two day history of retrosternal pain, cough and fever. Physical examination was normal except for absence of the PMI on inspection and palpation. A chest radiogram disclosed an enlarged cardiac silhouette. The ECG showed ST changes characteristic of pericarditis. Pericardiocentesis produced 35 cc of sanguinous fluid with no growth on routine culture. A pericardial friction rub developed on the third day. Temperature elevation to 103°F continued daily and prednisone (40 mg daily) was started. There was gradual improvement and he was evacuated to CONUS. The melioidosis titer later returned 1:1280. No follow up data is available at present.

Case 10 - E.F.

A 20 year old male presented with a history of an intermittent febrile illness, dyspneic and chest pain for one month. On examination the temperature was 102°F and heart tones distant. The chest radiogram revealed an enlarged cardiac silhouette. Purulent fluid obtained by pericardiocentesis grew P. pseudomallei on culture. He was treated with Staphcillin (8 gms daily) and Chloramphenicol (8 gms daily). The patient became progressively more toxic with hypotension, acidosis and cyanosis. Repeated pericardicentesis yielded only small amounts of fluid. Isuprel, corticosteroids and bicarbonate solution afforded only temporary improvement. Anuria appeared on the third hospital day and it was elected not to use Kanamycin. Confusion and disorientation ensued; terminally the temperature rose to 105°F. Autopsy disclosed a purulent pericarditis and pleuritis with no evidence of generalized dissemination.

Case 11 - D.H.

A 20 year old male was admitted after two weeks of anterior, left pleuritic pain. Physical examination was normal except for temperature elevation of 102°F. A chest radiogram showed a large infiltrate with cavitory formation. Sputum smear and culture were normal; PPD intermediate skin test was non-reactive. The melioidosis HA titer was 1:1280. He became afebrile without antibiotic therapy but was evacuated to CONUS since the illness occurred near the termination of his tour of duty (DEROS).

Case 12 - M.S.

This 23 year old male was admitted with a three day history of right pleuritic chest pain. Temperature was elevated to 101^{8}. Chest radiogram showed a discrete infiltrate in the superior segment of the right lower lobe with a superimposed cavity. During the febrile course the infiltrate and cavity enlarged. The melioidosis titer was 1:1280. Chloromycetin (4 gms daily) was instituted. He quickly became afebrile and the chest radiogram cleared in three weeks. The patient remained well and is followed as an outpatient.

DISCUSSION:

Melioidosis has been described characteristically as "an acute febrile and fatal illness with pulmonary manifestations." (4) That the disease may also be subacute has been pointed out be a previous article in the MEDICAL BULLETIN. (3) Recent publications have emphasized the fulminant and fatal characteristics of this infection(5), and even the press has been quick to portray it as an unusual and sometimes devastating disease.

In contrast, most of the cases seen at the 12th Evaucation Hospital have not been the acute and fulminant form of the disease but rather a more subacute clinical syndrome. Only in case one and ten was the disease significantly advanced to be considered acute or fulminant. The remaining cases were subacutely ill and responded to ordinary doses of broad spectrum antibiotics or symptomatic treatment.

Cases one and two presented primarily with the clinical picture of pneumonitis or pleural effusion; in each patient dyspnea was present but auscultatory findings absent. Leukocyte counts were in the normal range. Case two was treated with penicillin but the resolution of disease probably was not related to therapy.

Case three and four were eseentially patients with fever of unknown origin and the diagnosis made by serology alone. Case three appeared to have a dramatic response to treatment with Tetracycline but case four resolved his disease without benefit of antibiotics.

Case five developed a pulmonary infiltrate while in the hospital; this progress while under observation but resolved promptly once tetracycline was started. Case six was also observed in the hospital. His "cavitary" disease completely disappeared in three weeks.

Cases seven and eight are interesting examples of the cutaneous manifestations of melioidosis; one presented with a large, subcutaneous abscess and fever, and the other with an insignificant appearing but indolent leg ulcer.

Cases nine and ten are cases of pericarditis due to melioidosis. One was in all respects similar to the benign idiopathic variety of the

syndrome while the other was a fulminant disease leading to circulatory failure, anuria and death.

Case eleven and twelve illustrate that form of the disease which may mimic pulmonary tuberculosis. These patients show more toxicity in terms of fever and chest pains than the usual case of tuberculosis. Case twelve was treated with moderate doses of chloromycetin and made a prompt complete recovery.

The treatment of melioidosis has been outlined previously. (3) This author felt massive antibiotic dosages such as 12 grams of chloromycetin, 2 grams of novobiocin, and 4 grams of kanamycin daily were indicated. No doubt these are adequate guidelines for treatment of the fulminant variety of the disease. Fortunately this serious disease is not as common as the more subacute form which often responds to ordinary doses of chloramphenicol or tetracycline. On the basis of our experiences then, many patients with melioidosis will respond to tetracycline (2 gms daily) or chloromycetin (4 gms daily). The less common fulminant disease will require a larger dosage of antibiotics.

SUMMARY

Twelve cases of melioidosis have been presented to demonstrate the diverse manifestations of clinical infection with Pseudomonas pseudomallei. Most of the cases have been subacute, requiring only ordinary doses of broad spectrum antibiotics. A few cases are fulminant, however, and will require multiple antibiotic therapy comprising Kanamycin, Chloramphenicol and perhaps novobiocin in large dosage.

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MEDCAP ACTIVITIES AT CAM RANH BAY

LTC Ralph F. Wells, MC* & CPT Gerald R. Peterson, MC**

INTRODUCTION

Most Army physicians serving in the Republic of Vietnam have participated in or are familiar with the Medical Civic Action Program, or more concisely MEDCAP. Having elicited some rather ambivalent comments about the program from physicians in other units we would like to present a few observations on our own program which has had quite enthusiastic participation. It is hoped that the "Bulletin" will provide a forum wherein these observations can be critiqued and that it will trigger discussion based on the experience of others. The net effect should be of mutual benefit.

By way of background MEDCAP is broken down into two programs, MEDCAP I and MEDCAP II. MEDCAP I is a program conducted by the Vietnamese military for Vietnamese civilians while MEDCAP II is conducted by U.S. and Free World Forces for Vietnamese nationals in cooperation with Vietnamese health officials. In the Cam Ranh Bay area, MEDCAP participation includes not only the 61st Medical Battalion but the 12th USAF Hospital staff, ROK's and several physicians organic to units in the area. To prevent overlap or duplication of effort, MEDCAP activities are coordinated with the MACV physician, CORDS officials, representatives of each of the major participating organizations and the local Vietnamese Health Officer at monthly meetings held in the MACV compound in Ba Ngoi.

Participation in the program by physicians and dentists of the 61st Medical Battalion is purely elective. Activities are coordinated through the battalion Preventive Medicine Officer who has accepted this as an additional responsibility. By virtue of having a single officer responsible for rosters it assures adequate area coverage, reliable reports and better supply procedures. At the present time 17 to 19 physicians of the 61st Medical Battalion, all 4 of the dentists, and the physicians of the 87th Engineer Battalion and 6/71st Artillery are active. Enlisted participation is also elective and, as with the officers, is conducted in addition to regular duties. Most are enthusiastic about the program and are anxious to participate when other duties permit.

CAM RANH CITY - GEOGRAPHIC AND SOCIAL ASPECTS

Cam Ranh Bay is located on the central coast of Vietnam some 200 miles northwest of Saigon and 40 miles south of Nha Trang. The bulk of military forces are situated on a sandy peninsula about 12 miles long. The peninsula is located in Cam Ranh City, one of several independent cities not under a province government but directly under Saigon's central government. Cam Ranh City extends 37 km north and south along the coast and some 10 km inland. There are 28 hamlets, several of which are clustered together into larger villages. Two are located on off shore islands, three on the peninsula and the rest on the mainland. The city government and the MACV compound are both located in Ba Ngoi which is on the mainland across the bay from the main Army cantonement

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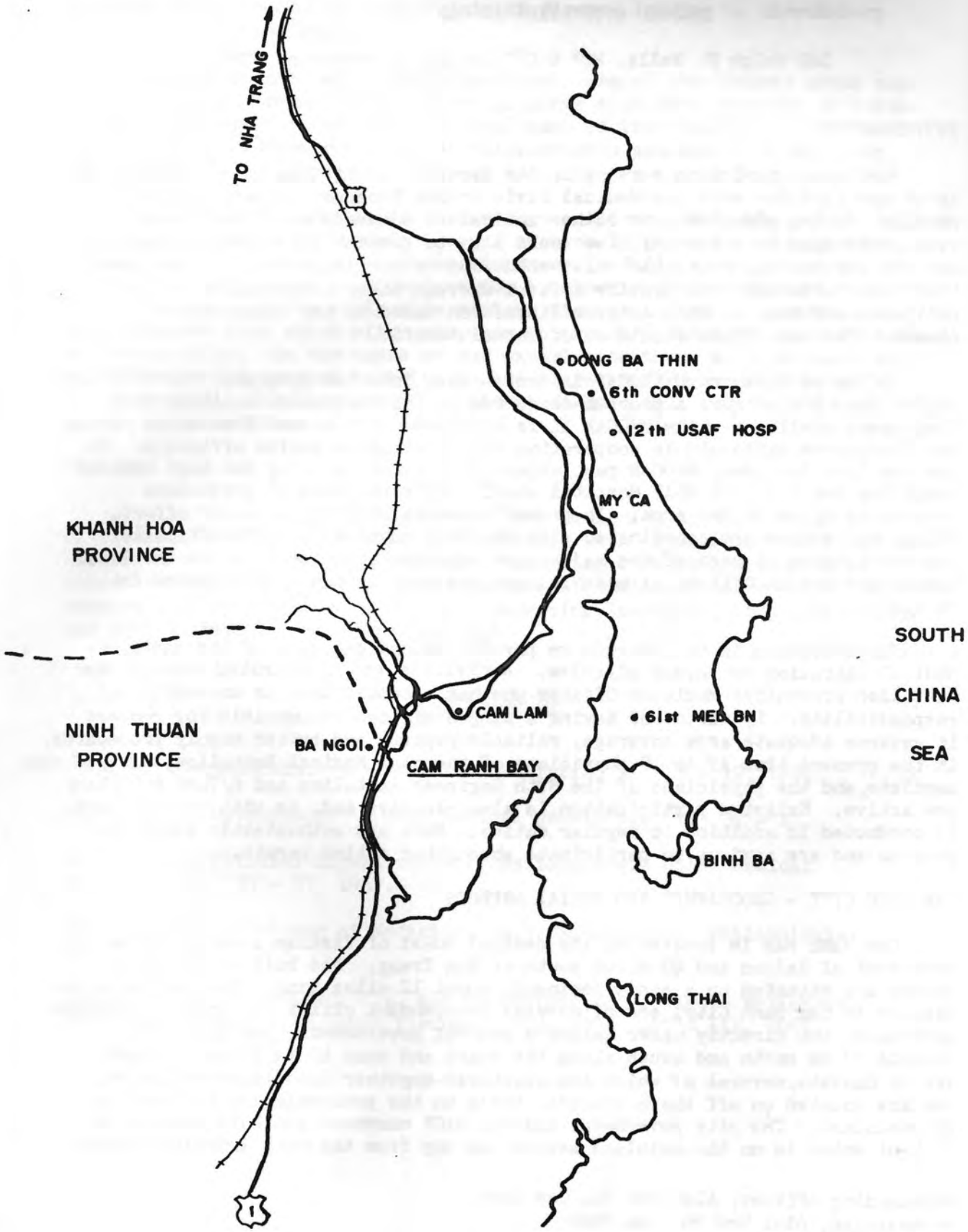

SCALE 1: 250,000

area. Midway down the west coast of the peninsula in the village of My Ca. We have arbitrarily divided Cam Ranh City by a line drawn through My Ca, and the Air Force covers the area north while the Army covers the area south of the line. The ROK's act as a float and operate in both areas. There are approximately 60,000 civilians living in Cam Ranh City, many of whom are refugees, the population having been under 35,000 in August 1966. The principal civilian health facilities are located in Ba Ngoi and consist of a small dispensary. In-patient care is available only at the Province Hospital in Nha Trang. By and large this area is secure and it has been possible to conduct a MEDCAP program in an unhindered fashion.

OBJECTIVES OF THE 61st MEDICAL BATTALION MEDCAP PROGRAM

The battalion program has had a three fold objective. The first has been to provide out-patient services on a regular basis. The second has been initiation of long range programs such as immunization and health education which can be sustained by the Vietnamese. The third has been a sustained effort to incorporate Vietnamese into both the immediate and long range programs. This has been achieved by utilizing Vietnamese nurses, health workers, interpreters, Vietnamese Navy medics, and in the case of visits to offshore islands, Vietnamese naval junks for transportation.

SPECIFIC PROGRAMS

The first phase of our activities and the one in which the most personnel participate is a regular weekly or bi-weekly "sick call" held in seven villages. A typical MEDCAP team is one or two Medical Corps Officers, a Dental Corps Officer, several medics, and a Vietnamese interpreter. In addition, the Vietnamese health workers residing in the different villages work with the team during these visits. Dental care is confined to extractions. Medical care is conducted on an out-patient basis with the patient's name, diagnosis, and medication record on a 3x5 card retained by the team. Seriously ill patients or those requiring laboratory or X-ray studies are referred to the province hospital. This is some 50 km distant and represents a difficult trip - usually by bus.

The principal long range program to date has been in the field of immunizations. In October 1967 a program to immunize all Vietnamese nationals employed by the Army on Cam Ranh Bay installations was initiated. Thus far some 5700 persons have received primary immunizations against cholera, plague, and smallpox. Booster cholera and plague immunizations have subsequently been given to over 4300 persons. On 31 October 1967 an immunization program for the general populace of Can Ranh Village was conducted and 1025 were immunized. The 12th USAF Hospital has been conducting an active immunization program in the northern half of Cam Ranh City, particularly for school children. The purpose of this has been to avoid a massive "crash" immunization program such as was necessary during the plague epidemic of March 1967. The plague vaccine has been a killed vaccine which requires a booster. The Pasteur Institute produces a live attenuated vaccine which provides successful one shot immunization. Its potency and availablity vary so it has not been used by us. Two observations are worth noting. First, despite the prevalence of skin infection, no major complications have occured with the smallpox vaccination. Second, there has been excellent acceptance of the program by the Vietnamese populace.

program by the Vietnamese populace.

A third specific program is that of dental education which is noteworthy in that it was requested by the superintendant of schools. This program was conducted with the help of the 437th Medical Detachment (KJ) using the Cam Ranh Village School as a pilot study. Field dental chairs were set up in a classroom and with the help of the teacher 3x5 cards were made out with the child's name. Examinations were conducted on successive weeks starting with the older children. Each child was classified by standard Army nomenclature (e.g. I, II, III, etc) and then was issued a "Crest" care package with toothbrush and paste. After all examinations were completed on each day the use of the toothbrush was demonstrated. After completion of the survey children in Class III were recalled for extractions. Three hundred and seventy children were seen and approximately 100 were done.

The 12th USAF Hospital has provided nurses to help conduct a 12 week training program for high school students and young adults to prepare them to act as village health workers. Several graduates of this program have subsequently participated in our MEDCAP activities.

Initially many problems were encountered in the area of medical supply. In July 1967 medical supply responsibility reverted to the 32d Medical Depot. Coincident with this a clinical specialist was designated exclusively for MEDCAP activities. He has done an outstanding job of maintaining stock levels in the medical chests used for MEDCAP visits. Chests are routinely re-stocked the morning following each visit. He had also been instrumental in maintaining accurate records of the number and type of patients seen.

CONCLUSION

This is a brief review of the MEDCAP experience of the 61st Medical Battalion. It is recognized that it has been conducted under unusually advantageous circumstances due to the relative security of the area and the availability of medical supplies. It has however, provided some insight into the medical problems indigenous to the area and has provided contact with Vietnamese nationals for physicians who might otherwise be restricted to a purely "G.I. practice.

Several challenges remain. There is an active interest on the part of Vietnamese officials in this area. We have a responsibility to provide education in terms of training health workers and in terms of general health and sanitation while we have a receptive populace. There is a need for improved health facilities in the area. The provision of such facilities offers opportunity for civic action projects by non-medical units and on a larger scale poses a challenge to CORDS.

The MEDCAP program has provided an intriguing and challenging bit of spice to the practice of the Army physicians in the area and has simultaneously met a very real need.

ESSENTIAL POINTS CONCERNING VIETNAMESE CUSTOMS AND HABITS

Colonel Vu Ngoc Hoan*

GENERAL

When sick, most Vietnamese do not want to be hospitalized. They treat themselves. They will request hospitalization only in extreme necessity, that is, when critically ill. However, they will request to go home after one or two days if they feel better. If they are not authorized to leave the hospital, they may leave by stealth. This is due to the fact that Vietnamese:

Do not like to receive medical treatment at hospitals.

They always think of their families. They are anxious about the living conditions of the family members during their absence.

They rarely quit their homes. They cannot sleep when staying at new places.

HOSPITAL ADMITTANCE

When a patient is admitted for medical treatment:

He should be requested to answer all questions required by the hospital at one time.

The relatives of the patient should be informed of the location of his bed.

MEDICAL EXAMINATIONS

If not necessary, female patients should not be directed to take off their clothes, since Asian women are usually shy.

Patients heads should not be touched or their buttocks patted, although such is the sympathetic gesture among Westerners.

When beckoning a patient, do not turn the hand palm upward and flex your index finger - this is a contemptuous gesture. Instead, turn the hand palm downward and wave your whole hand.

Asians consider western medicines hot and not fitting their anatomical structures. They should have explained to them the effect of these medicines to cure their diseases.

MESSING

Vietnamese are not used to eating the foods of westerners which they

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consider distasteful, such as butter and cheese. They should be given Vietnamese foods.

They cannot eat cooked rice mixed with milk.

Their spices usually are fish sauce, lime and green pepper. They rarely use salt.

They usually drink tea or boiled water. They should not be given coffee to replace tea.

VISITS AND LIGHT FOODS

When hospitalized, patients still want to receive information on the activities of their families. Therefore, they must be permitted to receive their relatives.

Relatives should be authorized to provide foods to patients, because only relatives know the tastes of patients, unless a critical sickness requires the patient to be subsisted on light foods.

DEATH

When a patient is going to die, his relatives should be immediately notified. If possible, transportation facilities should be assigned to a patient's relatives. Depending on a patient's religion, a priest or monk should be invited to administer last rites or baptism or to recite final prayers, whatever the case may be.

When a patient dies he should not be placed in a coffin until his relatives come to make a final visit.

Patient's relatives should be authorized to select the shrouding time.

If requested by the relatives of the patient, the hospital should assist in organizing religious services.

Hospitals should bury unclaimed corpses or those dead patients whose relatives are too poor to make burial or organize a funeral.

For other refined details, Regional Station Hospitals or Civil Hospitals should be contacted to obtain further information and assistance.

CONSULTATION CONCEPTS IN MILITARY MENTAL HYGIENE*

Colonel Matthew D. Parrish, MC**

It was discovered some time ago that most psychotics, neurotics, and delinquents were not under individual treatment by psychiatrists, social workers, etc., but were handled by laymen. Mental hygiene consultation with these laymen rather than with patients directly has often affected the lives of these patients far more than individual treatment would.

What is consultation? It is almost as old as medicine, but watch out, it may be a new concept to you.

Here is how it works: A doctor, a general practitioner, for instance, who has difficulty in diagnosing and managing a patient with a vague abdominal complaint calls in a consultant. Now the consultant, if he acts purely as a consultant, does one of two things.

1. He goes over the patient with the doctor and helps the doctor clarify his own thinking about the patient and about this area of medicine.

2. He listens to a case presentation in which the doctor's own techniques and prejudices are revealed, and without necessarily seeing the patient himself, he helps the doctor handle the problem.

Note that here the consultant has considered the doctor as a professional equal - a colleague. In medical centers, consultants do not always act this way because they are not purely consultant. They are also teachers and the relation between teacher and pupil often overshadows the relation between two professional men.

What are the advantages accruing to the little social system consisting of doctor, patient and family when that system utilizes a consultant?

1. The consultant brings a fresh outlook that is not so involved in the patient's life, the tediousness of patient care, or the pressure from the family, etc.

2. The doctor's own type of over involvement, and even his mistakes, are in themselves data which tell the consultant something of the problem, something which the doctor or his regular assistant could not have seen.

3. A consultant usually has experience in helping others to utilize their own resources.

4. A final advantage is usually that a consultant is technically trained in a particularly useful aspect of the problem.

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Note again, I did not say

1. That the consultant taught the doctor anything, nor
2. That the consultant told the doctor how to run his business, nor
3. That he gave any treatment to either patient or doctor, nor
4. That he took the patient out of the doctor's hands.

Of course, there are consultants who avoid being pure consultants in that they treat or teach. There are even some people who call themselves consultants when they take over the patient, but properly this is called changing therapists. It is not consultation.

MENTAL HYGIENE CONSULTATION

Mental hygiene consultation differs from ordinary medical consultation in that the mental hygienist consults not only with the doctors, but with all the other community "caretakers" who are responsible for the human relations within some group.

Examples of caretakers - commanders, teachers, lawyers, confinement officers, doctors and other staff officers. For simplicity, however, let us consider here only command consultation. For this purpose then, the following definitions will apply:

Caretaker - the commander and those officers commissioned and non-commissioned to whom he delegates a part of his responsibility for the mental health and the human relations within the military unit.

Patient - someone with an imperfect developmental history at whom the unit is currently pointing the finger and saying, "He has a problem."

Normal Person - someone with an imperfect developmental history but at whom his unit is NOT pointing the finger.

Consultant - a person trained broadly in one of the behavioral sciences who can work with the individual commander, with his patient, and with the entire unit as an individual organism which has its own behavior, symptoms, and life course.

What does the mental hygiene consultant do? Essentially, he does the same thing a medical consultant does. He helps the caretaker to clarify his own thought about his problem with the patient and to utilize, to the fullest extent, all the resources which the caretaker already has at his fingertips. Resources are intellectual, emotional and social. Here is an example of a consultation problem.

> A commander has many troops who are having trouble with excessive indebtedness. Commanders in neighboring units are having less trouble. The commander assails the debtors bitterly as dishonest and essentially inhuman. The mental hygienist, adopting the usual non-judgment attitude, does not condemn indebtedness as the commander has asked him to do, and eventually, from the commander's

attitude, it becomes evident that he himself is fighting against a tendency to go deeply into debt in his own affairs. The mental hygienist, in accepting debtors as human and likeable enough, has accepted also this debt anxious aspect of the commander. In the presence of the mental hygienist, the commander is able to accept it also. Thus the commander has opened the door to an area of creative thinking which was formerly blocked. He can now plan much more effectively how to deal with the problem of debt in the unit. He may even stimulate his own troops to work out effectively ways of handling the problem which have never been discovered before.

Note here that the consultant did not teach, did not advise, did not treat. As a consequence, though, the commander is now stronger and more resourceful than he was before the consultation. He is not more dependent upon the consultant to come and solve this problem again and again, or to teach him more and more. The tendency of this unit to mishandle indebtedness has been corrected by the unit itself with the commander as the responsible caretaker. This kind of practice strengthens the commander and the unit as a stable and creatively resourceful organism.

MENTAL HYGIENE

Let's look more closely at the programmed activity of mental hygiene.

A military psychiatrist who supports 20,000 troops may be supporting about one hundred units plus the dependent families connected with these units. Now, when these units are divided among the social worker, the psychologist and the technicians, each mental hygienist may have fifteen units to support. In dealing with these units, the mental hygienists often confer in groups or individually so that each technician is consultatively supported by an officer and the most experienced officers act as the consultants for the entire staff. This intrastaff consultation is frequently also combined with teaching.

Lets take the case of Company "A", a unit which no mental hygienist has ever observed before. Let's say that a social work technician is delegated to the unit and you are a psychiatrist supporting the technician. This technician keeps a book in which is recorded every unit he supports. Under each unit he records every "patient" referred from that unit plus other general observational data on the unit itself. Now this technician comes to you and says that Company "A" has referred three "patients" for administrative discharge evaluation and that, in addition, the supporting dispensary has referred one patient who has a mild phobic reaction that the unit and the doctor are now getting tired of.

At this point you must ask yourself: what is this unit trying to say to the Army Medical Service or to the unit's own higher command? What are the CO and First Sergeant trying to say to their troops? One thing fairly certain is that the commander using on the spot observation and using more

skill at command than you will ever possess has concluded that his unit would be better off without these three men. Similar communication is also coming in from the surgeon. You must respect these opinions. But you may also suspect that these four men constitute a social phenomenon within the unit and not just four isolated individuals who have difficulty in getting along in the world.

You arrange a personal visit to the unit area and take the technician with you. You feel out the attitude, policies and prejudices of the officers while the technician gets a feel for the NCOs--what are the troops, both "patients" and normals, complaining about? What are the real psychological difficulties which underlie the complaints. When you have become comfortable with the leaders of the unit you form a group of the four patients plus three or four normal troops who live or work closely with them. Sitting in the group with them you get these men to interact with each other. The more you get them to talk and to react emotionally with each other the more you learn and the more the problem will begin to resolve itself. This includes not only the problems of the four individuals, but also the style of unit rejection, cooperation and creative activity. After an hour of group observation you and your technician may see each of the four men briefly as individuals. When you finish, you have a set of notes in a form easy to type into certificates if needed. You and your technician have made a definitive formulation of any further treatment or management needed.

What, now, are the results of this visit?

1. The unit knows that you understand a lot about it.

2. It does not have to refer patient after patient in an effort to get close attention from higher staff.

3. It is led strongly to look closely at its own problems and to induce men to dedicate themselves to the unit life. This is a socially more healthy game than the game of extruding patients from the group and hoping for better luck on replacements.

4. The normal men who were in the group meeting tend to stabilize the patients and to spread the feeling that these men, when seen with medical eyes, look acceptable as soldiers.

5. Or the normal men tend to identify with the patients and again the problem becomes a group problem, solvable by some group action other than extrusion.

6. The feeling and information which are brought out into the open, not only from patients but from normals and NCOs, sometimes brings command to say, "Well, I do not really need a certificate now. I see how I want to handle this. The data is all in front of me."

7. In later weeks this unit can phone you or the technician about a problem. They feel that you know them as perhaps no other doctor or

technician ever has, and they find it easy to present relatively undistorted facts and to respond readily to their own observations on the phone.

But what about the companies you did not visit this week? What about the command consultation patients who come to your office? Suppose each one is from a different unit so that you cannot even schedule two or three from one unit to be seen the same day? Well, you can still have each patient bring with him a man who lives closely with him. You can see them together as well as separately if you wish, and there again the problem stabilizes itself because of the emphasis on social validation and concurrence. The problem is not allowed to isolate itself into the dark recesses of a doctor's practice. If the technician or doctor calls the unit immediately after the interview, then the unit more readily applies its own healthy leadership to the problem.

A certificate will be more effective if written as one professional colleague to another using only language common to both professions and if it gives definite professional impressions and recommendations. The mental status is more useful when it shows the commander clearly how the man appeared to you in behavior, motivation, mood and manner of thought. He may appear different at work and it may help command to see that difference.

This "remote consultation" done by telephone and paper from your office is certainly not as effective, nor can evaluation be socially as useful and accurate, as that done where the problem is examined in situ. Such remote consultation is no substitute but it is an adjunct.

In mental hygiene consultation the "caretaker" is considered responsible for the human relations difficulties of a group organism. Within that organism the "patient" is an organ which plays a symptomatic role and which the rest of the organism points out, often sympathetically, as being deviant. A patient need not be a human being. Sometimes an airplane is a patient—or a tank, or even an old office building.

The difficulty, which the organism usually considers the patient's own peculiar difficulty, is itself a communication to the medical profession. It is the group's cry for professional help. The consultant is an "outsider" who enables the caretaker to see the problem more clearly and to develop the group's own resourcefulness. "Caretaker" and consultant work together in such a way that the "caretaker's" own skills as a leader are improved and he relies more effectively upon himself. Often the entire group organism integrates itself around a complex mission of work and developmental activity so that symptoms of ineffectiveness decrease.

Summary of items to consider in consultation:

1. Work directly with the total organism which has the problem - not just with a symptomatic patient or machine.

2. Be a visiting colleague to "caretakers." Avoid teaching, treating or giving them advice.

3. Strengthen the unit by guiding it to intercommunicate strongly on its own problems. Do not weaken it by defining the problem as one that you alone can solve.

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PSYCHIATRY AT THE BATTLE OF DAK TO

CPT Gerald Motis, MC *

The great increase in acute combat reactions in November (23 as opposed to zero to four per month over the past several months) was due to the sustained fierce fighting in the Dak To area. Seventy-five percent of those acute combat reactions seen were treated by our psychology/social work technicians in the field and returned to duty without having to be sent back to our base camp facilities. This follows the expectations for the 4th Division's psychiatric field program as was indicated in our pilot study that took place over the summer months.

The number of base camp support troops seen by our clinic declined precipitously, no doubt due to the great increase in morale brought about by the division's concerted effort to win the battle at Dak To.

During the action, the technicians in the battle area received supervision directly through regular visits to the combat area by the psychiatrist; however, it was found to be more efficacious to allow the technicians alone to treat in the forward area because the secondary gains of direct contact between casualty and psychiatrist decreased the patient's desire to return to the field.

The facts bear out once more the hypothesis that treating the acute combat reactions as far forward as possible by trained personnel other then the psychiatrist himself (who nevertheless makes himself available for direct supervision and counseling of the technicians) is the most effective way for a mental hygiene service to conserve the fighting strength.

* Division Psychiatrist, 4th Inf Div, Pleiku

TIPS FOR CUTDOWNS

LTC Floyd W. Baker, MC*

Although a cutdown is usually thought of as a very minor and simple operation, it can be quite difficult and frustrating. Unfortunately this too oftn happens when the patient is critically short of blood and in need of a portal through which blood can be given rapidly. The following discussion makes no attempt to give all of the details of performing the operation, but only offers a few tips for avoiding some of the pitfalls which can occur and for making the procedure easier and more effective.

1. SIZE OF CATHETER. If a cutdown is necessary, one should take full advantage of the size of the vein and put in a catheter which will allow blood to be transfused at a very rapid rate. None of the available cannulas designed specifically for cutdowns are large enough; however, other types of sterile tubing are very satisfactory. Some of these are:

a. I.V. connecting tubing. The NOVEX K-52 three-way stopcock with extension tube (FSN 6515 864 8864, Stopcock, Intravenous Therapy, 3 way, plastic, disposable) is one of the most satisfactory. It has a large lumen with a relatively thin wall. The three-way stopcock allows a quick switch from electrolyte or glucose solution to blood and permits I.V. medication to be easily given. The tubing should be cut off leaving as much length as possible attached to the three way stopcock.

b. Suction catheters. The 10 Fr plastic catheter (FSN 6515 Y99 1760, Catheter, suction, plastic 10 Fr) is essentially the same size as the I.V. connecting tubing discussed in a above. The adaptor will accept the end of an I.V. injection set.

c. Other tubing. Any plastic tubing, such as a nasogastric tube, which is sterile and has an adaptor that will accept the I.V. tubing can be used. Some veins will take catheters as large as 14 Fr, but there is no advantage in using a catheter that is larger than the I.V. injection set tubing.

If a patient is sent to the hospital with one of these functioning, he will be more likely to arrive in good condition; and the surgeon and anesthetist will certainly be grateful.

2. SITE SELECTION

a. Although the saphenous vein at the ankle is the classical location for a cutdown, it is not necessarily the best. Some of the reasons are:

1) It is difficult for the anesthetist to manage

*Surgeon, I Field Force Vietnam

2) It may interfere with the surgical draping and the freedom of the surgeon

3) It inhibits early ambulation

4) Movement and exercise of the lower extremities are limited.

b. A generally more satisfactory vein to use is the cephalic above the elbow if the upper extremity is not involved in the injury. This location avoids all of the disadvantages listed above for the saphenous. It should be far enough above the elbow to allow the elbow to bend and not interfere with the I.V. The vein may be technically a little harder to locate than the saphenous, especially in persons who are somewhat fat; but if an adequately long incision is made transversely and carried entirely through the skin before the search for the vein is started, there should be little problem in finding it. Although it is not the best surgical technique, it is probably safest to dissect through the subcutaneous tissue bluntly by spreading with the tips of a scissors or a hemostat at a right angle to the direction of the incision. If the vein is not readily seen during this maneuver, it can usually be brought to the surface by inserting the tip of a scissor or hemostat down to the muscle fascia at one end of the incision and undermining the subcutaneous tissue the entire length of the incision so that the tip of the instrument is brought out at the other end. The bridge of subcutaneous tissue can then be systematically divided until the vein is located.

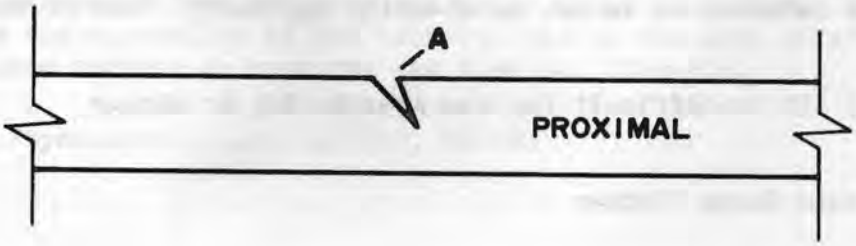
3. INSERTION OF THE CATHETER. Getting a catheter nearly as large as a vein into the latter can be a little tricky. The following suggestions may help make the task easier:

a. Don't make the bevel either too sharp or too blunt. About 45 degrees is fine. If it is too sharp, it will hang up; if it is too transvers, it is hard to get started.

b. Trim off the tip of the bevel so that it is smooth and rounded rather than being sharply pointed.

c. After making the incision in the vein wall, check to see if the lumen has actually been entered by inserting the tip of an unopened hemostat. The instrument should be introduced far enough to dilate the opening into a funnel sufficiently large to receive the catheter. A transverse incision about half way through the vein is satisfactory, but beveling it slightly sometimes makes the introduction of the catheter easier (Figure I).

FIGURE I

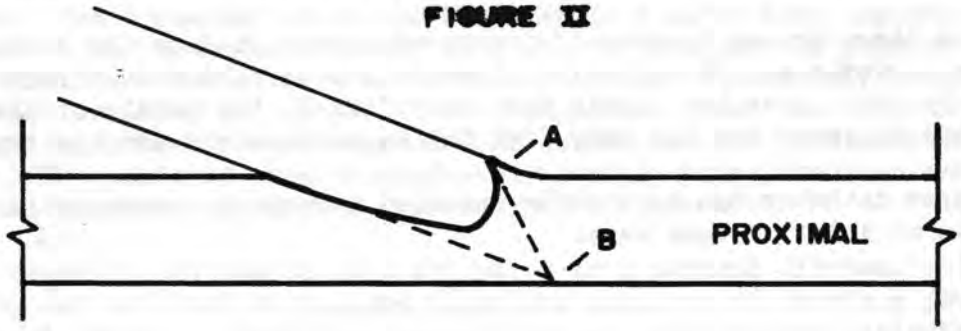


Making the transverse incision in the vein wall at an angle makes it easier to slip the tip of the catheter under the cut edge at A and presents a flap at A for grasping with a forceps if necessary.

d. Wet the catheter. An emergency room set up to receive casualties should always have a bottle of I.V. solution with tubing connected. A little of this can be run over the tube to lubricate it.

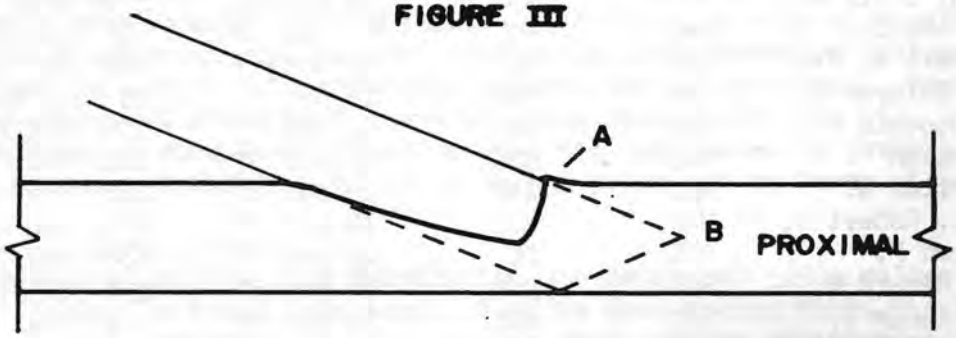
e. Introduce the catheter with the open of the bevel down. This puts the smooth wall of the catheter against the cut edge of the vein allowing it to slip in easier with less likelihood of tearing the vein. There is no problem when the catheter is much smaller than the vein; but when it is about the same size as the vein, insertion becomes difficult. Figures II and III illustrate the advantage of the bevel down insertion.

FIGURE II



With the bevel up, the vein wall tends to drag and catch on the flat open end of the catheter at A. The tip tends to drag on the vein wall at B.

FIGURE III



With the bevel down, the cut edge of the vein has a rounded, smooth surface to ride on at A. And the point of the catheter B tends to remain free in the lumen during the first part of the insertion.

f. Insert the catheter several inches and tie the vein around it without constricting the catheter lumen. Tape it down securely to avoid it being pulled out. Be certain that the I.V. is running freely before contaminating the instruments or the field.

EDITOR'S NOTE

During hypovolemic shock, the time required to initiate fluid replacement therapy is important. The incompletely trained surgeon or general medical officer will usually have less difficulty cannulating the greater saphenous vein in the groin than the cephalic or brachial vein. The cephalic vein is not readily distended by a tourniquet and its anatomical pathway is less well known. The brachial vein is in close relation with the brachial artery and confusing one for the other is likely when the BP is low and the pulse weak. By contrast, the saphenous vein in the groin is superficial to the femoral sheath and readily exposed.

For isolating the greater saphenous vein in the groin, an oblique incision is recommended which is parallel to the inguinal crease, about two fingers below it, and centered slightly medial to the femoral pulse.

Since there are no important structures superficial to the saphenous vein, the incision may be made with dispatch and carried down through Scarpa's fascia. Once the fascia has been incised, the handle of the knife may be used to sweep the fat away from the saphenous vein and its branches.

A large catheter can be readily inserted through a venostomy into the iliac vein or inferior vena cava. GVA

NEW ARRIVALS

NAME	GRADE	BRANCH	ARRIVED	ASSIGNED
Anderson, Betty J.	MAJ	ANC	13 Oct 67	67th Evac Hosp
Barnes, Asa Jr.	MAJ	MC	11 Dec 67	9th Med Lab
Boyer, Carl W. Jr.	LTC	MC	2 Nov 67	68th Med Gp
Diener, Dolores E.	MAJ	ANC	10 Oct 67	2d Surg Hosp
Dixon, Georgia M.	MAJ	ANC	14 Dec 67	55th Med Gp
Early, Ralph T.	MAJ	MSC	20 Oct 67	12th Evac Hosp
Ebert, Wilma A.	MAJ	ANC	28 Nov 67	24th Evac Hosp
Federman, Robert W.	MAJ	MSC	19 Oct 67	67th Med Gp
Foxx, Fred F.	COL	DC	20 Oct 67	932d Med Det
Girone, Gerard M.	MAJ	MSC	19 Nov 67	43d Med Gp
Graham, Annie R.	LTC	ANC	18 Nov 67	91st Evac Hosp
Hermeier, Lois C.	MAJ	ANC	18 Oct 67	24th Evac Hosp
Jewell, Willian C.	MAJ	MSC	21 Dec 67	3d Field Hosp
Kingsbury, Betty	MAJ	ANC	15 Nov 67	12th Evac Hosp
Little, Clara B.	MAJ	ANC	25 Oct 67	85th Evac Hosp
Mead, Pettrina	MAJ	ANC	25 Nov 67	71st Evac Hosp
McHugh, Mary C.	LTC	ANC	18 Nov 67	93d Evac Hosp
Monzingo, George F.	MAJ	MC	11 Oct 67	3d Field Hosp
Rieman, Raymond L.	MAJ	MC	26 Oct 67	6th Conv Ctr
Shoemaker, Vera E.	MAJ	ANC	16 Nov 67	85th Evac Hosp
Sprague, Elizabeth F.	MAJ	ANC	24 Oct 67	36th Evac Hosp
Weatherall, Richard T.	COL	MSC	16 Nov 67	44th Med Bde
Wetsch, Thomas J.	MAJ	ANC	23 Nov 67	18th Surg Hosp

UROLITHIASIS IN VIETNAM

Captain Neil R. Scott, MC*
Captain Gary Ardison, MC*
LTC Ralph F. Wells, MC*

INTRODUCTION

Physicians working with troops assigned to Cam Ranh Bay Support Command, Vietnam, have noted a high incidence of urolithiasis. This paper reviews an eleven month experience in a clearing company which furnishes first line inpatient service for approximately 15,000 American soldiers.

The 3d Platoon of the 568th Medical Company became operational at Cam Ranh Bay 20 November 1966, and its basic mission has been unchanged since that time. The installation at Cam Ranh Bay is a major Army logistic base and port. It is located on a sandy peninsula in the central coastal area of South Vietnam. The climate is tropical, marine, and usually sunny. Weather data recorded by the USAF Weather Squadron, Cam Ranh Bay, indicates an average daily high temperature of 92°F during the six warmest months of the year. The patients were predominately healthy young American Army males working as laborers, stevedores, and vehicle operators.

The paper is written to call attention to a serious disease, which to our knowledge, has not been emphasized since the build up of American personnel in Southeast Asia. It was felt that a study of urolithiasis patients might be helpful in identifying etiologic or predisposing factors. It might also point to preventative measures for Americans serving in tropical regions.

It is also recognized that the incidence of acute diarrhea is high among American troops. At the clearing company diarrheal illness is the second most common reason for admission. With the high rate of diarrheal illness and an apparent high rate of urolithiasis the question follows as whether there is a direct relationship between the two entities. Specifically, does acute diarrhea predispose to stone formation? The high incidence of urolithiasis in chronic diarrheal states has been noted by several authors including Grossman and Nugent (1) in a recent paper and by Deren et al in 1962. (2)

It is generally felt that dehydration and decreased urine volume are important factors in stone formation. Studies done during World War II pointed to a high incidence of urolithiasis among troops stationed in a hot desert climate. (6,7) It seems likely that the hot tropical climate and the consequent increase in insensible water loss are important factors causing dehydration and thus predisposing to stone formation. As most heat injuries in soldiers are seen shortly after arrival in Vietnam it would appear that this may also be a time of maximal dehydration and an opportune time for stone formation.

*568th Medical Company (Clearing)

METHODS AND MATERIALS

This report is an analysis of those patients who had the discharge diagnosis of ureteral or renal calculus during the period 20 November 1966 to 20 October 1967. The study was formulated in June 1967. The ward medical charts of patients hospitalized prior to that time were analyzed with particular attention to age, race, time in Vietnam, presence of diarrhea prior to onset of ureteral colic, previous urolithiasis, family history, and presence of underlying systemic disease. These patients admitted since June 1967, have been closely investigated during admission for the above factors.

There were certain limitations in the clearing company set-up. IVPs were done on a portable 50 MA unit and were at times unsatisfactory, particularly in obese patients. Stone analysis was done in only one patient. Many patients were lost to follow up after being transferred to supporting hospitals for repeat IVPs or therapeutic measures beyond clearing company capability. Also, the transient nature of the patient population made follow up difficult. Many soldiers in the Cam Ranh area are in transit to other Vietnam locations or to CONUS. However, adequate facilities were available for urinalysis, urine culture, IVPs and such chemistries as Calcium, Phosphorus, and Uric Acid. The bulk of the blood chemistries, urine cultures, and some IVPs were done at the 12th US Air Force Hospital.

OBSERVATIONS

There were 59 admissions among 54 patients for urolithiasis during the eleven month period. There were 2,050 total admissions during this interval, thus the patients in the series represent nearly 3 per cent of clearing company admissions. Total troops supported during this period varied from 13,700 in November 1966 to 15,400 during October 1967.

Fifty-one patients were caucasian, 1 was Vietnamese, and only two were negro. During the study period negroes represented approximately 18 per cent of total admissions. The patients were all male and most were young. Thirty-five of 52* patients were in the 19-24 year old age group.

There was one patient with urolithiasis in November 1966, thereafter the monthly admission rate varied from four to eight per month. There was no significant seasonal variation although it is of interest to note that five of these cases were admitted during a five day period that coincided with the onset of monsoon rains - a time when temperatures were relatively cooler.

There was no relation to time served in Vietnam. Time in country was specified in 22 patients and only 3 were in their first month in Vietnam.

A history of previous urolithiasis was obtained in ten patients, and five gave a positive family history of urolithiasis.

*Two ward charts were unavailable. Only the date of admission and discharge, sex, race, diagnosis, and disposition were available from discharge records.

Acute diarrheal illness could be inferred to be of importance in only three patients. One patient gave a five-day history of diarrhea and vomiting; one had two loose stools prior to onset of renal colic; and one had two loose stools on the day prior to admission. It was specifically noted in 16 patients that diarrhea was not present prior to admission.

The clinical picture was remarkably similar in the bulk of patients. In an age when atypical manifestations of disease are in the limelight it is significant that these cases presented a classical picture of sudden onset of severe, unilateral, costovertebral angle pain with radiation along the ureteral pathways. Many had gross hematuria prior to or after the onset of colic and all but two had microscopic hematuria.

Figures 1 and 2 summarize the results of the diagnostic procedures.

DISCUSSION

The most striking, unexpected finding was the racial distribution. Negroes accounted for 3.7 per cent (2 of 54) of the series among a hospital population that was 18 per cent negro. Prince (3) noted an incidence of 1.7 per cent negro in his series but did not mention the percentage of negroes in his practice. Racial factors are frequently difficult to interpret because of the difficulty in controlling such variables as socioeconomic factors, differences in diet and living conditions. These factors are largely controlled in an Army population such as the one studied. In this population both caucasians and negroes share the same diet, living quarters and environmental conditions, and are exposed to the same duty demands.

The study failed to confirm a relationship between the high incidence of acute diarrheal states and the high incidence of urolithiasis. It would appear that the incidence of acute diarrhea in the urolithiasis patients was no higher than in the young male population from which the patients were referred. The studies (1,2) implicating chronic diarrhea states and stone formation were opposite in approach, relative to our study. That is, in the cited studies the incidence of urolithiasis was determined in a group of chronic diarrheal patients, while our study deals with diarrheal incidence among urolithiasis patients. We found acute diarrhea unimportant as a predisposing factor to stone formation.

The role of dehydration as a factor in stone formation among these patients remains unclear. Dehydration and decreased urine volume have been stressed as factors in stone formation. (1,3,4) In this study there was not sufficient accurate data to document the state of dehydration of urine specific gravity at the onset of symptoms. There was no increased incidence of urolithiasis among recent arrivals in Vietnam. This is surprising as this is the usual time of heat injury. However, heat injury has been a minor problem at Cam Ranh. The importance of increased fluid intake and supplementary salt is stressed in orientation sessions to new arrivals.

Prince et al (3) reported a large series of urolithiasis patients from Savannah, Georgia, and called attention to the seasonal variation of incidence of stone formation and noted the peak incidence during August. At Cam Ranh Bay there was no variation in seasonal incidence as would be expected from the rather uniform environmental conditions.

The frequency of underlying systemic illness manifesting as urolithiasis has been demonstrated. (5) Of the work-ups done at this clearing company there were no primary diagnoses of gout, hyperparathyroidism, or other systemic illness. Forty-four patients were returned directly to duty while ten were transferred to a urology service at one of the several supporting hospitals. Follow-up on these ten patients could not be obtained.

SUMMARY

This is a review of 54 cases of urolithiasis during an eleven month period. These cases represented nearly 3 per cent of total admissions treated at a clearing company in Vietnam. The clearing company gives in-patient support to approximately 15,000 Army support troops at Cam Ranh Bay. Attention is called to an apparent high incidence among young caucasian males. The relatively low incidence among Negroes is noted. Only 2 of 54 patients with urolithiasis were negro, while negroes represented approximately 18 per cent of the total admissions during this time period. Acute diarrheal illness was not considered important as a factor contributing to stone formation.

TESTS PERFORMED

Figure 1

TEST	No. Done	Normal	Abnormal
Urine Culture	24	22	2
Urine sediment			
Crystaluria	52		15
Hematuria	52		50
BUN	15	15	0
Calcium (serum)	23	22	1
Phosphorus (serum)	23	23	0
Urines strained for stones	52	Stones recovered in 9	
IVPs	51	39	12

IVP ABNORMALITIES

Figure 2

Calculus observed	4
Non-visualization of a kidney	2
Caliectasis with ureteral dilatation	2
Caliectasis alone	1
Hydronephrosis and hydroureter	2
Partial reduplication of collecting system	1
	12

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The Use Of N-Butyl Cyanoacrylate Spray for Hemostasis

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CPT Richard Simmons, MC *
CPT Jerome Vernick, MC *
LTC Teruo Malsumoto, MC *
COL Harold Hamit, MC *

Particularly with trauma patients, one may encounter wounds of the liver, kidneys, vessels, and retroperitoneal space where sutures, packing and/or gelfoam can not control hemorrhage. The inability to control bleeding and the lack of hemostasis results in the removal of functional organs and even in death.

In the early 1960's, a number of reports appeared on the use of methyl cyanoacrylate tissue adhesive for hemostasis in solid organs. (1, 2, 3) However, methyl cyanoacrylate is relatively toxic to tissue and its use was never widely adopted. Recently, Dr. Fred Leonard and co-workers at USAMBRL-WRAIR developed a number of higher homologues of methyl cyanoacrylate. Working with these agents, Matsumoto and co-workers at the Division of Surgery - Walter Reed Army Institute of Research, developed both newer techniques of application of the adhesive and surgical techniques for a wide variety of procedures. (4) Testing of the various higher homologues of methyl cyanoacrylate showed that N-Butyl Cyanoacrylate had a favorable combination of polymerization time (hardening time), tissue wettability, and speadability.(5) Unlike methyl cyanoacrylate which degrades within the tissue in a period of six months, degradation of N-Butyl Cyanoacrylate is very slow. Evaluation of the long term effects are still being carried out and for this reason, clinical use of N-Butyl Cyanoacrylate in Vietnam has been restricted to life-saving situations. All such patients are to get long term follow-up.

Use of the Spray - N-Butyl Cyanoacrylate is supplied to the Surgical Research Team - WRAIR - Vietnam in sterile, disposable bottles packaged in sterilized plastic bags. Freon gas under pressure within the container serves as a propellant to produce a fine spray of cyanoacrylate over the area being treated.

When one encounters a situation where bleeding is uncontrollable by usual techniques, vessels to the affected organ or area are clamped with arterial clamps. A sterile polyethylene sheet is draped over the area and a window is cut in it. This sheeting is supplied pre-sterilized together with the spray. Then, the area is sponged dry and the N-Butyl Cyanoacrylate is sprayed. Polymerization occurs over a 30 to 45 second period. During this time the cyanoacrylate is allowed to simply polymerize on the surface of the tissue or pressure may be applied to the area. This is accomplished in one of three ways: by use of another polyethylene sheet, use of another tissue such as omentum onto the surface of the liver, or by reapproximation or coaptation of the organ itself as in a fracture of the kidney. The use of pressure has several advantages. The layer of cyanoacrylate monomer is made thinner and hence will degrade more rapidly. The use of omentum will, in addition, reinforce the glue as does reapproximation of the organ. Finally, reapproximation of the organ parts restores anatomic configuration to the structure. If a

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large area is to be sprayed, as in wide loss of the retroperitoneal tissues, the spray may be applied on a sectional basis. Following the polymerization of the adhesive (approximately one minute), the vascular clamps are removed. If bleeding reoccures because of faulty application of the spray, as on a bloody surface, it is best to remove the adhesive and repeat the procedure from the beginning.

From our experiences in both the research laboratory and in the surgical hospital in Vietnam, we feel the use of N-Butyl Cyanoacrylate is particularly beneficial for wounds of the liver and the kidney and injuries resulting in loss of the retroperitoneum. In addition reinforcement of vascular repairs done under slight tension is often worthwhile. Finally, in patients with war wounds multiple organ trauma is common. The necessity to quickly secure hemostasis in a number of areas is frequent. Oozing from a vascular anastomosis is quickly controlled. The bleeding from a splenic injury may be temporarily halted and later, when surgery is complete in other areas, the spleen may be removed under less harried conditions.

To date, 18 cases have been treated in Vietnam with N-Butyl Cyanoacrylate as shown in the accompanying chart. In all cases, good hemostasis has been secured. One patient with a liver injury was reexplored for a bleeding gastric ulcer two weeks after his initial surgery. Inspection at that time revealed that the liver was healing well and there were a minimal number of adhesions to the area. Another patient with a renal injury had good hemostasis but removal of the kidney was later necessary because of venous injuries to the vascular pedicle.

TYPES OF CASES TREATED

Liver	8	1 patient reexplored in 2 weeks
Kidney	2	1 Nephrectomy due to pedicle injury
Retroperitoneum	2	
Vascular	5	

A register of all cases treated is being maintained in the Division of Surgery, Walter Reed Army Institute of Research and all patients will be followed as long as is possible.

Two brief case histories illustrate the type patients and the conditions under which N-Butyl Cyanoacrylate is most useful.

On 30 July 1967, a 25 year old E-3 was admitted to the 3d Surgical Hospital. He had a bullet wound of the right flank. Following preoperative evaluation and resuscitation, an exploratory laparotomy was performed. The right kidney was found to be damaged and the midportion of the organ was resected. For one hour, attempts to control bleeding by the use of figure -of-eight sutures was unsuccessful. The vascular pedicle was clamped with an arterial clamp. A polyethylene sheet was placed into position and the resected

area was sponged dry. N-Butyl Cyanoacrylate was sprayed onto the cut surface of the kidney. One minute later the vascular clamp was removed and the field remained dry. Drains were placed and the patient's incision was closed concluding the operative procedure. Postoperatively, the patient did well.

On 10 November 1967, a 21 year old infantryman suffered a massive wound of the buttocks with loss of the gluteal tissue, anus and rectum and with multiple fractures and partial loss of the pelvic and sacral skeleton. At admission to the 3d Surgical Hospital, his blood pressure was 80 systolic. Blood had been started in the field. Additional I.V.'s were started and the patient was taken to the operating room with blood being administered through four veins and under pressure. Debridement of the buttock region and retroperitoneal space was carried out. Generalized bleeding and oozing occurred over the whole area. Following prolonged attempts to control bleeding with sutures and packing and with 29 units of blood having been given, the patients condition was poor, his blood pressure had dropped to near zero. The area was sponged dry in sections, pressure applied for a minute or two, and then Cyanoacrylate tissue adhesive was sprayed onto the wound. Bleeding ceased, the patients blood pressure came up to the range of 90 to 100 and the operative procedure was concluded. The patient's condition continued relatively good postoperatively.

In summary, N-Butyl Cyanoacrylate produces hemostais quickly and can control life-threatening hemorrhage when other techniques fail. In addition, it allows the preservation of organs or functional parts of organs and may be used to restore normal anatomic configuration to an injured part. Finally, rapid, temporary control of bleeding can be obtained in several areas in patients who have multiple points of injury and hemorrhage.

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CONSULTANT'S CORNER

ANTIRABIES TREATMENT

Before any decision can be made regarding treatment of an exposed person, information on whether the biting animal was rabid must be available. An important preliminary step in obtaining this information is the confinement and observation of the biting animal for a period of 10 days. Initiation of treatment in exposed persons should not await the results of laboratory diagnosis; local treatment is usually complete and serum and/or vaccine therapy instituted before the laboratory report is received. A report from a reliable laboratory indicating absence of rabies usually justifies cessation of treatment.

The combined administration of antirabies serum and vaccine, together with local treatment, provides the best possible prophylaxis against rabies in an exposed person. Therefore these procedures should be adopted in all cases of severe exposure. Long term experience has indicated that for mild exposures, local treatment and vaccine alone are effective. A guide for determining the initiation of treatment is contained in USARV Reg 40-15.

In experimental animals inoculated with rabies virus, the incidence of rabies was reduced over 90% in animals whose wounds were thoroughly washed with a 20% soap solution or a dilute quaternary ammonia compound. These compounds are just as effective as concentrated nitric acid. There is no reason to use nitric acid any longer.

Rabies hyperimmune serum (RHHS) should be used in all severe exposures, and any exposure involving a rabid animal where the skin may have been broken. The dosage is at least 25 IU/lb. (Body wt) in a single dose. A portion of this is used to infiltrate the wound and the rest given intramuscularly. In addition, antirabies serum in liquid or powdered form used topically in wounds has been shown to be effective in preventing rabies and should be considered. About 25% will develop serum sickness from RHHS.

Rabies immune human serum (RIHS) is being evaluated expirmentally. So far it has been found that rabies antibody is presented in only 1/10 to 1/50 the amount that is present in hyperimmune horse serum. Also the homologous antibody results in more depression of the antibody response to rabies vaccine. Therefore until these problems are evaluated and overcome, RIHS is not available for use. According to Dr. Keith Sikes, Chief Rabies Laboratory, NCDC, the earliest possible availability date is 1969.

In all cases requiring a complete course of treatment, rabies vaccine U.S.P. (duck embryo) should be given daily for at least 14 days followed by a booster at 10 and 20 days after the last daily dose. In severe exposures and with the use of RHHS, more doses should be used. Foe example, 21 doses could be administered by giving 2 doses a day for 7 days, than one dose a day for 7 days followed by boosters at 10, 20, and 30 days or more following the last daily dose.

(PREVENTIVE MEDICINE CONSULTANT - REN)

ASSIGNMENT RESTRICTIONS OF SPLENECTOMIZED SOLDIERS

The USARV Surgeon's Policy with respect to personnel who have been discovered to have an absence of the spleen after arriving in RVN or who have had the spleen surgically removed in-country (including off-shore hospital facilities) is as follows: A P-3 profile will be given, with specific instructions that assignment will be restricted to low incidence malarious areas where the risk of acquiring falciparum infections is negligible (e.g. Saigon, Long Binh, or established military bases along the coast south of Chu Lai).
(MEDICAL CONSULTANT - NFC)

CHLOROQUINE-PRIMAQUINE MALARIA PROPHYLAXIS

Chloroquine-primaquine is the only medication authorized for the weekly prophylaxis of malaria in Vietnam. Because of the side effects attributed to this drug, many personnel have substituted plain chloroquine. The primary complant has been abdominal cramping or mild transient diarrhea within a few hours of taking the tablet. These side effects can be minimized or completely eliminated by breaking the tablet in half and ingesting both halves immediately after a meal. However, cramping or mild diarrhea are not sufficient indications for switching to plain chloroquine. All medical officers are requested to insure that proper controls are placed on the dispensing of chloroquine tp prevent its indiscriminate use. Those personnel who have been placed on chloroquine prophylaxis because of more severe side effects must take 15 mgm primaquine daily for fourteen days after leaving Vietnam to eradicate the malaria parasite. This regime gives a higher incidence of hemolytic reactions in G-6-PD enzyme deficient individuals.
(PREVENTIVE MEDICINE CONSULTANT - REN)

TREATMENT OF VENEREAL DISEASE

1. Pending the publication of a USARV directive on the treatment of VD and probable revision of TB Med 230 the following principles will be used as a guide by all medical officers in the management of gonorrhea.

2. There has been a gradual emergence of strains of gonococcus less sensitive to penicillin throughout the world. Furthermore, the tendency to use conventional therapeutic doses, that is 2.4 M units of procaine penicillin or less may be an important contributing factor in the emergence of strains less sensitive to penicillin. A high blood and tissue level over a short period of time is much more effective in eradicating the organisms than a sustained lower level. The present recommended single intramuscular dose of 2.4 M units of aqueous procaine penicillin is inadequate in 20 - 30% of the cases. The following treatment schedules are adequate for most cases:

a. Procaine penicillin, aqueous 2.4 M units intramuscular plus Probencid (Benamid) 1.5 gms orally, 1 hour before, or at the time of the

penicillin injection, followed by 0.5 gms in 6 - 12 and 18 hours (total 3.0gms).

b. Procaine penicillin, aqueous 3.0 M units intramuscularly daily for three days.

c. Tetracycline, 1.5 gms initally, then 0.5 gms Q 6 hours for four days - total 9.0 gms.

3. From the view point of simplicity, time lost from duty on sick-call, and assurance that therapy will be completed, treatment schedule "a" is recommended. Tetracycline should be used only if there is:

a. A sensitivity to penicillin.

b. A treatment failure.

c. A post treatment development of non-gonococcal urethritis.

4. The treatment of syphilis, chancroid, lymphopathia venereum and lymphogranuloma inguinale remains unchanged. An outline of this portion of TB Med 230 will be distributed to all medical units.
(MEDICAL CONSULTANT - NFC)

ANTHELMINTICS

Dithiazanine Iodide (Delvex) has been withdrawn from the market by the FDA. The only other anthelmintic available in the command at the present time effective against strongyloides infestation is pyrivinium pamoate (Povan). It is available as a 50 mgm tablet; 5 mgm/kg administered as a single dose is recommended with a maximum dose of 0.25 gm. Two weeks later a second course is given. Povan may cause nausea, vomiting or diarrhea but it is usually well tolerated; it turns the stool red. In the near future thiabendazole(Mintezol or Thibenzol) will be made available as a suspension 100 mgm/ml.This agent is also effective against pinworm, whipworm, hookworm, ascaris, and to a lesser degree trichina. The accepted dosage is 25 mgm/kg twice daily for three to five days; the maximum daily dose is 3.0 gms. Gastrointestinal side effects occur but are not serious.
(MEDICAL CONSULTANT - NFC)

AWARDING OF "A" PREFIX

Colonel William A. Boyson, USARV Deputy Surgeon, was awarded the "A" prefix in MOS 3108 (obstetrics & gyecology) by the Surgeon General on 8 November 1967.

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The Surgeon, USARV, invites all members of the Army Medical Service including the Medical Corps, Dental Corps, Veterinary Corps, Medical Service Corps, Army Nurse Corps, Army Medical Specialist Corps, and enlisted personnel, as well as other members of the Medical profession in Vietnam, to submit articles to be considered for publication in the Bulletin.

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2. GENERAL: This headquarters does not necessarily endorse the professional views or opinions that may be expressed in this pamphlet apart from official notices. The contents of this pamphlet are not directive in force.

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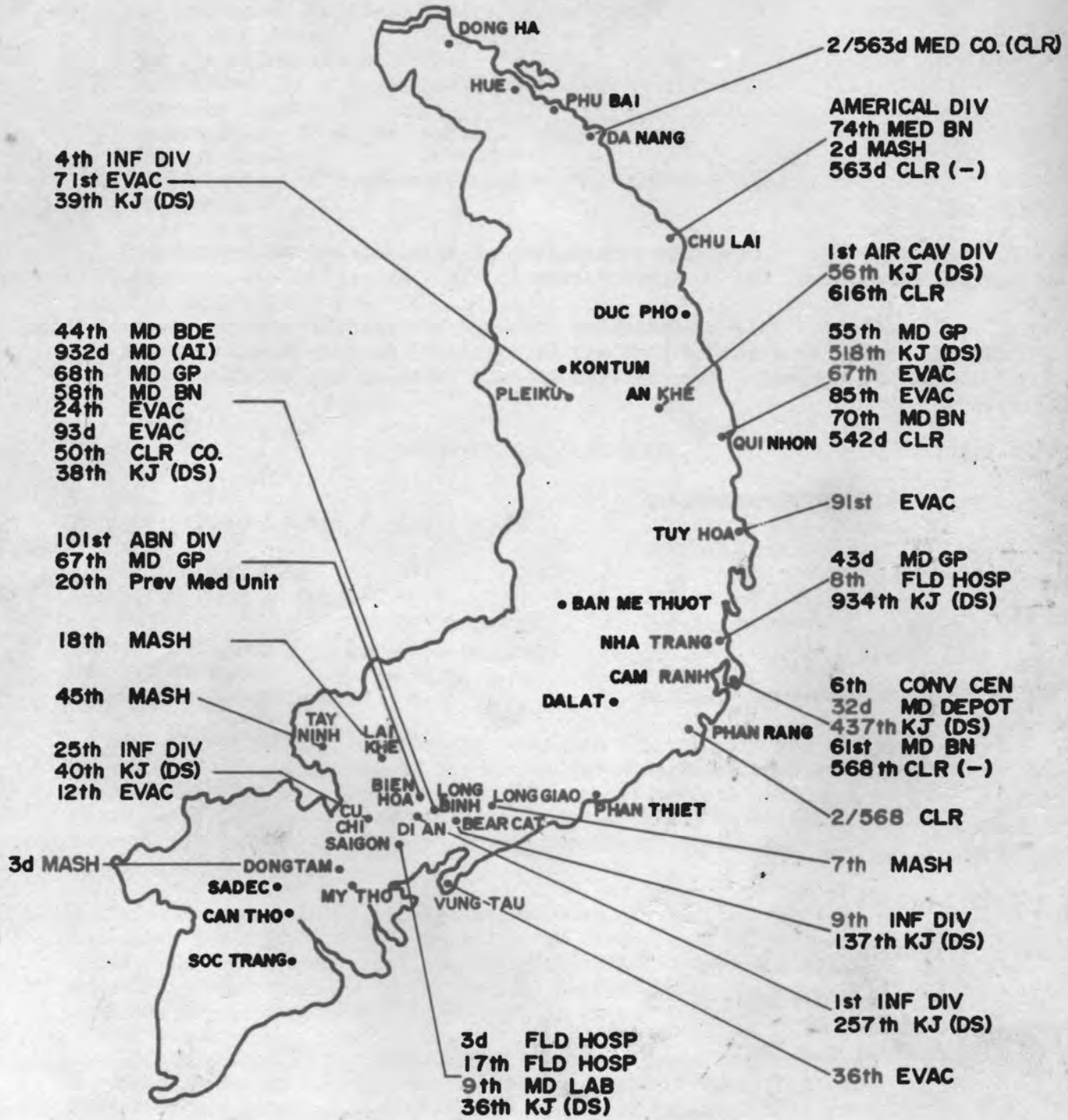
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