DERMABRASION vs VERSAJET: OUR EXPERIENCE IN THE SURGICAL TREATMENT OF PEDIATRIC BURNS

Palombo M¹, Bronco I¹, Moroni S¹, La Greca C¹, Palombo P¹

¹Department of Plastic and Reconstructive Surgery and Burns Centre Large-Hospital Sant’Eugenio–Piazzale dell’Umanesimo 10, 00144 Rome, Italy


ABSTRACT
Introduction: the limited aesthetic and functional results obtained by the classical surgical techniques in the treatment of burnt pediatrics patients, require the refinement of escarectomia techniques adopted in adults. Therefore we have focused our attention on the use, on pediatric patients, of dermabrasion and hydrosurgery (Versajet ®) as methods of escharectomy.

Materials and Methods: were included in the study patients aged between 3 months and 16 years. The escharectomy of patients with burns of II degree deep was performed with dermabrasion, while in third degree burns patients was used hydrosurgery Versajet.

Results: in Patients treated with dermabrasion there was a reduction of healing withouts carrying evident. The use of Hydrosurgery has allowed the removal of large necrotic areas as by reducing intra-operative bleeding and allowing the cover with dermo-epidermal grafts in a single operative time.

Conclusions: both methods proved to be very handy in the treatment of "difficult" areas (skinfolds, face, hands and feet), with satisfactory aesthetic and functional results.

Key words: Pediatric burns, Dermabrasion, Versajet

RIASSUNTO
Introduzione: gli scarsi risultati estetici e funzionali ottenuti mediante le tecniche chirurgiche classiche nel trattamento delle ustioni dei pazienti di età pediatrica, rendono necessario il raffinamento delle tecniche di escarectomia adottate negli adulti. Pertanto, abbiamo focalizzato la nostra attenzione sull’utilizzo del dermoabrasore e del bisturi ad acqua (Versajet®) come metodiche di escarectomia più delicate e precise nel paziente pediatrico.

Materiali e Metodi: sono stati inclusi nello studio pazienti di età compresa tra 3 mesi e 16 anni. L’escarectomia dei pazienti con ustioni di II grado profondo è stata eseguita con dermoabrasione; mentre nei pazienti con ustioni di III grado è stato utilizzato il bisturi ad acqua Versajet.

Risultati: nei pazienti escarectomizzati mediante dermoabrasione si è osservata una riduzione dei tempi di guarigione senza esiti cicatriziali evidenti. L’utilizzo del bisturi ad acqua (Versajet®) ha consentito la rimozione di
ampie aree necrotiche riducendo il sanguinamento intra-operatorio e permettendo la copertura con innesti dermo-epidermici in un unico tempo operatorio.

**Conclusioni:** entrambe le metodiche si sono rivelate molto maneggevoli nel trattamento di aree "difficili" (pieghe cutanee, volto, mani e piedi), con risultati estetici e funzionali soddisfacenti.

**Parole chiave:** Ustioni pediatriche, Dermoabrasione, Versajet

---

**INTRODUCTION**

Surgical treatment of pediatric burn patients is always a complex challenge for the surgeon, because of the young age of the subjects, the limited availability of autologous skin for dermo-epidermal grafting, the high risk of scarring and disabling sequelae or disfiguring. The classical escharectomies used in the adults can hardly be used in pediatric patients because of the tiny skin thickness and the poor handling of the dermatome in the treatment of "difficult areas" (skin folds, face, hands and feet). In our Unit we have therefore focused our attention on the use, on pediatric patients, of dermabrasion and hydrosurgery (Versajet ®) (1, 2) as methods of escharectomy.

**MATERIALS AND METHODS**

The age of patients range from 3 months to 16 years. We have use dermabrasion to remove the necrotic areas in deep second degree burns in association with advanced dressings containing hyaluronic acid and colloidal silver (Hyalosilver ®) and dermal substitutes (Hyalomatrix ® PA)(3), and in some cases autologous dermo-epidermal grafts have been performed. In third-degree burns, escharectomy was performed by hydrosurgery (Versajet ®) to medium-low speed, followed by autologous dermo-epidermal grafts (with or without the use of dermal regeneration matrices).

**RESULTS**

All patients met full recovery. The deep second-degree burns treated with dermabrasion + advanced dressings (Hyalosilver Hyalomatrix® + PA) had a healing time of about 10-15 days without scarring and / or functional problem. In third-degree burns, hydrosurgery (Versajet ®) allowed the treatment of large areas of necrosis minimizing intra-operative bleeding. In many cases it was possible to proceed with the immediate coverage with autologous dermo-epidermal grafts (with or without the use of dermal regeneration matrices).

**CONCLUSIONS**

The use of dermabrasion combined with Hyalosilver Hyalomatrix ® PA ®, in deep second degree burns resulted in a drastic reduction of the healing time without scarring and morpho-functional sequelae. At the same time, it was not necessary to perform pain full daily medications (4). In third-degree burns, Versajet ® hydrosurgery enabled a more "refined" removal of necrotic tissue, decreasing intra-operative bleeding and duration of the intervention. In addition, Versajet ensured to save areas of viable dermis allowing the use of autologous dermaepidermal grafts in a single operative time (5). Both methods proved to be very handy in the treatment of "difficult" areas (skin folds, face, hands and feet) (6).
REFERENCES


Corresponding Author: Ilaria Bronco
Department of Plastic and Reconstructive Surgery and Burns Centre Large-Hospital Sant’Eugenio
Piazzale dell’Umanesimo 10, 00144 Rome, Italy
e-mail: info@preventionandresearch.com