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Burn management is still in the phase of trial. After so many advances in medical sciences, mortality from burn has definitely reduced but morbidity from contracture and keloid are still crippling the sufferer physically, mentally as well as socially.

Burns give rise to raw areas which are prone for invasion by microorganisms and abnormal loss of body constituents in the form of water, minerals and proteins. The loss of blood flow which occurs immediately after burn, starts to return slowly after 24 hours as patent vessels reappear. The delicate dynamic process of revascularization for the purpose of repair is associated with local circulatory stasis which causes vulnerability of wound to dessication and infection. Either of these can trip the balance converting it into a zone of necrosis or full thickness burn.

The water retention ability of skin depends on its effective vapour pressure and diffusion barrier offered by keratin layer and lipid content in the stratum cornium. This lipid is thermolabile and is easily destroyed by heat. If the lipid barrier is removed by thermal injury, the effective vapour pressure gradient is increased by 15-20 times (normal 1.5±.08 mm above atmospheric pressure). This results into a
large amount of evaporative water loss amounting to 3-10 times of normal rate insensible water loss of 40 ml per hour. The amount and duration of loss depends on depth of burn.

Therefore the main emphasis in the treatment of burn is to re-establish the continuity of skin. The raw area after burn should be covered to make it a closed wound which subsequently reduces excessive evaporative water loss and prevents wound infection.

The autografts are the best to cover the raw area but these have their limitations. Alternatively homografts are used but here again availability is limited. Other biological covering materials are allograft skin, heterografts skin, collagen sheet, foetal membranes etc. The cadaver skin is in limited supply in general hospital and it is expensive also.

The concept of temporary biological dressings was introduced in 1930 by Brown. Homografts and heterografts split thickness skin have both proved to serve the functions required of a biological dressing. In 1953, Brown et al reported that it was practical to use postmortem homografts as biological dressings. Since then, cadavers have provided the usual source for homografts. Following the recommendations of Silvitti et al heterografts were introduced to eliminate
the problem of availability of homografts. Heterografts have not proved as effective as homografts in decreasing bacterial contamination of the wounds.

Amniotic membranes were chosen for evaluation. It is not necessary to point out how easy and impersonal it is to obtain this widely distributed human material which at present, seem to find its only destiny to be "Thrown into the bucket", especially if it is normal. It has been stated that since amniotic membrane is formed by the ectoderm of the foetus, it is like an extension of the body skin.

Amnion, chorion and the combined foetal membrane have been used by various investigators as a substitute for skin in the past. Since Sabella's first case describing the use of amniotic membrane in the burn wound 50 years ago, multiple reports have appeared in the world's literature. Most of these were reporting the attempts to use amniotic membrane as a permanent substitute for skin autografts or as a dressing over partial thickness burns. Dahinteroa and Dobrkovsky observed failure when amniotic membranes were applied in deep burns or on severely infected areas. They pointed out that the membranes became autolyzed in 48 hours and disintegrated. Furthermore they stated that the same was true on all granulating surfaces even if they were clean. Similar findings have been reported
by others. In these cases, the membranes were changed every 48 hours. As demonstrated by Shuck and Mancrief for homograft skin, in a less tidy wound, more frequent changes prevent collection of purulent material under the biological dressings. This allows firm adherence of the membrane to the underlying granulation.

Frequently changed amniotic membrane were more successful in decreasing the bacterial count in contaminated rat burns than human skin. This raised the question as to whether there was a substance in amniotic membrane which was specifically antibacterial. One such possibility is allantoin which is known to exist in amniotic membrane. Another possibility is lysozymes, a bacteriolytic protein of low molecular weight which is present in amniotic tissue. Rubin and Bargiovi recently stated that skin itself possesses bactericidal substances in its biological make up such as lysozymes and certain fatty acids. Neither, however, could they demonstrate bacterial inhibitory activity of split thickness human skin in vitro when measured by a disc sensitivity technique.

Another hypothesis for the observed decrease in the bacterial count under the amniotic membrane lies in the intimate biologic closure of the open wound by the membrane. Restoration of the functional circulation through the covered granulations allows a more rapid turn over of phagocytes, serum bacteriolytic factors and may accelerate the removal of
necrotic debris. Therefore repeated application of the membranes allows the host resistance factor in the granulating bed to function at peak efficiency. The increased antibacterial effects seen with the amniotic membrane may be due to the fact that it is less well differentiated than skin.

The amniotic membrane fulfilled all of the functions of an ideal biological dressing. In terms of their large size and ready availability at no cost to the patient, they are actually superior to homograft and heterograft skin. In addition, the membranes appear to have another property subjectively, the rapidity of ingrowth of epithelium from the borders of the wound in full thickness defects and the rate of reepithelization of partial thickness burns appear to be increased by their use. Chao et al and Troensegaard-Hansen also have noted that amniotic membrane seemed to possess some specific healing power. They have reported a stimulation of both fibrous tissue growth and more rapid epithelial repair.

The amniotic membrane after collection from the labour room can be preserved in different types of preservatives. Selection of the preservative is based on reports of Lino (1966). From bacteriological study of preserved amniotic membrane, he concluded that: 1 solution of sodium hypochlorite 1:40 dilution in sterile saline, 2. Sterile
saline solution (400 ml) with 1 gm of kenamycin sulphate,
3. Saline solution (400 ml) with 10 lacs unit of crystalline
penicillin and 1 gm streptomycin sulphate were found to be
best for preservation of the membrane upto 30 days. In the
present study, 50 ml of metrogyl was also added to saline
solution mixed with crystalline penicillin and streptomycin.
In bacteriological reports, it was found that addition of
metrogyl has extended the time of preservation upto 60 days,
but the biological property of membrane reduced in such a
long time. It is seen that the biological property gradually
 decreases with the time.

In the present study, it has been noted that pain and
discomfort disappears, immediately after application of
amniotic membrane and no further analgesics or sedatives were
required after the dressing. Occasionally sedative was
required for psychological support. No allergic symptoms
like rigor, rash, vomiting and giddiness were noticed even
after close watch. These findings are comparable with the
published reports of other workers. The cause of disappear-
ance of pain and discomfort is coverage of exposed nerve
endings.

It has been observed that amniotic membrane adhered
and became dry in 6-8 hours in hot and dry atmosphere and
in 12-24 hours in cold and wet atmosphere. Adherence has been
proposed to be most important property of biological and synthetic materials applied to deepithelialized surfaces. It reduces pain, bacterial contamination and consequently optimize the rate of healing. Most prosthesis and grafts rely on the endogenous adhesive fibrin for adherence. This property of material is therefore determined by the strength of bond that it forms with fibrin. Studies have demonstrated that fibrin bonds preferably to collagen in normal skin.

In most superficial burn cases with mild contamination, where membrane was applied after proper cleaning no re Lawyers were seen. Cases needed only one application and healed quickly.

It has been observed that out of 30 amniotic membrane treated wounds 13 wounds (43.33%) healed within 11-20 days, 5 wounds (16.67%) healed in between 21-30 days 5 wounds (16.67%) healed in between 31-40 days 6 wounds (3.33%) in 41-50 days, 3 wound (10%) in 51-60 days and 1 wound (3.33%) healed in 10 days. 2 wounds (6.67%) did not heal at all after four application of amniotic membrane. Most of those cases which healed between 11-20 days needed only one application of membrane. Two of the cases did not heal at all, or have not shown any sign of reepithelization. These cases were having contracture around the wound area and
they were near the joint. It has been thought that the contracture and its surrounding severe fibrosis have not allowed the contraction of wound area or epithelial proliferation.

In observation at rate of healing in relation to percentage of burn, it has been seen that burn with less percentage healed early in comparison to large percentage. 10 cases (59.9%) healed within 11-20 days, were having only 2-10% of burn. 2 cases (6.7%) which healed within 51-60 days were having 51-40% of burn.

Rate of healing also depends on the contamination of wound at the time of membrane application. Out of 30 cases, 13 cases (43.3%) were having mild contamination and 17 cases (56.7%) were having gross contamination. This contamination was confirmed by sending pus swab for culture. It has been seen that pseudomonas was positive in 17 (56.7%) pus cultures, staphylococcus aureus in 2 (6.7%) pus culture, staphylococcus pyogenes in 2 and klebsiella was positive in 1 pus culture. After cleaning the wound area membrane was applied with systemic antibiotic support. In most of the cases the bacterial sensitivity was for Gentacyin and Ampicillin. At every reapplication, pus culture was sent and antibiotic was changed accordingly. Out of 13 cases with mild contamination, 8 cases healed within 11-20 days, 3 cases within 21-30 days and 1 case healed within 10 days of
membrane application. Out of 17 cases with gross bacterial contamination most of cases healed between 20-60 days and needed more than one amniotic membrane applications. This gives the idea that bacterial contamination delays healing but amniotic membrane has definitely checked the growth of bacteria over the wound area. Julian, A stearing (1950) used the amniotic membrane to treat the old infected flame burns and reported successful results. Martin (1972) in his experimental study on infected wounds of rats concluded that amniotic membrane has been shown to control the bacterial growth as intact skin. Exact mechanism of reduction in bacterial level on wound is unknown. But different workers have suggested different mechanisms. Ucello and Hryder (1970) have demonstrated the presence of multiple factors in human amniotic fluid. These are said to be antibacterial. Chalacho et al (1974) stated that whether these antibacterial factors present in the amniotic fluid are retained in amniotic membrane or not, is uncertain. Should they be present, value of this material for dressing may be enhanced. Martin (1972) using in vitro technique stated that no antibacterial substance could be found which were sought previously. He proposed that in vivo antibacterial effect seen is due to achievement of biological closed wound by the membrane and this allows the host's own defence mechanism to deal with bacterial population as did other biological dressings.
Adherence of skin substitutes is also said to be reducing the bacterial infection by some workers, in split thickness burns and donor sites.

The contamination is directly proportionate to the neglect of wound. Out of 30 cases, 21 cases applied some local preparations, 8 cases applied nothing over wound area and in 1 case membrane was applied immediately after burn. After application of membrane, that case has been discharged from hospital without support of antibiotic and patient has not taken any precaution at home to avoid contamination. The degree of contamination increased with the time interval between burn accident and membrane application. Most of these cases came to the hospital after 3 to 10 days of burn and healed within 10 to 60 days. These cases needed repeated application of membrane, maximum up to four applications. The number of application required, depended upon the depth of burn and contamination. The less the depth of burn and contamination, the less time and number of applications needed for complete healing. The contamination increases with the time of neglect of burn. This pyogenic infection increases the depth of burn and causes early autolysis of membrane, requiring more number of membrane application for healing. This observation has already been reported by Dehinterova & Dobrokovsky.
Two cases came in the hospital after 6-7 months of burn injury. These were the cases where contractures had developed and the surrounding unhealthy scar prevented epithelization of the remaining raw area. Here, the granulation tissue was very well developed and probably autolysis of the membrane occurred every time it was applied (4 times) resulting into complete failure of the membrane application.

It has been observed that cases needing repeated application take too much time in healing as in cases ordinarily being dressed with ointments etc. Still economically, the membrane application treatment remains cheap and also formation of the keloid a contracture is much less.