

Technique of the Treatment of Burns by Paraffin Films.

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Paraffin films, including ambrine and similar preparations have been employed for the treatment of burns in a large number of clinics with varying success. Paraffin, itself, is inert chemically. If there is virtue in the treatment of burns by this method it lies in the provision for a normal reaction on the part of the patient to the destroyed tissue and with the least amount of connective tissue reaction. The method of application of the treatment is, therefore, very important and many of the failures are due to unsatisfactory technique.

As used by Barthe-de-Sandfort, the inventor of the paraffin mixture which bears the trade name of ambrine, the treatment is somewhat as follows:

When first seen the burn, if severe, is not cleaned but the dressing is done at once after the area is thoroughly dried. A thin layer of ambrine is applied locally with a soft brush at about 60° C. (A spray may be used if desired). Over this a thin layer of cotton is laid, followed by a second layer of ambrine applied with a brush. (If ordinary cotton wadding be split and the two separated layers be still further thinned with a fine tooth comb a satisfactory covering is obtained). Next, a thick layer of absorbent cotton is placed followed by non-absorbent cotton, so that the whole dressing shall be from seven to ten cm. in depth. Cover this with a starch bandage so that the burned area may be protected from any uneven pressure. If there is a considerable amount of slough the application of rubber tissue over the second layer of ambrine is said to hasten its separation. The dressing is repeated in twenty-four hours and aseptic precautions are observed throughout in order that full advantage may be taken of the bactericidal action of the secretions over the burn. If the dressing be properly applied and cared for the whole film floats freely on a layer of serum, *a purée de polynucléaires.* It is ^{essential} necessary to allow the dressing to float thus without any uneven pressure.

The continued application of ambrine to newly epithelialized areas may cause maceration of the delicate covering. It is therefore well to protect rapidly advancing margins with some bland ointment. Before application of the dressing the wound may be swabbed with half strength hydrogen peroxide, but must afterwards be thoroughly dried by a fan or very lightly applied gauze before proceeding with the dressing. Apparently, it is the careful prevention of any local trauma or constriction that is all important to minimize the amount of contracting scar tissue and to provide for a smooth, pliable surface after burns involving the full thickness of the skin.

The following case is of interest in this regard. The patient, L.--L.--, 21 years old of age, was seen a half hour after her accident. The back of her dress had ~~caught~~^{caught} fire from a gas burner. She was alone in her apartment and, after vain efforts to put out the flames, she ran down three flights of stairs before help was found. She was suffering from burns covering the whole back from the shoulders down over the buttocks and thighs, also the left arm. As was determined later, a large part was third degree burn, although in areas over the thighs and in some parts where the corset stays had been a protection the deep layers of skin were not destroyed. There were smaller burns in front as well.

Ambrine * was at once applied followed by a very thick protective layer of cotton, which was in turn covered with a plaster of Paris shell, applied while the patient was lying face down. The plaster shell was made firm by a few turns of wide cotton bandage about the body. The arm was protected in like manner. After this the patient was kept constantly face down upon a Bradford frame. She suffered no pain from the burns, themselves, after the first application. At each subsequent dressing the plaster shells were removed and reapplied. It was necessary at these times to turn the patient on her right side in order to treat the burns in front.

*Foot note - ambrine substitute of the following composition was used in the treatment of this case - Resorcin gm. 1, Oil of Eucalyptus cc. 2, Olive oil cc. 5, Paraffin Molle gm. 25, Paraffin Durum gm. 67.

The result was that a considerable amount of pressure was brought to bear on the burned area on the right side of the body. Also, as the patient moved her left arm a little within the plaster shell there was a varying amount of trauma to the burn about the dorsum of the elbow. For six weeks the patient ran a considerably elevated temperature. The urinary output was scanty, and, four days after admission, considerable albuminuria developed. The patient was irrational at intervals. She was put on a low protein, salt poor diet. The albuminuria cleared up rapidly. Vesicles were removed from the areas of second degree burn, and healing here was rapid. The appearance of the areas of third degree burn changed very little in the first four weeks, except that the full thickness of the skin sloughed and was removed with the forceps. Epithelialization now became very rapid and the patient's general condition improved though the temperature was still elevated. Except for one or two small areas on the right side healing was complete in ten weeks, and the patient was sent home. The cicatrix was smooth, soft, and pliable. Two small areas were removed for histological examination. They showed absence of papillae, sweat glands, and hair follicles. There was only a small amount of connective tissue reaction. When last seen, seven months after the burn, the cicatrix was still soft and pliable except for an area on the right side and about the left elbow where there was ^hkeloid formation and some contraction of the scar. It was recalled that during treatment these areas were most exposed to trauma by daily turning the patient on her right side and by the movements of her arm within the plaster shell. At the first examination these areas did not appear to be as deeply burned as some of the surrounding areas.

SUMMARY

It is suggested that the methods of application of ambrine employed by Dr. Barthe-de-Sandfort should be carefully followed even though some other mixture of paraffin be employed in place of ambrine. A pliable cicatrix with a minimum of contraction may thus be obtained.

1. Sponge the burn with water or peroxide and then dry thoroughly.
2. Apply ambrine at about 60° C., then ^{a thin layer of} cotton, followed by a second coat of ambrine.
3. Apply a thick outer layer of cotton covered with a starch bandage or plaster shell so that uneven pressure may be avoided. Immobilize the part if possible.
4. Protect recently formed epithelium from ambrine to avoid maceration.
5. Make the dressing an aseptic procedure.