TREATMENT OF CELLULITIS, SUPPURATION, AND BURNS

BY

JOHN J. ROBB, M.C., M.B., F.R.C.S.
ASSISTANT SURGEON, ROYAL INFIRMARY, DUNDEE

With the ever-increasing numbers seeking surgical attention in the out-patient departments of the large hospitals forms of treatment which reduce both attention and attendances, without any reduction in efficiency, may prove of interest. In every surgical out-patient department sepsis in its many and varied forms constitutes a big factor in time and treatment, and it is in this direction that I have sought to improve my methods.

To me there seemed little doubt about the benefit of the closed method of treating sepsis of bone, whether acute or chronic, and it seemed quite logical to extend this idea to the treatment of other septic lesions. I have now done so for over two years with such consistently good results that I feel certain others might find its adoption equally useful.

General Considerations

Looking carefully at any septic lesion, such as a whitlow, and watching the steps of natural cure, it becomes clear that only slight changes in our interpretation of the successive happenings in such a lesion will lead us to drop some of the older forms of treatment whilst we retain and progress with others. From the moment organisms invade the tissues blood and lymph congest the areas affected. In an immobile area that is all that immediately occurs, but if the lesion so created extends to, or is affected by, a moving part the peripheral sympathetics are activated and the part is rendered immobile, or as nearly immobile as unaided tissue can render it. Next it is noticed that localization and defeat of the invading organisms proceeds under high tissue tension, both in and around the lesion, and not till the situation is safe does necrosis appear in the overlying tissue, pus be evacuated, and repair begin. Further, it is interesting to note that, once spontaneous discharge has taken place from a lesion, no large quantities of debris are again extruded unless some dead material or slough has still to be cast out. Keeping these few observations in mind, I shall discuss treatment.

The Purpose of Pain

In the everyday types of tissue infection met with it seems quite unnecessary, and probably unwise, to attempt to improve the supply of blood and lymph to the area. It is true that by congestive methods the site of certain lesions can be rendered immobile by virtue of the extreme tension in the part, and thus relieve pain; but it is doubtful if such methods are scientifically warranted. This raises the problem why pain is present at all, and what is its purpose. Perhaps the most striking evidence as to the purpose of pain in the presence of sepsis is seen in such a case as osteomyelitis of the proximal end of the tibia. Here the pain experienced is often intense, but if the limb is placed in a plaster case, which completely immobilizes foot, ankle, and knee, the sepsis may progress without having pain as one of its symptoms, and that without touching either bone or tissue surgically. That being so, the purpose of pain is to render certain that voluntary action will not destroy the immobilization of the part which the peripheral sympathetics are attempting to secure. I am convinced that as an agent in tissue healing too little attention is paid to the factor of immobilization.

Incision and Drainage

I now pass to the stage where the organismal invasion has been checked and an abscess has formed. There seems little doubt that we can accelerate cure and produce a better cosmetic result in the average case by incision rather than await tissue necrosis. It is true that there is an optimum moment to make this incision—a moment which can best be judged by experience, and is neither too soon nor too late. When it is made it must be adequate, and all dead contents should be removed at once from the abscess cavity. If this is done, there can be no purpose in drainage. To the tissues a drain is no better than a slough, and must be got rid of. In making this statement I do not wholly condemn drainage, but it should only be employed where the opening down to the abscess has been made through such a tissue as muscle, which is immediately going to close. As a useful working rule I might state that, if an opening is made to an abscess by a route which is selected by the surgeon and is not the chosen one of Nature, such an artificial opening requires artificial means to maintain it open. Keeping this rule in mind, drainage is reduced to the minimum.

Whilst on the subject of drainage it is convincing to note that once a purulent collection has broken to the surface of its own accord and the contents have been evacuated there is usually no further profuse discharge unless dead tissue requires evacuation. Rather does a scab form over the opening and the contents are enclosed. Closure of the opening, not drainage, is the indication. Such a closure, however, must simulate that provided by Nature, and allow free evaporation and escape of gases. Thus is brought about the optimum concentration of tissue fluid which best permits of healing. As a final point in the observation of the healing of septic lesions I would recall to mind the abhorrence that Nature has of empty tissue spaces, and where a cavity has formed steps must be taken to see either that it collapses or is made to collapse, and, failing that, to produce tissue continuity by the artificial means of a suitable pack.

Apart from the actual surgical intervention provided for septic lesions, it would therefore seem wise to apply very simple forms of treatment to assist the processes of healing. Immobilization is perhaps the most important factor, and both before and after operation it should receive attention. Not only should this factor be provided by splint or plaster, but the dressing itself should have a splinting action. Further, the dressing must be such that it can reduce tissue spaces yet permit of free evaporation. If these essentials are attended to I can see no use for any of the antiseptic forms of treatment. The ideal dressing at the present moment for all forms of tissue sepsis is undoubtedly the adhesive elastic bandage, and, where this cannot be applied with ease and comfort, the viscopaste bandage. Occasionally it is found that a pustular condition of the skin develops under the adhesive elastic bandage, and where this is so it is necessary to use the viscopaste type.

Cellulitis

In dealing with cellulitis in the surgical out-patient department the bandage is applied so as to cover generously the part involved, and, where it concerns a limb, that part is always completely encircled with the bandage. If a lymphangitis is present the bandage is continued proximally to cover it. The relief of the patient from discomfort is very often almost immediate, and the general physical upset is speedily checked. In a bad case I may see the patient the next day, but with increasing confidence in this form of treatment I find it unnecessary in most cases to see him sooner than from four to seven days. He is warned, however, to report immediately should his

general symptoms increase. At the end of four to seven days the splint or sling is removed and the limb is palpated through the bandage. If no pain is elicited and no fluctuation felt, he is merely asked to report again a week later, when the bandage is removed. Only if a local abscess has formed is surgery required, and quite often no such abscess forms. Frequently, with quite a severe initial cellulitis of the forearm, a man may return to work in four to seven days still wearing his bandage.

Suppuration

Where an abscess has formed, incision is made and all contents and slough evacuated. Where no marked resulting cavity remains, as in fingers, palm, etc., once bleeding has stopped, adhesive elastic or viscopaste bandage is again applied, and a splint if necessary. The patient does not report again at hospital for one week. Difficulty is sometimes experienced by the patient with the oozing of discharge through the elastic bandage dressing. This is best remedied by washing the part once or twice a day with soap and water, an act which in no way interferes with the efficiency of the bandage. Nothing must be applied over the bandage which might hinder free evaporation: the freer the evaporation the less discharge. By this means severe cases of finger and palmar sepsis are treated with remarkable comfort to the patient and with the elimination from the department of those agonized individuals attempting in vain to gain ease from the fleeting comfort of hot arm baths and the frequent application of fomentations. Where the lesion occurs in soft tissue planes, such as the neck or buttock, and, by virtue of surrounding structures or damage to immediate tissue, a large non-collapsible cavity results, I find it wise to pack such spaces. The best pack I have found to be gauze soaked in pure glycerin, and the optimum time for removal of the pack the fifth day. After drying the skin with surgical spirit, adhesive bandage may immediately be applied, or the first dressing may be of dry, sterile gauze, and the adhesive applied only when the pack is removed on the fifth day.

As a last word on the treatment of sepsis by this method, I would encourage persistence with its application until the lesion is healed. In severe and purulent lesions there are moments when one is tempted to stray to other methods, but I have found none that improves progress. A weekly change of the dressing is usually at first required, but later the interval may be prolonged. Between each dressing the lesion should be cleansed with sterile water or surgical spirit.

Application to Burns

For reasons not distantly estranged from those which led me to apply the elastic bandage and splinting treatment to tissue sepsis, I have applied it also in cases of burns, irrespective of the degree. My experience in this direction has been pleasing, and I find the method to have advantages over that of tannic acid, and to possess few disadvantages. It is much easier to apply, particularly in infants, and gives very quick comfort. Like tannic acid it eliminates the absorptive danger and diminishes and shortens the phase of shock. The method I now use is simply to clip away all blisters and apply the bandages. Unless the area is very foul, preliminary cleansing appears to be unnecessary, and hence no anaesthetic is required. As in all treatments involving the use of the adhesive elastic or viscopaste bandage, air must be allowed to circulate freely about the area involved. Where the patient is so burned that he must be admitted to hospital, he is treated in a hot-air bath with the bed coverings so arranged that free through circulation of air is possible. If the whole of the lower limbs are involved, they are slung to the cage so as to prevent the posterior surfaces from lying in contact with the bed and thus

hindering evaporation. Immediately the shock phase is over the bandaged areas are exposed to the air without bed covering of any sort. Tissue fluids are allowed to exude through the bandages, there dry, and only when excessive need they be removed. By treating these cases uncovered by bed-clothes, whether in the ward or out in the open air, little or no inconvenience is experienced from odour. On an average I leave the first bandaging in place from two to three weeks in the out-patient department and from three to six weeks in the hospitalized case, the length of time depending on the degree of burn present. The deeper the burns the longer the application should be. Epithelialization is a more rapid process by this method than in the presence of the eschar of tannic acid and the problem of sepsis much less difficult to manage. After the first bandages are removed, only raw areas are re-covered, and many of these require merely patches of adhesive bandage. It is found advantageous to dry up the burnt areas at each dressing with a hot-air dryer before the application of bandages, but this is only essential where strips of the bandage cannot otherwise be made to adhere.

As regards the use of the elastic adhesive bandage and the viscopaste bandage, I find very little to choose between them except that the viscopaste one can be twisted round areas, such as the clefts between fingers, where the elastic adhesive cannot comfortably be applied. The use of these bandages, though apparently costly, is not found to be so. Dressings are very greatly reduced in number, antiseptics are practically eliminated, and the staff consequently liberated for other duties.

A MODIFICATION OF LOTHEISON'S OPERATION

UTILIZATION OF THE SAC IN THE RADICAL CURE OF FEMORAL HERNIA

BY

R. SAUNDERS MELVILLE, F.R.C.S.ED.

ASSISTANT SURGEON, ROYAL INFIRMARY, DUNDEE

Lotheison's operation is generally admitted to be the method of choice in the radical cure of femoral hernia. By its means an aberrant obturator artery can be identified and dealt with; an excellent exposure of the neck of the sac can be obtained; the strangulated bowel can be easily inspected and a resection carried out if necessary; and closure of the wound, and in particular the peritoneum after separation of the entire neck therefrom, is a more perfect procedure than is possible by the femoral route. This operation fails, however, to achieve an adequate closure of the femoral canal. One authority states that, given an efficient closure of the peritoneum, the canal should be left alone, staples, mattress sutures, etc., "doing more harm than good." Surely an admission of failure. The number and variety of the methods mentioned in the literature indicates definitely that the majority of surgeons are of the opinion that the canal *should* be closed.

Most femoral herniae are acquired. The maximum incidence is at about 45 years of age, and it is twice as common in women as in men. The physical condition of these patients is not likely to improve after 45 years, and if the canal is left untreated at operation or inadequately treated a recurrence of the hernia is probable, especially in the type of patient whose intra-abdominal pressure is increasing. The recurrence of femoral herniae is generally estimated as between 4 and 5 per cent. Husted considers it as high as 21 to 32 per cent. The higher figure is probably more accurate. Patients are loath to return for a further operation if the first has