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Fresh Amnion Membrane Grafting for the Regeneration of Skin in Full Thickness Burn in Newborn - Case Report

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Abstract : The placenta is an important structure that provides oxygen and nutrients to the growing fetus in utero. It is usually thrown away after birth, but it has a therapeutic role in the regeneration of tissue. It is covered by the amniotic membrane, which can be easily separated into the amnion layer and the chorion layer—the amnion layer act as a biofilm for the healing of burn wound and non-healing ulcers. The freshly collected membrane has stem cells, cytokines, growth factors, and anti-inflammatory properties, which act as a biofilm for the healing of wounds. It functions as a barrier and prevents heat and water loss and also protects from bacterial contamination, thus supporting the healing process. The application of Amnion membranes has been successfully used for wound and reconstructive purposes for decades. It is a very cheap and easy process and has shown superior results to allograft and xenograft. However, there are very few case reports of amnion membrane grafting in newborns; we intend to highlight its therapeutic importance in burn injuries in newborns. We present a case of 9 days old male neonate who presented to the neonatal unit of Maulana Azad Medical College with a complaint of fluid-filled blisters and burns wound on the body for six days. He was born outside the hospital at 38 weeks of gestation to a 24-year-old primigravida mother by vaginal delivery. The presentation was cephalic and the amniotic fluid was clear. His birth weight was 2800 gm and APGAR scores were 7 and 8 at 1 and 5 minutes, respectively. His anthropometry was appropriate for gestational age. He developed respiratory distress after birth requiring oxygen support by nasal prongs for three days. On the day of life three, he developed blisters on his body, starting from than face then over the back and perineal region. At a presentation on the day of life nine, he had blisters and necrotic wound on the right side of the face, back, right shoulder and genitalia, affecting 60% of body surface area with full-thickness loss of skin. He was started on intravenous antibiotics and fluid therapy. Pus culture grew Pseudomonas aeuroginosa, for which culture-specific antibiotics were started. Plastic surgery reference was taken and regular wound dressing was done with antiseptics. He had a storming course during the hospital stay. On the day of life 35 when the baby was hemodynamically stable, amnion membrane grafting was done on the wound site; for the grafting, fresh amnion membrane was removed under sterile conditions from the placenta obtained by caesarean section. It was then transported to the plastic surgery unit in half an hour in a sterile fluid where the graft was applied over the infant's wound. The amnion membrane grafting was done twice in two weeks for covering the whole wound area. After successful uptake of amnion membrane, skin from the thigh region was autografted over the whole wound area by Meek technique in a single setting. The uptake of autograft was excellent and most of the areas were healed. In some areas, there was patchy regeneration of skin so dressing was continued. The infant was discharged after three months of hospital stay and was later followed up in the plastic surgery unit of the hospital.

Keywords : amnion membrane grafting, autograft, meek technique, newborn, regeneration of skin
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