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Rehabilitation of Mandibular Defect Using Unconventional Approach: A Case Report

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***Abstract*—** *In cases of orofacial rehabilitation, quality of life depends upon the outcome of treatment provided by a maxillofacial management team that usually includes oral surgeons, radiologists, prosthodontists, speech specialists and plastic surgeons. Patients with maxillofacial defects often suffer from disturbed psychological status and are often treated as stigma to the society. Prosthodontists have a key role in restoring aesthetics and occlusion of such patients which ultimately aids improve the psychological status and quality of life of such patients. The prosthetic rehabilitation on compromised tissue beds requires meticulous treatment planning and precise execution. Short-listing treatment options become an enigma if conventional approaches for maxillofacial rehabilitation are contraindicated. This report describes a case of ameloblastoma of the mandible in which conventional grafting and implant prostheses were not indicated*.

***Keywords*—** *Ameloblastoma, maxillofacial rehabilitation, spring denture, quality of life*.

I. INTRODUCTION

Hard and soft tissue integrity is compromised due to congenital or acquired or developmental abnormalities, accidental trauma and acquired disfigurement due to maxillofacial surgeries.[1] Midline defects including complete or partial involvement of jaws affect basic functions such as phonation, mastication, and aesthetics thereby affecting quality of life, psychological, and social behaviour of the patient. Such defects are managed by a maxillofacial rehabilitation team requiring maxillofacial prosthodontics to restore the function and appearance.[2] When conventional treatment options cannot be adopted due to compromised tissue support, modifications in the fabrication of prostheses aid in refurbishing speech, deglutition, and facial aesthetics.

II. CASE REPORT

A 22 year old female diagnosed with Ameloblastoma crossing the mandibular midline was treated with radical resection and reconstruction with free fibula grafting followed by prosthetic rehabilitation (Figures 1, 2, 3). On completion of tissue healing (Figures 4, 5), diagnostic impressions were made. A provisional record base and the rim were constructed on the cast. Jaw relation was recorded and transferred to the articulator. Teeth arrangement and try in was done and approved by the patient. A four coil spring was fabricated using a 22 gauge wire and attached to the lower denture (Figures 6, 7).[1] The final prosthesis was delivered to the patient and post-insertion instructions were given. Mouth opening and speech was assessed with the prosthesis in place (Figures 8, 9). Denture adjustments were done accordingly till the patient was satisfied with the treatment outcome. Recall visits were scheduled after 24 hours and a week, necessary changes were made and patient satisfaction was achieved.

Fig. 1: Intraoral view

Fig. 2: Radiographic view

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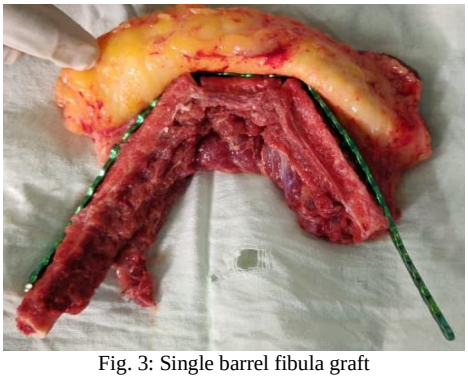
Fig. 3: Single barrel fibula graft

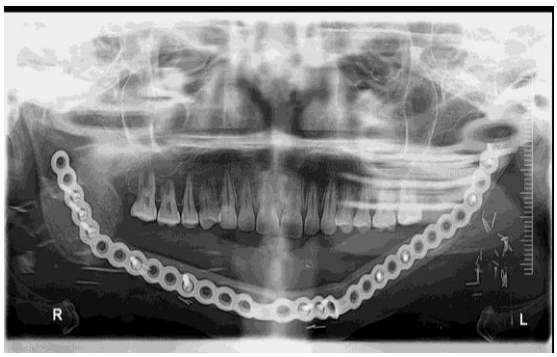

Fig. 4: Post-surgical radiograph


Fig. 5: Post-surgical intraoral view


Fig. 6: Four coiled spring design


Fig. 7: Final processed prosthesis


Fig. 8: Post-operative intraoral view


Fig. 9: Assessment of mouth opening

III. DISCUSSION:

Surgical reconstruction of the mandible may achieve the goal of restoration of acceptable external aesthetic appearance but does little for restoration of oral function. Petrovic et al (2018) have mentioned favourable outcomes of implant rehabilitation post resection of odontogenic tumours by grafting the discontinuous mandibles.[3] However, implant-retained prostheses were difficult to manage in prosthodontic rehabilitation of skin grafted lesions because of massive surgical defects, continuous contracture of the wound, and side effects of radiotherapy. Patil PG (2009) constructed a spring denture for the rehabilitation of a maxillectomy

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defect.[1] In the present case, a mandibular denture was fabricated and stabilized using bilateral four coiled springs. The denture aided in normal mastication and deglutition function while being retentive and not hindering speech and aesthetics.

In the present case report, a removable appliance was the treatment of choice as it could be relined as per the patient's needs and was the most predictable approach.

IV. CONCLUSION

A patient-centred approach is crucial while planning maxillofacial prostheses as the end results affect their quality of life. In the above case report, young patient presented with odontogenic pathology that could not be resolved using conventional methods and hence a modified removable denture, namely, a spring denture was fabricated to restore form and function. Removable prostheses assured ease of maintenance and compliance to modification if required in future. This approach also reduced the financial burden on the patients to some extent.

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