

Regional Grafts for Closure of Postsurgical Defect in Anterior Maxilla: Versatility of Chin Graft and Local Rotational Flap

Varsha Sunil Manekar

ABSTRACT

The management of postsurgical defect is a challenge for the maxillofacial surgeon. With the success of various autogenous grafts and surgical flaps the reconstruction surgery creates definitive results. This article is a case report of reconstruction of osseous defect and closure of soft tissue fenestration in the right anterior maxilla. An autogenous corticocancellous graft from the mandibular symphysis is used for reconstruction of the osseous defect of around 15 × 15 mm. The mucosal fenestration of around 10 × 10 mm is closed by rotational flap based in the labial sulcus. The defect and the donor site healed uneventfully. Both osseous and mucosal defect healed with esthetic results. Thus, the regional flaps prove the versatility by convenience of graft taking, no donor site morbidity and biological resemblance of tissues.

Keywords: Osseous defect, Mucosal fenestration, Symphysis graft, Rotational mucosal flap.

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INTRODUCTION

The management of postsurgical and post-trauma defects is a challenge for the maxillofacial surgeon. With the success of various autogenous grafts and surgical flaps the reconstruction surgery creates definitive results. This is a case report of closure of osseous defect of around 15 × 15 mm and mucosal fenestration in anterior maxilla. An autogenous corticocancellous graft from the mandibular symphysis is used for reconstruction of the osseous defect. The mucosal fenestration of around 10 × 10 mm is closed by rotational flap based in the labial sulcus. The regional flap and graft proves the versatility by convenience of graft taking, no donor site morbidity and biological resemblance of tissues.

CASE REPORT

A 15-year-old male patient reported to the OPD with complaint of pain and pus discharge from the anterior right maxilla. His concern was the fenestration in that region (Fig. 1). He gave history of extractions of all four first premolars for orthodontic treatment 9 months back. The cyst was then detected in the anterior maxilla. He had

radiographic records, case papers and histopathological report of the oral pathology department of the same institute. Figure 2 shows the OPG showing the cyst extending from left lateral incisor to the right premolar. All teeth were then endodontically treated and cyst was enucleated. The histopathological report was suggestive of keratocyst. Thus, the cyst was conservatively treated. There was gapping of the wound which was resutured. The patient reported to our center 6 months after the surgery.

When patient was reported to my department he had infected wound in the premaxilla with mucosal fenestration of 10 × 10 mm (Fig. 1). The OPG showed the defect in between right lateral incisor and canine (Fig. 3). All incisors and right canine and second premolar were endodontically treated. The reconstructive computed tomographic (CT) image showed the osseous defect in the right side between canine and second premolar (Fig. 4). After studying the



Fig. 1: Intraoral area showing soft tissue fenestration



Fig. 2: Panorex showing extension of cyst as well as orthodontic appliance

CT images (Fig. 5), it was concluded that there was osseous defect of around 15×15 mm between right maxillary canine and second premolar, the thickening of right maxillary sinus lining. There was definite decrease in the cystic size and the communication between the defect and the sinus was ruled out. The history from records and the clinical examination lead to the diagnosis of infected postsurgical osseous and mucosal defect. The patient was first treated for infection and the wound was explored under local anesthesia. There was no lining and no communication with



Fig. 3: Panorex showing postsurgical defect and endodontically treated teeth

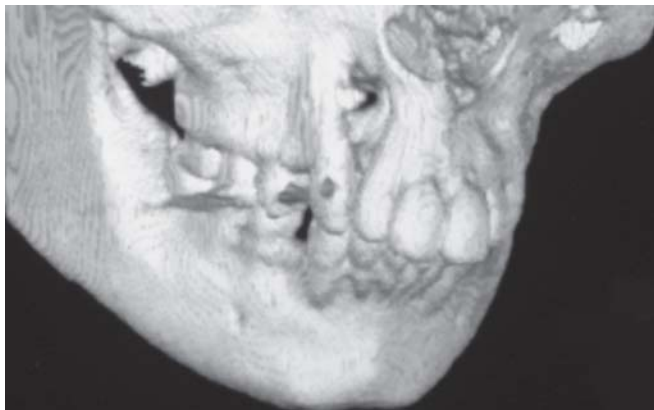


Fig. 4: Reconstruction CT image showing osseous defect

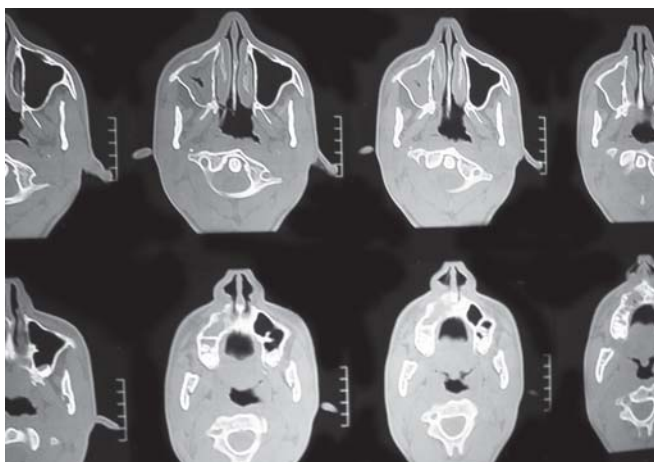


Fig. 5: CT scan

maxillary sinus. The ENT surgeon was opined regarding asymptomatic sinus thickening.

Thus, the osseous defect of 15×15 mm and mucosal fenestration of 10×10 mm remained and this was patient's main concern. A reconstructive surgery was planned. The free osseous graft from the mandibular symphysis was harvested for osseous defect. The closure of mucosal defect was planned by local flap-buccal advancement flap. Figure 6 shows the marking for the incisions for buccal advancement flap. The mucoperiosteal flap in the alveolar region and mucosa flap above the reflection in the buccal sulcus was raised. The flap was mobilized (Fig. 7), so that it could cover the defect and can be sutured with no tensions. The osseous graft was harvested from the symphysis (Fig. 8). Figure 9 shows the osseous defect between the canine and premolar. Figure 10 shows the defect filled with the osseous graft. The patient was operated under local anesthesia and followed closely in postoperative period. The healing was uneventful at donor site as well as recipient site. Figure 11 shows the soft tissue healing after 3 months. There is complete closure of fenestration. Figure 12 shows the OPG taken immediately postoperatively and shows the osseous graft in place. Figure 13 shows the 3-month postoperative OPG, the graft is getting organized. Figure 14 shows healed osseous donor site. Thus, the postsurgical defect was successfully reconstructed with symphysis graft and buccal advancement flap.

DISCUSSION

The mandibular symphysis is a potential source for limited amount of required autogenous bone like in alveolar grafting. The symphysis has been used successfully for alveolar clefts in several patients between ages of 8 and 15 years. The mandibular symphysis harvesting site has several advantages. The mandibular symphysis can be surgically approached intraorally hence there is no extraoral scar. The harvest site is within primary surgical field. Thus,



Fig. 6: Incision marked for flap design around fenestration

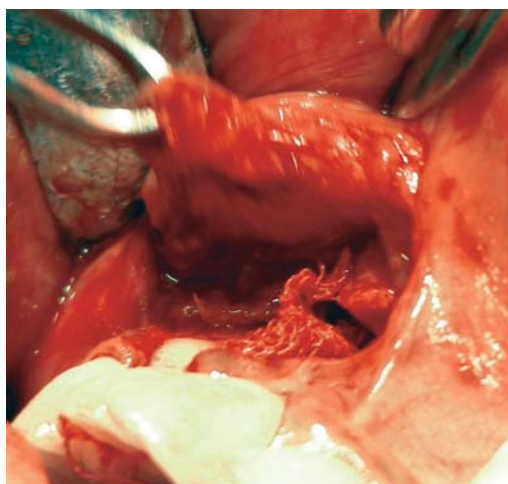


Fig. 7: Buccal advancement flap mobilized

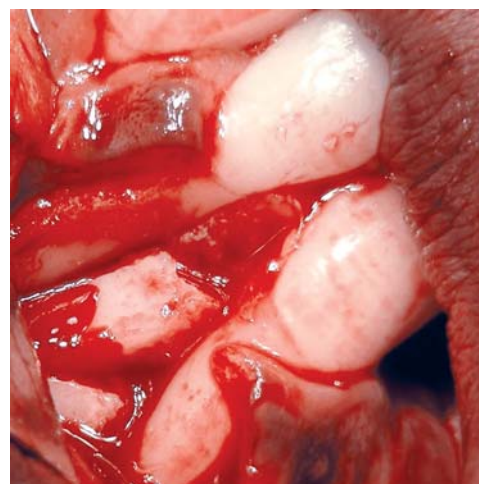


Fig. 10: The osseous graft filled in the recipient site



Fig. 8: Symphysis donor site exposed with the graft cut



Fig. 11: Success of reconstructive surgery. No defect with good buccal sulcus depth



Fig. 9: Osseous defect as seen after reflection of flap



Fig. 12: Immediate postoperative panorex showing graft bone in the defect

it is accepted well by the patient. Depending on the teeth developing in mandibular symphysis there is a risk to unerupted teeth and also the mandibular incisors. The major difficulty is the lack of predictable quantity of bone.¹

Advancement flaps have a linear configuration and are advanced into the defect along a single vector. These flaps can be single or double. Advancement flaps are often chosen when the surrounding skin exhibits good tissue laxity and the resulting incision lines can be hidden in natural creases.

Advancement flaps limit wound tension to a single vector with minimal perpendicular tension. They are often helpful in reconstructing defects involving the forehead, helical rim, lips and cheek. Intraoral uses of advancement flaps include covering oroantral fistulas and alveolar clefts. A disadvantage of buccal advancement flaps is the decrease in vestibular sulcus depth.²

The postsurgical osseous defect in right anterior maxilla was reconstructed with bone harvested from the intraoral

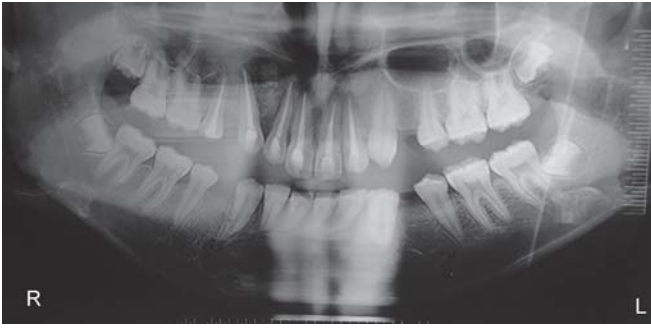


Fig. 13: Three-month postoperative panorex showing success of osseous graft



Fig. 14: Healed symphysis donor site

site—symphysis region. There was no donor site morbidity, wound gapping or paresthetia. The mucosal fenestration was closed with buccal advancement flap after refreshing of the mucosa around defect. This local flap was sufficiently mobilized and the buccal sulcus depth was maintained. Thus, the defect was closed successfully with uneventful healing of both donor and recipient sites. This case report is to convey the simple reconstructive surgical procedure which can close small postsurgical or post-traumatic defects. The intraoral, i.e. regional donor site and local flaps are far more convenient for both patients and surgeons, thus are versatile for such cases.

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ABOUT THE AUTHOR

Varsha Sunil Manekar

Associate Professor and Head, Department of Oral and Maxillofacial Surgery, Government Dental College and Hospital, Nagpur Maharashtra, India, e-mail: varsha_manekar@yahoo.co.in