

Closure of Oro-Antral Communication with Autogenous Bone Graft Harvested from Chin: A Case Report

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ABSTRACT

Background: Smaller oro-antral communication can be successfully treated with primary closure, buccal fat pad, buccal advancement or palatal flap but for the closure of large bony defect graft is necessary. The use of autogenous bone grafts harvested at intra-oral donor sites is a safe and easy technique for repairing these defects, especially Oro-antral Fistula in need of secondary closure. It provides a sound basis for subsequent conventional sinus lift and preserves the vitality of adjacent teeth. 28year old patient reported with complain of pus discharge from previously treated oro-antral communication. Previous closure with buccal fat pad had been successfully done. Patient did not have any complain till the time when there was infection and pus discharge from that region. For that he was treated with autogenous bone graft harvested from interforaminal region of chin mixed with hydroxyapatite crystal and platelet rich plasma.

Keywords: Communication, fistula, autogenous, bone graft, PRF.

INTRODUCTION

An oroantral communication (OAC) is an open connection between the oral cavity and maxillary sinus. OACs may close spontaneously especially when the defect has a size smaller than 5 mm [1].oro antral fistula can be closed successfully with various surgical techniques. If a previous conservative closure of large oroantral fistula fails due to large bony defect combined with severe infection, it may be possible to close such a fistula satisfactory with insertion of autogenous bone graft into bony defect [2]. It is important to identify the largest diameter of the bone defect on preoperative radiographs and to decide (clinically and/or radiologically) whether the chin or the retromolar regions are adequate donor sites [3].

CASE REPORT

22 year old patient was treated successfully for oro-antral communication in 15 region with buccal fat

pad 2 years back [4-7]. Patient was symptom free for 2 years. After which, recently Patient reported with complain of pus discharge from the same region. There was no sign of re-establishment of communication between sinus and oral cavity at that time. Adjacent teeth were vital. Previously done closure with the buccal fat pad was completely epithelialized. There was small fistulous tract in 15 region from which pus discharge was present. CT scan showed large bony defect of approximately 13*13 mm in size in that region. For that patient was planned to be treated with autogenous bone graft harvested from interforaminal region of chin mixed with hydroxyapatite crystal and platelet rich fibrin graft [8].

SURGICAL PROCEDURE

After giving general anaesthesia naso-endotracheal intubation was done. Painting and draping was done in conventional manner. Local anaesthetic agent with adrenaline (1:80,000) infiltrated in right

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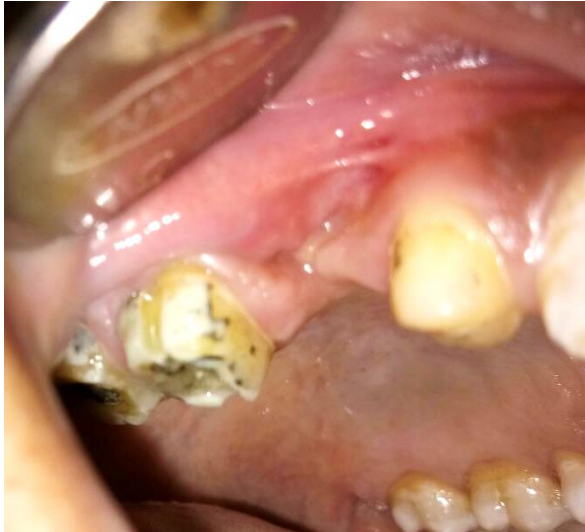


Fig 1: Patient was having chief complain of pus discharge from 15 region (arrow).



Fig 2: Preoperative CT scans showing large bony defect.

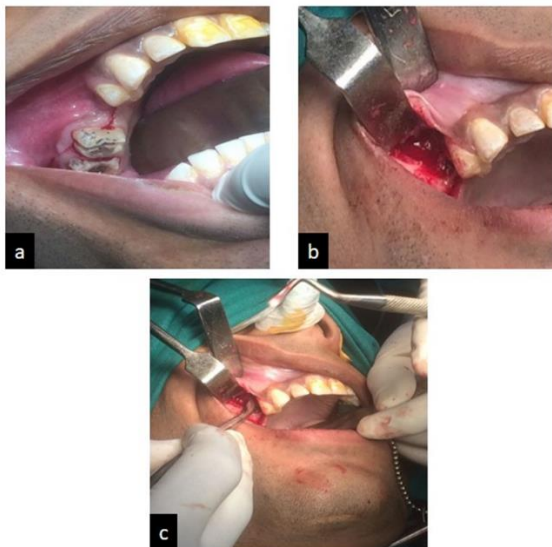


Fig 3: (a) incision was given. (b) mucoperiosteal flap was elevated. (c) Fistulous tract removed and debridement was done.

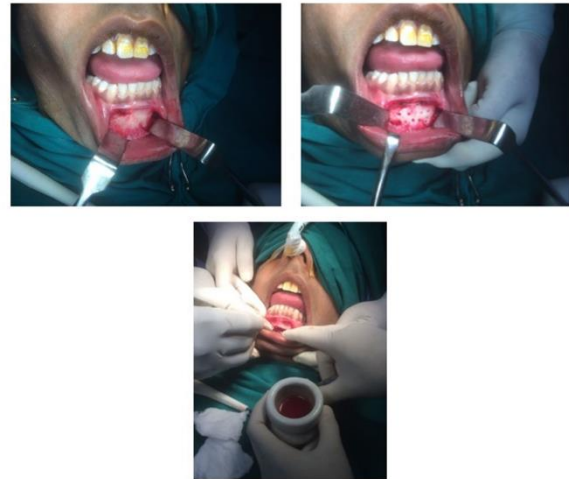


Fig 4: (a) Degloving incision was given. Symphysis region exposed. (b) Depth holes drilled. (c) Cortico-cancellous bone was harvested and crushed into powder form.



Fig 5: PRF membrane prepared.



Fig 6: (a) Bone graft sandwiched between two layers of PRF. (b) Primary closure done. (c) Donor site closed.



Fig 7: Post-operative radiograph.

upper buccal vestibule and lower labial vestibule. Incision is given on the defect site first. Incision started from the 14 region as crevicular incision extended distally as crestal incision slightly palatally In 15 region. Incision extended distally and crevicular incision was given in 16 region, distal releasing incision was given excluding the distal papillae of 16.

Full thickness mucoperiosteal flap was elevated and bony defect was identified in 15 regions. Fistulous tract was removed, irrigation and debridement was done. Haemostasis achieved and Pressure pack was given in recipient site. Degloving incision was given for the donor site. Incision given on the lower labial vestibule starting from 33 extending to 43 region. Full thickness mucoperiosteal flap was elevated and mentalis muscle stripped off from symphysis region. Mental foramen were identified and Interforaminal region of the symphysis was exposed.

Depth holes were created and joined for the osteotomy cut, rectangular cortico-cancellous bone block was harvested from the interforaminal region. Bone block was broken into small pieces with the help of bone rongeur and crush into the form of the powder with the help of mortar and pestle. Plug of the bone was formed by mixing the autogenous bone granules and hydroxyapatite crystals with patient's blood. Platelet rich fibrin was formed with patient's venous blood.

On the recipient site, base was formed with platelet rich fibrin membrane, over which the bone graft plug was placed. Graft was covered again with the platelet rich fibrin membrane. Primary closure was done. With 3-0 vicryl on the recipient site. On the donor site, two layer closure was done, with 3-0 vicryl sutures. Haemostasis achieved. Immediate post-operative acrylic plate was given to prevent the infection.

DISCUSSION

The oroantral fistula (OAF) is a pathological communication between the oral cavity and the maxillary sinus; depending on the location it can be classified as alveolo-sinusal, palatal-sinusal and vestibulo-sinusal^[4]. They may be the result of cysts, traumas, tumors, pathological entities or even minor surgery. An OAC of less than 2 mm in diameter tends to close spontaneously, whereas those larger than 3 mm require surgical closure^[6]. To meet the contemporary requirements the repair method of an oroantral communication with single stage alveolar augmentation with autogenous bone graft and PRF has found its use^{[8][10]}. Autogenous bone grafts are a golden standard of treating bone loss and defects.

In this case we used cortico-cancellous bone graft harvested from chin which was sandwiched between two layers of PRF membrane in recipient site. The advantages of using mandibular bone grafts in this case is related to using the same operation field, easily accessibility, reduced operating time, minimal postoperative complains, and absence of visible scar^{[9][10]}. The technique to close the oroantral communication using autogenous bone graft and a PRF membrane can constitute an interesting alternative to traditional single and bilayer procedures to close oroantral communication^[9].

It allows the alveolar shape to be maintained and even to increase its vertical dimension. A well-profiled graft acts as a form of plug, securing from pressure changes in paranasal sinuses. The PRF membrane covers the graft, while the components contained in it have positive impact on its integration^[8].

CONCLUSION

At the present time, bony closure of OACs seems to gain interest. This is probably as a result of the rising demand for implant rehabilitation. When placement of an endo-osseous implant is desired, bone grafting for closure of the OAC might be the best option. Intraoral bone harvesting is the current strategy of choice for bone harvesting, reducing patient morbidity compared with extraoral bone harvesting.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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