

Tangential Excision in Pediatric Burns

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ABSTRACT

A 1-year-old boy sustained full-thickness burns to the abdomen. Skin grafting was performed after delayed tangential excision after wound demarcation, indicating that careful tangential excision to viable tissue after wound demarcation in this vital area could be performed safely. In our study tangential excision was performed to improve outcome of wound healing in pediatric burn patient.

KEYWORDS: Tangential excision, pediatric burns, wound healing

INTRODUCTION

The most frequent types of burn injuries in children worldwide are scald burns. The most common causes of morbidity and mortality in children are these injuries. The patients and their family are affected in the long run on a physical, psychological, and financial level. Most scald injuries take place at home, are accidental, and can be avoided. Scalds are caused by contact with hot liquids or steam. The two main causes of them are immersion burns and spills.

Scalds differ widely for different age groups, gender, and body parts involved, with differences in hospital stay and outcomes secondary to extent of burns. For patients with severe burn injuries, prompt excision and grafting of the burn wound within the first nine days remain essential to survival. Comparisons were made between follow-up outcomes for mortality and morbidity rates. Early excision and grafting operations reduced hospital stays and burn treatment costs in addition to improving the prognosis.¹

METHODS AND MATERIALS

This study was conducted in tertiary care centre in department of plastic surgery after getting the department ethical committee approval. Informed consent was obtained for examination and clinical photography. The subject was 1 year old male presented with acute burn to admitted, sustained accidental scald burns when hot water fell on child while playing over the right upper limb, hand, trunk. Early excision and grafting of burns has become an essential part was done. He had sustained second degree burns (superficial and

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deep partial thickness) over face, bilateral hands, left thigh and bilateral feet which comprised 20% burns (Figure 1).



Fig. 1: Wound at presentation

Initial management included copious irrigation of raw areas using normal saline, dressing of the raw areas. He underwent wound debridement under general anesthesia along with additional procedures such as sucralfate application and low-level laser therapy. He also underwent autologous platelet rich plasma application which was obtained by standard double centrifugation protocol using 10ml of patient's blood which was used in 3 sittings. Tangential excision of the necrosed skin removed and prepared for wound grafting. Tangential excision of a wound is defined as the sequential removal of eschar in thin layers until healthy tissue is reached. Punctate bleeding of the underlying wound bed signals the presence of viable tissue and the end point of excision. Tangential excision can be applied to any eschar of the skin in order to minimize the amount of tissue removed and preserve underlying viable tissue. It is most commonly used in burn surgery. Tangential excision done with the help of the skin grafting blade at the required thickness. Split thickness skin grafting was done after wound bed preparation (Figure 2) for wound cover.



Fig. 2: Tangential excision

Healed burns over the (Figure 3) with movements of the fingers achieved by both active and passive physiotherapy.



Fig. 3: Split thickness skin graft

RESULTS

After tangential excision over period. In our study, by doing application wound healing we were able to successfully reduce the size of wound. No adverse local or systemic effect noted.

DISCUSSION

Early excision and grafting of burns has become an essential part of any successful burn therapy with the emergence of infection control. With this technique, an open wound is largely closed, lowering the risk of infection. Less pain, a quicker return to normal activities, a quicker release from the hospital, and a quicker return to rehabilitation all occur. With fewer scars, metabolic requirements are reduced, and the cosmetic result is improved. Excision is carried out between the third and fifth days following the burn, if at all possible, though it may take longer to determine whether burns are superficial and will heal on their own. Only 10% of the body's surface area may be removed and replaced during a single surgery, and severe burns require many excisions.² Only 10% of the body's surface area may be removed and replaced during a single surgery, and severe burns require many excisions. The procedure is limited to one and a half hours in order to prevent shock and hypothermia, as well as to ensure a quick recovery and early resumption of nourishment. Ketamine is the most frequently utilised anaesthetic, and viable fat is advised as the grafting surface. A sort of early excision grafting called tangential excision can be used alone or in conjunction with other techniques to reach a specific depth. It helps with some types of deep burns that cause partial skin loss, especially scalds, which are frequent in children. Immediately after many slices of necrotic skin are removed,

a thin to moderate thickness allograft is placed. After obtaining many slices of necrotic skin until a punctate bleeding surface is established in the deep dermis, an allograft of thin to moderate thickness is immediately applied. A graft with better texture and fewer scarring can be produced by limiting the region that can be transplanted by preserving the deep dermis. Split thickness skin grafting, which integrates into the healing process and is still the major permanent method of burn wound closure because it restores epidermal function, prevents further hypothermia, protein and fluid losses, and infection risk.^{3,4}

CONCLUSION

In our study treatment with tangential excision of the burn wounds and skin grafting of the burn region have shown to have favourable results in our experience managing burns. With the available methods, there was a noticeable improvement in the healing of raw areas. Multicentric tests with a bigger sample size are required, though, to support the hypothesis.

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