

Can soft tissue reconstruction with structural fat grafting be used an alternative invasive surgical procedure in patients with post-traumatic facial defects?

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Maxillofacial region injuries are increasing in frequency and severity because of people's increasing dependence on road transportation. Road crashes are the predominant cause of maxillofacial trauma.^[1,2,3] Facial bone fractures can be fixed by the maxillofacial surgeons but surgeons strive hard to find better ways to accurately reconstruct the soft tissue which determines the facial features. These injuries have devastating consequences in the quality of life of the injured. With this background, the study is planned to exploit the newer concepts of autologous fat transfer in trauma cases for reconstruction of facial defects.^[4,5]

Facial rejuvenation with autologous fat has the advantage of replacing or augmenting tissue with like tissue. While these procedures are being done more frequently, there is lack of information to guide physicians in choosing optimal techniques, patient selection criteria and to offer advice on potential complications to their patients.^[6,7,8]

The evolution of fat grafting progressed from excised fat or en bloc grafts to the use of large, fat pearl grafts approximately 4 to 6 mm in diameter many years later. More recently, fat suspension injections obtained by vacuum-assisted devices with cannula harvest and delivery techniques have become the most widely accepted grafting methods, because rejuvenation of the face is accomplished with minimal operative time and limited incisions.^[9,10,11]

Can a minimally-invasive autologous fat injection of the head and neck region be considered as a valid alternative to major invasive surgical procedures for functional and aesthetic purposes? In otolaryngological practice, the favourable outcomes of autologous fat injection are due to the filling of soft tissue and due to the potential regenerative effect of adipose-derived mesenchymal stem cells.^[12,14,15,16]

Being a natural filler, fat can augment all areas of a face. The fat infiltration technique has shown better patient outcomes and has improved surgeon's experience. This technique once mastered, would result in long lasting and more predictable outcomes. Hence it can complement most other facial surgical procedures^[9,16,18].

A survey of practice patterns shows that the most common harvest site of fat is the abdomen^[11]. Syringe aspiration frequently is chosen because it minimizes trauma to adipocytes during extraction. Using this technique, practitioners can manually control the vacuum suction pressure that is employed. Various types of cannulas of different sizes have been used. Primarily, sizes from 14-18 are selected to minimize mechanical damage to the graft.

The main benefit of this procedure is that autologous lipo-aspirates placement along with mesenchymal stem cells into the appropriate microenvironment will have the restorative effects such as 1) bone's sub-periosteal, 2) reshaping of muscles, and 3) restoration of fat pads to contours. By targeting the rich vascular bed of the muscles of facial expression, graft predictability, symmetry, and survival are greatly enhanced.^[18,19,20]

Based on above mentioned knowledge, the author feels that soft tissue reconstruction with structural fat grafting will help to improve invasive surgical procedure in patients with post-traumatic facial defects. There is an urgent need to study on this subject.

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