Use of human fibrin sealant in large split thickness skin grafting after massive skin tumour excision

TO THE EDITOR: Skin grafting is one of the most used technique for wound coverage. The main factor in graft adherence is the condition of the wound bed, that must be well vascularized. The same importance has the prevention of the haematoma or seroma development in the contact between the skin graft and the wound bed. In order to avoid these conditions, classical "tie over bolster" is an advisable technique to achieve an optimal adhesion. For the same principles, it is also recommended to mesh the grafts and put a compressive dressing. In case of extended wound and in difficult areas where is not easy to gain a three-dimensional reconstruction (for example in lower limb reconstruction, hand surgery, post traumatic and burn surgery), the use of the classical methods are difficult to achieve and not always satisfactory.

In these cases, wound healing could be impaired causing a partial adhesion of the graft.

Nowadays more and more experimental evidences suggest that fibrin glue should be considered as component of skin-graft management. Human fibrin glue provides manifold advantages combined with skin grafting. Firstly, fibrin glue preparation is easy and fast. The solutions are accessible to the operating room and easily prepared by the circulating nurse or scrub technician.

We describe the use of Quixil®, a sealant based on fibrin derived from human plasma, for skin grafts fixation on large defects due to the removal of massive skin cancers.

We selected 33 patients with extended skin cancer in which reconstruction with flaps was not recommendable considering their comorbidities and the extension of the defect after tumour excision. We compared this group to other 61 patients, similar in ages and clinical condition, where split thickness grafts were applied without fibrin glue. Between February 2009 and February 2012, 33 patients (20 males and 13 females) was treated with human fibrin glue combined with skin grafting.

We aetiology considered in the study was coverage of defects after removal of massive skin cancer. The localization of the wounds is exemplified in the Table I.

The average area grafted was 185 cm² (range from 48 to 303 cm²), and grafts were 0.2 to 0.3 cm thick. In 30% of cases we meshed the grafts 1:3 and we used sutures stitches and staples almost in all cases. The skin graft and donor site were covered by non-adherent dressing and a secondary medication of sterile gauzes over it. Skin grafts dressing were removed 5 days after surgery.

The percentage of the graft adherence was clinically evaluated and estimated thanks to a digital software (Bersoft Software Measurement 8.15) (Figure 1).

At an average follow up of 78 days, in 28 out of 33 patients (84.8%) more than 95% of the graft dimension adhered. In 3 out of the 5 cases where graft adherence was less of 95% (Table II), the graft was positioned over skull bone, after tumour excision that reached the periosteal tissue. In one case the skin graft was applied after removal of a tumour of the cheek invading the superficial lobes of the parotid gland, where salivary secretion probably impaired the adhesion of the graft and the surgical sealant effectiveness. In the last case graft did not adhere completely due to the not oncologically radical excision (debulking) of the tumor and its coherent growth after skin graft application.

In the 28 positive cases, the common complications of skin grafting (such as necrosis, infection, sliding, haematomas and seromas) were not observed.
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Figure 1.—Preparation of split thickness grafts with fibrin sealant.

Figure 2.—Seventy-eight year patient with skin tumor excision and reconstruction with split thickness skin graft and human fibrin sealant.
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