

colour of the patient should be good and the skin normal, the respiration even. The uterus should remain well contracted.

The C.M.B. rules forbid the midwife to leave the house until an hour has elapsed. She should never leave until the uterus is firmly contracted and the pulse normal. She will re-visit in approximately six to eight hours to assure herself that all is well and to give the necessary nursing care.

—By courtesy of "The Nursing Mirror."

The Treatment of Wounds and Burns by the Envelope Method.

(Report on a lecture given at the London Hospital by John Bunyan, Surgeon Lieut.-Commander (D), R. N. V. R.) (Continued.)

Treatment of Burns.

The general treatment of shock etc., need not be detailed here. It may be mentioned that when a general anaesthetic is necessary for the debridement and dressing of burns, it need only be a slight one.

There is much confusion regarding the best method of first-aid treatment for burns, and guidance has hitherto taken the rather negative form of instruction to do nothing. Since some time may elapse before admission to hospital, it is felt that the application of packs of E. S. H. to the burn is a considerable advantage; the relief of pain and the practical disinfection, together with prevention of fluid loss, are of great importance. Packs may be applied anywhere quite easily and cannot possibly do any harm.

First degree burns may be bathed in 50 per cent. E. S. H. for 10 minutes, after which the concentration is lowered to 10 per cent. for 10 minutes. The area is dried and then covered with adhesive plaster. Relief of pain is found to be immediate, and after 24 hours there will be little sign left of the burn. Second and third degree burns may be classed as either primary or secondary. Primary burns are those that arrive for treatment without having received any attention other than first-aid.

It must here be noted that it has been found most difficult to decide at first whether a burn is a bad second or of actual third degree. There can be no doubt that many second degree burns progress to third degree because of sepsis and trauma, and it is felt that the use of this method will enable treatment to be carried out without the possibility of any harm until the degree of the burn is established. By then any form of treatment may be undertaken without having run the risk of the catastrophies associated with the treatment of deeper burns.

A patient with a second or third degree burn is premedicated and anaesthetised as may be necessary, and local treatment is begun. When the blisters are unbroken the area is washed over on the surface with 20 per cent. E. S. H. at 100° F. Blisters should then be aspirated with a fine needle and some 10 per cent. E. S. H. injected into them.

This should be left in for five minutes, and then withdrawn with a syringe and needle, and the skin pressed down flat with a dry dressing. When the skin is broken the dead skin should be cut away under a stream of E. S. H., bathed for 10 minutes in a 10 per cent. solution, and covered with a sheet of the special coated silk sealed at the edges with adhesive tape.

To deal with large burnt areas a suitable silk envelope, previously sterilised—except the seal—in 10 per cent. E. S. H. is fitted. E. S. H. in the strength described is run through the envelope, washing all the affected areas. The envelope is drained well and then inflated with oxygen, the inlets being sealed with adhesive tape or rubber-covered clips. Next day the irrigation routine begins: 5 per cent. E. S. H. is employed at 100° F. and is run through the envelope over the affected area for 20 minutes. This procedure is carried out three times a day, draining thoroughly for half an hour after the irrigation and then inflating with oxygen. A sheet of coated cotton is placed under the affected part to prevent wetting of the bedclothes, and the tube from the outlet is run into a basin, all this being explained in the directions for applying the envelopes.

In the case of hands, the envelope may be filled with E. S. H. for the last 10 minutes of irrigation to encourage the patient to move the fingers and wrist. A jet of E. S. H. from a Higginson syringe through the inlet opening may be used to remove sloughs and exudates.

In the case of third degree burns of the hand and forearm, an arm bath is filled with E. S. H. solution up to a concentration of 20 per cent. The more cleansing that has to be done the stronger should be the concentration. A jet from a Higginson syringe should be employed to scour-irrigate the limb, using the solution in the arm bath. Dead skin should be removed almost to the margin of the burn. It should not be removed right up to the edges, to its junction with normal skin, as this may result in subsequent pain. No scrubbing should be employed. Hosing with the Higginson syringe should be continued until spontaneous hæmorrhage takes place and the burnt area becomes covered with a firm shiny fibrin coagulum. If profuse bleeding occurs no anxiety need be felt, since it has been found that it will cease spontaneously when the envelope is applied. Definite bleeding points should be twisted or ligatured. Axillary depilation and nail-cleansing should be carried out.

The burned area is now covered with coated silk sheeting and dried outside this with sterile towels, the envelope being slipped into position over the limb and outside the sheeting. The latter is withdrawn from inside the envelope, the normal skin beneath the seal of the envelope is dried with ether meth. and the seal is closed. A small quantity of E. S. H. (of concentration previously described) is then run over the whole limb, the envelope is drained, oxygen is run in, and the inlets are sealed. Routine thrice-daily irrigation is now maintained for as long as necessary, as previously outlined.

These details apply equally to burns of the legs, but there are certain practical points of importance in addition so far as the legs are concerned. It is convenient to lay the patient on a length of coated cotton sheeting spread out on a table (*e.g.*, an operating table), the sides of the sheeting being raised up by any suitable device. The lower end of the sheeting is formed into a trough leading to a receiver at the foot of the table. The table is slightly tilted to allow the fluid to run into the receiver. The whole of the affected area is then sprayed with E. S. H. of suitable concentration. The whole leg may be enclosed in an envelope, but if this is done, care should be taken to see that the foot is thoroughly cleansed. In burns involving the upper thigh, pubic depilation is necessary, and should there be no room between the perineum and the burn for the envelope to be sealed, then its use should not be attempted. Burns of this nature need treatment in a "perineal bath", which has proved of great value in the treatment of burns and wounds involving this area. Otherwise, primary third degree leg burns are treated exactly as those of the hands and arms.

Secondary third degree burns are those which have been subjected to treatment beyond that of mere first-aid and which have failed to heal and have become infected. The technique of their treatment is similar to that of the primary type, but cleansing must be very thorough. When suppuration is present under the tan the latter should be dissected away to the healthy margins. Any obviously necrotic subcutaneous tissue should also be removed. The dissection should be carried out under a stream of E. S. H. up to 20 minutes after the removal of the tan. The envelope is then applied and routine thrice-daily irrigation instituted as previously described. Healing usually proceeds rapidly in third degree burns subjected to this treatment and at the end of ten days, and sometimes earlier, any areas needing it can safely be skin-grafted.

Where the face and head are burnt, the initial cleansing is done in the normal manner, except that 10 per cent. E. S. H. is used. This is sprayed on through a vulcanite rose, with the patient bending his head over a wash-basin or bowl. If a patient cannot leave his bed, he lies with a silk sheet attached around his neck and beneath his head, forming a chute through the head of the bed into a pail. This may be used as the dressing after irrigation. A cylindrical envelope which has slits for the eyes, mouth and nostrils, is then applied. In the two cases treated in this manner the patients have been free from pain, oedema of the eyelids has been reduced very rapidly, and the eyes have shown no signs of any irritation. Where necessary the eyes are washed with 1 per cent. E. S. H. solution, after which drops of sterile paraffin are inserted. Immediate skin-grafting may be carried out in many cases or may be deferred for a few days to permit some granulation.

Burns of the limbs may be complicated by the presence of compound fractures. When this is the case, it is suggested that treatment might be as described and plaster or other splinting be applied outside the envelope. In some cases, splinting is best fitted (if it is small) inside the envelope.

It has been noticed that most of the burns suffered by small children are extensive and are not capable of being treated in one or other of the limb envelopes. Small vests have been made for covering burns of the upper part of the body, and a night-gown of coated silk with hood has been fitted so that the whole of the child is enclosed, leaving sufficient length from the feet to form a trough over the end of the cot. Children can move freely in this and are quite comfortable and free from pain.

Grafting

The envelope system of treatment has been successfully employed in the early preparation of an area for grafting. When a denuded area has progressed under treatment sufficiently to be ready for skin-grafting, an irrigation is carried out and the envelope immediately removed. The whole area to be grafted is gently wiped over with gauze soaked in 1 per cent. E.S.H. Grafting is then carried out in the usual way. The skin-graft may be kept in position by a sheet of perforated coated silk stitched to the surrounding skin. A new envelope may now be applied, and after 24 hours have elapsed irrigation once daily with 1 per cent. E.S.H. can be resumed. In many cases the skin can be taken from the same limb and both areas healed in the same envelope. The system is not in any way meant to displace skin-grafting. It is left entirely to the surgeon in charge of the case to decide whether he will leave the area to heal or whether he will carry out an early skin graft. In any case, the use of the envelope will ensure the prevention of secondary infection.

Report of a case.—A man, aged 26, admitted January 29th, 1941, with petrol burns of palmar surface of wrist and hand, and two small areas on each side of dorsal surface of hand—second degree. Morphine $\frac{1}{4}$ grain was given intravenously and the hand was washed down for 20 minutes with 20 per cent. E.S.H. finishing with 10 per cent for 8 minutes. All blistered skin was excised. Patient did not complain of any pain, merely remarking that it was tingling. After 5 minutes of washing, the capillaries dilated and soon burst, but the slight hæmorrhage persisted for only 5 minutes. The whole area became covered with a shiny fibrinous film. A hand envelope was fitted and was inflated with oxygen.

The next day two washings with 5 per cent. E.S.H. were carried out and the patient was discharged for daily treatment as an out-patient. The hand was irrigated with 5 per cent. E.S.H. each day and epithelization was rapid. On February 10th, the envelope was removed and all areas were found to be covered with pink cuticle. The hand was quite painless to touch, and full movement was possible. The patient was discharged to return to work in a few days. He reported on February 20th, having been employed as a bricklayer for a week. The epithelium had cornified owing to the hard work and local and general conditions were excellent. This case shows that the method may be used successfully in the Out-Patient Department.

Clinical Progress.—The preliminary irrigation readily cleans the whole area of the burn or wound. In many cases there is considerable capillary dilation and transudation with spontaneous hæmorrhage, which stops very quickly with the production of a shining fibrin coagulum; the patient feels little or no pain during irrigation and is almost always comfortable afterwards. Soreness may persist for a few hours in some cases of secondary burns. Oedema is often visibly reduced during the washing and the patient may remark on the loosening-up of an affected limb. Excessive exudation tends to cease at the end of the washing. No sign of aggravation of primary shock have been seen. Tissue and bacterial toxæmia are favourably controlled, providing that the burn or wound has been adequately cleansed and all dead material removed. The latter is softened by irrigation, its adequate removal being thereby much eased.

So far as the daily irrigation through the envelope is concerned the patients remain comfortable and can lie on the burnt area with ease. They usually look forward to the irrigation, which they describe as soothing. In most cases temperature and pulse quickly settle and the burn or wound heals rapidly. Movement is encouraged since it is certain that skin grown on a functioning joint is more likely to withstand use than skin grown on an immobile limb. Patients with burnt hands are made to use them as soon as possible from the time of the application of the envelope. They are encouraged to use a knife and fork and to grasp objects.

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The morale of the patients is high and confidence is gained from the start : one never sees the frightened staring appearance so often associated with burns. Some apprehensive patients may describe the irrigation as giving a "tingling" or "pricking" sensation. This is never really unpleasant, and has usually disappeared after the first two irrigations. Secondary burns are more sensitive than primary ones. When epithelization is slow, shortwave therapy may accelerate it.

It has been found that the new skin grown over damaged areas as in third degree burns is of sound and well vascularised quality, though perhaps there have not yet been enough cases over a sufficient period of time to form final conclusions on this point.

It is control of infection which is important. It has never yet been possible to completely sterilise a wound, but from the clinical signs, and from the fact that the burns heal, it seems that the infection has been adequately controlled. There are some who would even go so far as to say that a sterile wound is probably not desirable. Be that as it may, normal healing has been obtained in ten days by this method, and yet bacteria could be grown in the envelope. It must be said, however, that the number of bacteria are very small and in some cases growth is difficult.

Considerable work has been done on the treatment of all types of wounds and injuries to soft tissue and bone and the results obtained are extremely gratifying.

(concluded)

—From The London Hospital League of Nurses Review.

LETTER TO THE EDITOR

GENERAL HEADQUARTERS, INDIA,

ADJUTANT GENERAL'S BRANCH,
MEDICAL DIRECTORATE,

New Delhi, 16 November, 1942.

DEAR MISS HARTLEY,

In your November issue I noticed an excerpt from a letter written by one of my A.N.S. which brought rather forcibly to my mind, the many strange notions which abound concerning the relative status of the A.N.S. and the qualified Sister in the Army. These ideas exist not only in the public mind, but also in the hospital world, even among the A.N.S. and Sisters themselves.

I think it is time an authoritative statement was made and would be glad if you can find room to publish the following facts:—

Only fully qualified TRAINED State Registered Nurses can enter the Military Nursing Service, Indian or British. As Sisters they hold rank of officers and function as such within their own sphere, a position to which they are entitled by their training and qualifications.

A.N.S. are not qualified nurses. They do not hold military rank, but they are accorded the same privileges as the Sisters who are officers. The V.A.D's., the British equivalent of the A.N.S., do hold military status, that of Other Ranks. They replace orderlies, but like the A.N.S., they too receive officers' privileges for purposes of travelling, accommodation, food etc.

Only when it comes to professional duty is there a dividing line. How could it be otherwise? Here the position of the A.N.S. is analogous to that of a probationer nurse in a civilian training school. Her designation is NURSE, not STAFF-NURSE or SISTER, appellations to which she cannot possibly have any claim, since they belong to those who have qualified after completion of a fully correlated general training at a recognised training school. A Military Hospital is not a recognised training school. It exists for an entirely different purpose and is therefore not organised on suitable lines for meeting the needs of student nurses who aim to become possessors of Nursing Diplomas.

Many A.N.S. have come to love their nursing work and it is hoped a large proportion of these girls will seriously consider general training at the earliest opportunity. They should beware of thinking present experience will do instead of training and they