

HEMIMANDIBULECTOMY-PROSTHETIC MANAGEMENT OF A CASE

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Introduction

When the continuity of mandible is disrupted, a change in balance and symmetry will occur. Occlusal relationships are altered, proprioceptive responses can be deranged to the point where both functional efficiency and appearance are severely compromised. Although both the continuity defects are debilitating, the discontinuity defects are debilitating, the discontinuity defects offer the most exaggerated compromise. The most serious sequel of acquired mandibular discontinuity is deviation, which invariably occurs towards the operated side. The severity and potential for correction of this misdirection will be largely determined by the nature of the initial disease process.

The removal of a mandibular malignancy, usually requires adjacent soft tissue for closure. This may require the intentional medial placement of the remaining mandible to avoid tension on the closure site and reduce the chances of subsequent fistula formation.¹ The lack of sufficient tissue to adequately develop primary closure or post surgical infection can lead to formation of an orofacial fistula. The continuous drainage of saliva can be controlled by orofacial plug for adequate seal.²

The case undertaken presented with orofacial fistula even after placement of the skin graft of the forehead and mandibular deviation after surgical mandibular resection which was successfully rehabilitated initially with orofacial plug for the closure of orofacial fistula and subsequently the mandibular deviation was managed by simple acrylic mandibular guiding appliance.

Case Report

A 32 year old female patient reported to the Department of Prosthodontics from Department of General Surgery after hemimandibulectomy following carcinoma of cheek with resection of the mandible on the left side followed by radiation therapy. The chief complaint was orofacial fistula on the surgical site and mandibular deviation toward the resected side on the left side.

On Extraoral Examination

The orofacial fistula was present on the lower part of the left side of the face, 2.5cm from the left side of the corner of the mouth in the molar region and the defect measuring about 1cm x 1cm .

There is some evidence that immediate postsurgical intermaxillary fixation is of benefit in preventing or minimizing deviation post operatively.^{3,4,5} maintaining this fixation for several weeks and reapplying elastic for several hours daily over an additional period preserve the proprioceptive occlusal relationships, and midline attainment is simplified. There is disagreement as to whether immediate fixation is beneficial in all cases of mandibular resection, particularly with the patient who has undergone radiation therapy. Such fixation may in fact promote fistula formation and tissue breakdown when extensive resections require mandibular imbalance to obtain satisfactory closure.

Perhaps the most effective way to treat deviation is with early conscientious physical manipulation of the proximal fragment towards the unoperated side. This can be done as soon as healing will permit, usually within two weeks , and will be most effective in preventing scar contracture and breaking up muscle adhesions. In some cases, this physical therapy may be all that is required to attain an acceptable midline and occlusal relationship. If the surgery is extensive and combined with other modes of therapy, a deviation appliance may be necessary to maintain the desired mandibular position.

Treatment Plan

The first focus of treatment was closure of orofacial fistula prosthetically with orofacial plug² to prevent drooling of saliva and provide a adequate external seal and slowly allowing for the healing. Subsequent periodic reduction of the plug was done necessitating scar formation and natural closure of the defect. Trismus was treated gradually with mouth opening exercises without disturbing the healing of the orofacial fistula.

Next focus was the treatment of deviation of mandible with acrylic mandibular guiding flange appliance with interim usage of palatal ramp.⁶

Clinical Procedure

Thorough medical and dental history of the patient was recorded and an Orthopantomograph was taken.

I Correction of Orofacial Fistula with a Orofacial Plug

1. Initially the surgical dressing was opened up for the access for the orofacial fistula. The adjacent area around the defect was cleaned with the betadine solution and all aseptic precautions were taken and topical anaesthetic was sprayed on the periphery of the wound before impression was made. 2. After the impression was obtained the impression was casted with dental stone into two halves facilitating easy removal of the impression material then these halves of the dental stone were flaked and clear heat cure acrylic was packed and finally cured. After curing it was finished and polished. 3. The next day the heat cure acrylic orofacial plug was tried into the orofacial fistula of the patient. It was quite surprising to find the defect healing fast making the insertion of the acrylic plug impossible. 4. Then the next alternative was planned using the poly vinyl siloxane impression itself as a orofacial plug, trimming and contouring the same to fit the orofacial fistula. 5. The orofacial plug with polyvinyl siloxane was most favourable considering its property of flexibility, biocompatibility, non toxic nature, easily washable and the freedom to trim very frequently in pace with fast healing orofacial fistula and providing soft borders preventing trauma to the margins of the fistula. 6. The putty vinyl siloxane impression itself was shaped into orofacial plug and fitted into the defect and the plug was retained over the face with the help of an adhesive plaster. This plug acted as a more economical replacement for the silicon prosthetic material. This created an adequate external seal and stopped the drooling saliva. Every two days the patient was monitored for healing and the plug was reduced in size by trimming to facilitate natural healing and closure of the defect naturally. This procedure was simultaneously followed by mild mouth opening exercises to correct the trismus. In a matter of 10 days there was a very good closure of the orofacial fistula. After that the orofacial plug was totally discarded and the mouth opening also improved to almost 3cms. Now at this stage the deviation of the mandible was the focus for correction.

II Correction of Mandibular deviation with Mandibular Guiding Flange Appliance

1. The impressions of the Maxillary and Mandibular arches was done with irreversible hydrocolloid and casts were poured with dental stone. 2. A simple ramp type deviation appliance was fabricated initially. This device consisted of an acrylic resin ramp on the palatal inclines of the non affected side. This is a functionally generated platform that slopes occlusally away from the maxillary dentition and engages the remaining mandibular teeth as closure begins. Light wire adam clasps were given to engage as many posterior teeth as possible to counteract displacement. It was used as a initial training device till patient got acquainted to the engaging of the mandible towards the non resected side. 3. In the next stage an acrylic mandibular guiding flange appliance was fabricated for a definitive prolonged usage until correction of deviation. The main intention of initial treatment with palatal ramp was to reduce the cantilever stresses that can be transferred by the flange appliance in case if the patient has to start up with the flange appliance from the initial stage itself. 4. The mandibular guiding flange⁷ appliance consisted of a flange portion that was acrylic resin extension that will be long enough vertically to engage the buccal surfaces of the maxillary teeth on maximum functional opening. In the appliance clasp components were not incorporated with the intention that when the retention on the mandibular teeth is greater there is always a possibility of increased amount of cantilever stress and a lateral torque on the adjacent abutments leading to their mobility. The problem of retention is compensated by the patients own efforts to guide the mandible towards centre after the training with the palatal ramp appliance. 5. The patient was on this acrylic mandibular guiding flange appliance for almost one and half months and was instructed to use it intermittently and was asked not to wear in the night. The patient was recalled every week and the condition of the other teeth was monitored. 6. Finally after usage of this appliance for one and half months the patient was totally comfortable without the appliance and the deviation was corrected and finally the correction was checked by checking the occlusion on the normal side.

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