

Fire works with after effects - Successful use of a polyester monofilament fibre product for the removal of embedded explosive residue



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Introduction

In cases of trauma involving fireworks, gunpowder injuries or road accidents, discolouring particles can penetrate the skin. Although these dirt particles can generally still be removed in the initial 24-48 hours without persistent aesthetic sequellae, later removal of these 'dirt tattoos' may require excision or expensive laser therapy. For prompt post-traumatic patient care, a new wound debrider^a, consisting of polyester monofilament fibres, represents a novel pain-free therapeutic option.

Case report

In this case report, we describe the treatment of a 17-year old male patient from our accident and emergency department. On New Year's Eve, a firework exploded near the patient's face resulting in thermal injuries equivalent to first and second degree (IIa) burns with explosive residues embedded in the skin of the face (Fig. 1).

The forehead swelling was assessed by cranial CT scan and found to be soft-tissue swelling resulting from the direct impact of the firework. Besides the findings on the facial skin, severe bilateral corneal erosion was diagnosed in the ophthalmological examination.

Material and methods

To avoid performing surgical debridement under general anaesthesia, the embedded explosive residue was removed in this patient by using a novel polyester monofilament fibre product. The debrider^a is a novel product consisting of 18 million polyester fibres over 10 cm² for superficial wound cleansing. The side that comes into contact with the skin is soft, with properties specifically designed for the mechanical removal of deposits and dirt particles when it is thoroughly moistened and passed over the surface of the skin while applying light pressure. The product is mechanically resistant and does not dissolve during use. Its fibres are chemically inert and stable and absorb fluids.

Results

Almost all of the embedded explosive residues were removed by a single application of the polyester monofilament fibre product under local anaesthesia (Fig. 2).

Conclusion

The removal of embedded explosive residues using the novel polyester monofilament fibre product represents a non-invasive, almost pain-free alternative to conventional nylon brush treatment for patients with intracutaneous particles as a result of explosive trauma, explosive injuries or road accidents.

The method for removing powder particles with the debrider^a led in our patient to a very good post-operative result. By using this uncomplicated procedure, cosmetically disfiguring persistent dirt tattoos can be avoided and the costs, if any, of extensive secondary treatment, such as laser therapy or dermabrasion, can be reduced.

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Figure 1

Baseline finding on initial presentation 10 hours after impact trauma caused by a firework rocket.

Figure 2

Patient after successful removal of the embedded explosive residues using the debrider^a.

