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RESEARCH ARTICLE

Prosthetic Rehabilitation of a Patient with Acquired Maxillary Defect Due To Chondrosarcoma: A Case Report

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Abstract

Chondrosarcoma is a malignant tumour in which the tumour cells produce cartilage. The management consists of wide local or radical excision, by surgery followed by prosthetic rehabilitation. This article explains postsurgical prosthetic rehabilitation of a chondrosarcoma patient who has undergone hemimaxillectomy by means of intraoral acrylic hollow bulb obturator for the restoration of normal orofacial function, speech and appearance.

INTRODUCTION

Chondrosarcoma is a malignant tumour in which the tumour cells produce cartilage. Chondrosarcoma of the jaw and facial bones is extremely uncommon, accounting for only 3% of all chondrosarcomas.[1]The most acceptable choice of treatment of the chondrosarcoma is wide resection.[2] Radiotherapy and chemotherapy as an adjunctive or palliative treatment remain controversial.

Postsurgery, the patient is predisposed to hypernasal speech, fluid leakage into the nasal cavity and considerable difficulty in masticatory efficiency due to the maxillary defect.

In the total rehabilitation of the hemimaxillectomy patient, the maxillofacial-prosthodontist has two primary objectives:

- To restore the functions of mastication, deglutition, and speech and
- To achieve normal oro-facial appearance.[3]

Almost all acquired palatal defects are due to resection of tumors of the palate and paranasal sinuses. The extent of the resection is dependent on the size, location, and potential behaviour of the tumour[4].Obturators are the preferred choice of treatment for the closure of such defects and they are indicated –

- When surgical primary closure is contraindicated
- To restore the esthetic appearance and masticatory function of the patient rapidly for social contact

Case Report:

A 52 year old patient was referred by the Department of Oral Surgery for definitive prosthetic rehabilitation of the oral cavity.The patient had been treated over the past 2 months for progressive chondrosarcomatous lesion of the left maxilla.

Diagnostic impressions of maxillary and mandibular arches were made for the fabrication of a pre surgical obturator, which could act as a surgical stent. The patient was then operated and the tumour was surgically excised.The surgical obturator was worn for a period of 7 days, following which the patient was given a series of interim obturators until a satisfactory healing of the tissues was achieved. After this definitive obturator prosthesis was planned for the patient. (Fig1).

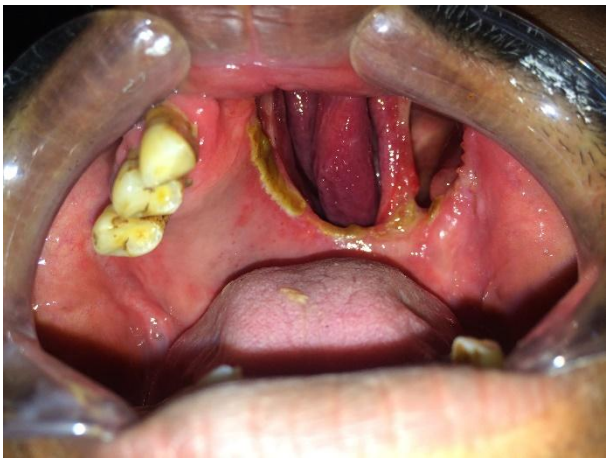

Fig 1

The treatment planned for the patient consisted of extraction of the three remaining maxillary teeth, 13,14, and 15 which were severely compromised due to bone loss and mobility.

After extraction, the sockets were allowed to heal for a period of 3 weeks and the patient was referred to the department of prosthodontics for the fabrication of an intraoral obturator prosthesis.

A preliminary impression was made with a suitable stock tray, after beading the border areas with wax, using irreversible hydrocolloid impression material.

A preliminary cast was made, undercuts were blocked and a custom tray was fabricated over it which extended 3 cm into the defect. Low fusing compound was added incrementally to the periphery of the prosthesis to record the border extensions. A definitive impression was then made using Monophase polyether (3M ESPE) material. The impression was poured to obtain the definitive cast (Fig. 2,3).

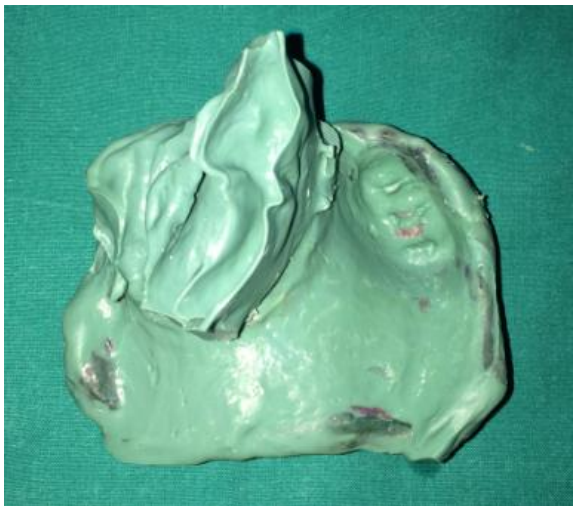

Fig 2

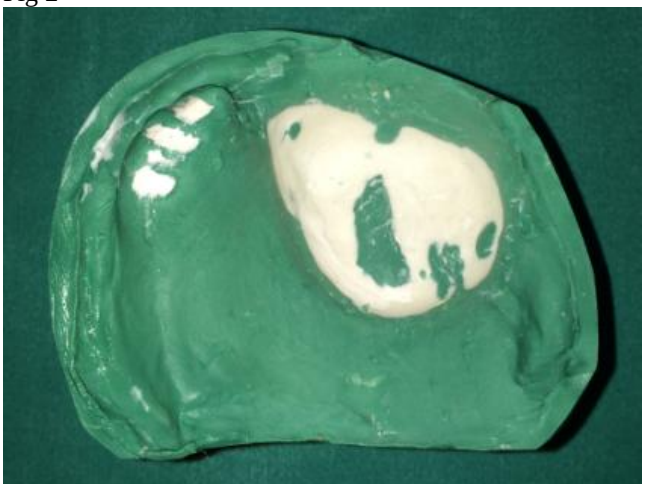

Fig 3

Jaw relations were recorded, after appropriate teeth selection, teeth were arranged and the obturator was checked for occlusal harmony. Satisfactory occlusion and phonetics were achieved.The final palatal contours of the obturator were waxed to symmetry and evaluated for phonetics, deglutition and patient comfort.

Fabrication of the Hollow Bulb

The trial denture was then sealed to the master cast. After application of the separating media on the cast, the counter portion was poured.This was followed by the dewaxing procedure.

After separation of the counter parts, a thick layer of separating media was applied. Heat cure polymerising resin was then moulded on all four walls of the defect and salt crystals were carefully packed inside. A second layer of heat cure resin was then applied over it, essentially packing the salt crystals inside.

The flask was then closed and allowed to bench cure for 30 minutes.This unit was subjected to the regular curing cycle. Following deflasking procedures,a small escape vent was created in the bulb using a straight fissure bur. It was then placed in a bowl of water to dissolve the salt crystals. Hence making the bulb hollow.[5]The vent was later closed using autopolymerising resin. The prosthesis was then trimmed, finished, polished and inserted in to the patient's mouth.(Fig 4,5)

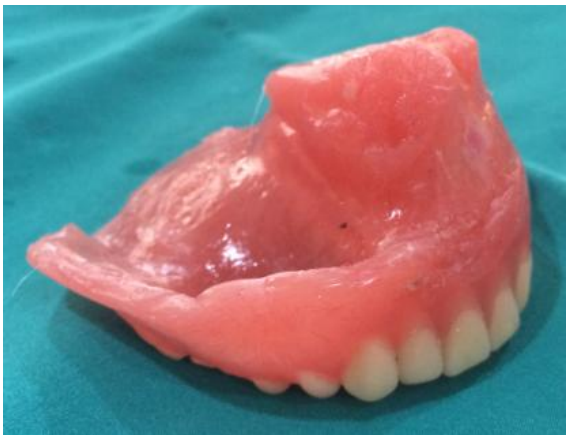

Fig 4

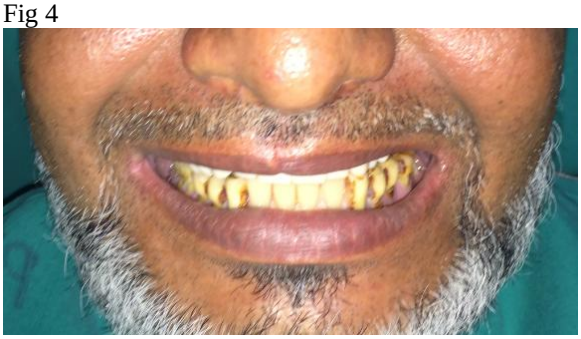

Fig 5

Post insertion instructions were given and the patient was taught how to use the prosthesis. The patient was called after 24 hours for the check-up. Recall visits were also scheduled after 1 week, 1 month, 3 and 6 months.

A hollow bulb design for the obturator was chosen in order to make it light weight and more comfortable for the patient. The hollow bulb further added resonance, thus improving the clarity of the speech.[6,7]

Conclusion

The present prosthesis not only improved the speech and function but also provided better comfort for the patient.Fabricating a successful obturator prosthesis used for the prosthetic rehabilitation of acquired defects in maxilla depends on making a detailed impression and constructing the prosthetic parts compatible with the oraltissues. This clinical report describes an intraoral technique for impression making and fabrication of hollow obturator prosthesis

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