TREATMENT OF SEPTIC WOUNDS BY CONTINUOUS OXYGENATION OR IRRIGATION.

BY

W. ATKINSON WOOD, M.D., M.S.(MELB.),
HONORARY SURGEON, CHILDREN'S HOSPITAL, MELBOURNE;
MAJOR, AUSTRALIAN ARMY MEDICAL CORPS.

I HAVE recently treated a severely lacerated and septic wound about the knee in a child by continuous oxygenation under pressure. I had a rubber bag constructed open at both ends and provided with sleeves at the ends and with a valve through which the oxygen can be introduced.

The bag was slipped over the leg like a stocking and the two ends were rendered gas-tight by firm bandaging or the application of a Martin's rubber bandage, Mead's plaster, or rubber tape. Oxygen was introduced from a cylinder up to the pressure of 3 to 4 lb. which the rubber easily stands; with ordinary bandages the bag will remain inflated with oxygen for about twelve hours, with rubber bandages for longer.

The wound rapidly cleaned and the granulation tissue assumed a most healthy appearance in a shorter time than one would have expected.

a, Simple rubber sleeve;
b, sleeve with section of air
pad; c, entrance tube; d, exit
to vessel under bed.

The child always asked for the "football" in preference to the dressing, as it was more comfortable.

The discharge collects at the bottom of the bag and can be either drawn off by a drain tube, or the bag can easily be removed, boiled, replaced, and refilled within a short time and without pain.

This method, apart from keeping the wound in an atmosphere of oxygen,

keeps the wound protected and saves the patient the pain of removing and replacing the dressings, to say nothing of the saving in dressings themselves, which, when soaked in discharge and in close contact with a limb, must be most uncomfortable.

The wound must, of course, be opened up to its uttermost recesses, sloughs and dead tissues cut away, and large perforated drain tubes inserted so that the oxygen can get to the growing layer of anaërobies. On a large scale oxygen under pressure could be supplied to each bed by small pipes.

This bag, with slight additions, can also be used for continuous or intermittent saline or antiseptic irrigation; by adding a fairly large sized rubber exit tube at the bottom of the bag, connexion can be made to a vessel under the bed, and when it is in position on the limb saline may be run in from a large elevated vessel, the rate of entrance and exit being regulated by nipping the tubes more or less with clips.

This is the simplest form of rubber bag, but the following improvements, although not necessary, may be added:

1. Make the sleeves large enough to slip easily over the wound, and place inside the sleeves a distensible air ring with an air valve.
2. Cover the bag with a linen, canvas, or string net.
3. Make a wound inspection slit in the upper part of the bag which can be made watertight with a clip.
4. Or the bag itself could be made of a waterproof canvas with air-pad sleeves.

Bags of different sizes and shapes are made for different parts of the body.

Advantages.

1. We apply the correct percentage of saline solution to the wound, which can easily be flushed and cleansed at any time, thus removing the dead and toxic lymph and leucocytes without removing the bag.
2. The pain of repeated dressings is obviated.
3. The saving in dressings is enormous.
4. There is no pressure on the limb or soiling of sheets as in the ordinary saline bath.
5. There is no "pus poultice," and the patient is comfortable in all positions: he can move the limb with bag and bath attached.

6. It can be used under an interrupted splint in a compound fracture of a limb.

Continuous irrigation is now the accepted treatment for septic wounds, and the bag treatment allows this to be carried out in the simplest manner and without annoyance to the patient or nurse.

Lieutenant-Colonel Norris, at the offices of the Commonwealth of Australia, 68, Victoria Street, London, S.W., will answer any communications as to the supply of the bag.

SANDFLY FEVER AND BACTERIOLOGY: VACCINE TREATMENT.

BY

C. J. STOCKER, M.B., B.C.CAMB., D.T.M. AND H.,
CAPTAIN I.M.S.

WITH regard to the articles in the JOURNAL of July 31st concerning sandfly fever, perhaps the following observations which I had the opportunity of making last year in Rangoon may be of interest. Unfortunately, being on active service, I have not access to the notes I made on the cases at the time, but the interest of the cases to me was such that I can speak fairly accurately from memory.

In March, last year, I was in charge of the 79th Carnatic Infantry during their transfer from Bombay to Rangoon. The outbreak began on board ship and continued with increasing severity for some eight weeks, after which it gradually subsided; altogether some 180 cases occurred.

The first case was observed when the ship had left Bombay two days, and as no cases had occurred previously in Bombay, the incubation period, for this particular case, can reasonably be fixed at two days, or less.

The clinical picture presented by the cases was of the usual type, some conforming to the description of "sandfly fever," as given in Colonel Sir Leonard Rogers's book, and some to the description of dengue. The majority of the cases, however, were intermediate in type, and such I cannot pretend to differentiate.

In 35 cases I undertook blood cultures, and in 5 of these a bacillus was obtained identical in every particular with that described by Colonel Rogers in his book. I believe he succeeded in isolating it in 6 out of 110 cases (I speak from memory). The clinical picture in these cases was of the intermediate type.

The bacillus was a difficult one to work with owing to its tendency to auto-agglutination; nevertheless, a goat was immunized by repeated injections with the bacillus until its serum agglutinated in 1 in 800 approximately. With this a sensitized vaccine was prepared and tried in some 20 cases. The results were interesting, but no conclusions can, of course, be drawn from so small a number. In several cases the temperature came down by crisis immediately after the vaccine; in one case it came down in two "steps," each immediately following an injection. In some cases the vaccine had apparently no effect; these were mostly the earlier cases in which smaller doses were given. In no case were there any untoward effects, and in several the patients asked for another dose, as they said it relieved the symptoms. The dose finally decided upon was one of $2,500 \times 10^6$, repeated the next day if necessary.

The complement deviation test was tried in 4 cases with serum taken from patients suffering from the disease at different stages. The goat's serum was used as a known serum, and a watery extract of the bacillus as antigen; the result was a definite negative in each case. I do not, however, consider that this absolutely negatives the possibility of the bacillus being a causative agent in one type of the fever, as the duration of the fever was so short that one would not expect a patient to raise a high degree of immunity to the bacillus.

Injection of the bacillus into rabbits and a monkey were also without result. Here again these animals were old inhabitants of Rangoon, and may well have become immune, whereas the sepoys were all new arrivals.

I do not believe the bacillus to have been a contamination, partly because I have faith in my own technique, and partly because no growth appeared in those cultures which were positive until the second or in one case the third day of incubation.

I also undertook a series of differential blood counts, in some of these cases, from blood smears taken daily during