



MANAGEMENT OF 33YEARS OLD ANKYLOSIS OF PARTIALLY EDENTULOUS PATIENT WITH GAP ARTHROPLASTY

Mahesh Goel^{1*}, Manu Rathee², Anita Hooda³, Rajiv Tanwar⁴, Neeraj⁴, Manju Thepra⁴

¹Associate Professor, ³Sr. Professor and HOD, ⁴PG Student (M.D.S), Department of Oral and Maxillofacial Surgery,

²Sr. Professor and HOD, Department of Prosthodontics, Post Graduate Institute of Dental Sciences,
Pt. B.D. Sharma University of Health Sciences, Rohtak, Haryana, India.

Corresponding Author:- **Mahesh Goel**
E-mail: drmaheshgoelos@gmail.com

Article Info	ABSTRACT
<p><i>Received 15/02/2015</i> <i>Revised 27/03/2015</i> <i>Accepted 22/04/2015</i></p>	<p>The predominant feature of chronic mandibular hypomobility is the inability of the patient to open the mouth to normal range. It is rarely accompanied by painful symptoms or progressive destructive changes. By definition, ankylosis means abnormal immobility of a joint. Ankylosis of the temporomandibular joint (TMJ) is an intracapsular union of the disc-condyle complex to the temporal articular surface that restricts mandibular movements, including the fibrous adhesions or bony fusion between condyle, disc, glenoid fossa, and eminence. The patient is aware that this condition has been present for a long time and may not feel that it poses a significant problem. A 48 years old female patient with 33years old long standing unilateral ankylosis with progressive chronic hypomobility of partially edentulous mandible was treated with gap arthroplasty with bilateral coronoidectomy. The patient generally has some movement though restricted, definitive treatment may not be indicated. If function is inadequate or the restriction is intolerable, surgery is the only definitive treatment available. The treatment of TMJ ankylosis poses a significant challenge because of technical difficulties and a high incidence of recurrence. The most frequently reported operations include gap arthroplasty, interpositional arthroplasty and joint reconstruction with autogenous or alloplastic materials. In the present case we did Gap arthroplasty with stripping of muscles along with bilateral coronoidectomy. Gap arthroplasty alone gives rise to a gap between the articular cavity and the mandibular ramus and has the advantage of simplicity and short operating time. In the present case of Chronic mandibular hypomobility due to long standing unilateral ankylosis, the management of patient with Gap arthroplasty along with bilateral coronoidectomy have shown to be efficient in relation to the post-operative maximal incisal opening, recurrence and articular function.</p>
<p>Key words: Chronic mandibular hypomobility, Temporomandibular joint, Ankylosis.</p>	

INTRODUCTION

The predominant feature of chronic mandibular hypomobility is the inability of the patient to open the mouth to normal range. It is rarely accompanied by painful symptoms or progressive destructive changes, therefore the rationale to instigate treatment should be considered. Hence chronic mandibular hypomobility is divided in three categories according to the cause that is ankylosis, muscle contracture and coronoid impendance [1]. By definition, ankylosis means abnormal immobility of a joint.

Ankylosis of the temporomandibular joint (TMJ) is an intracapsular union of the disc-condyle complex to the temporal articular surface that restricts mandibular movements, including the fibrous adhesions or bony fusion between condyle, disc, glenoid fossa, and eminence. The tissue that limits mobility differentiates the two basic type of ankylosis i.e. fibrous and bony. TMJ ankylosis is most commonly associated with trauma (13-100%), local or systemic infection (10-49%), or systemic disease (10%), such as ankylosing spondylitis, rheumatoid arthritis, and



psoriasis. Ankylosis can also occur as a result of TMJ surgery. In history patients report limited mouth opening without any pain. The patient is aware that this condition has been present for a long time and may not feel that it poses a significant problem. The treatment of TMJ ankylosis poses a significant challenge because of technical difficulties and a high incidence of recurrence. A variety of techniques for its treatment have been described in the literature [2,3]. However, no single method has produced uniformly successful results.

Case report

A 48 years old female patient reported to the department of E.N.T at PGIMS Rohtak with chief complaint of itching and discharge from left ear for the last one year. Where she was advised treatment for restricted mouth opening and bony bulge over the left TMJ area and referred to the department of oral & maxillofacial surgery PGIDS Rohtak for further management. History dates back to when she was 15 years old and met with an accident and referred to nearby civil hospital where palliative treatment was given. After 3 months of trauma she noticed slight decrease in her mouth opening and with time she ignored the same. During the span of 33 years she remains as

happily married house wife with chronic hypomobility of the mandible without any facial deformity till she noticed itching and pus discharge from the left ear. On taking history patient revealed that she was using lower partial denture for the last 10 years till 2 years back when her mouth opening has become nil. After going through CT Scan and OPG investigation the patient was diagnosed with fibrotic ankylosis of the left joint extending and obliterating the middle ear secondary to hemarthrosis related to the trauma.

Surgical Technique

Patient was operated under GA. Alkayat Bramley incision was given on the left side. After exposing the ankylotic mass, inferior osteotomy cut given with bur and completed with osteotome and then superior osteotomy cut given and completed with osteotome. Bony chunk was removed in toto. Gap of 1.5cm-2cm created. Ipsilateral coronoidectomy was done. Mouth opening of 17mm was achieved. After that contra lateral coronoidectomy was planned to increase the mouth opening and the same was done intraorally. Mouth opening of 35mm achieved. Closure was done in layers.

Figure 1. Intraoperative exposed ankylotic mass of left TMJ

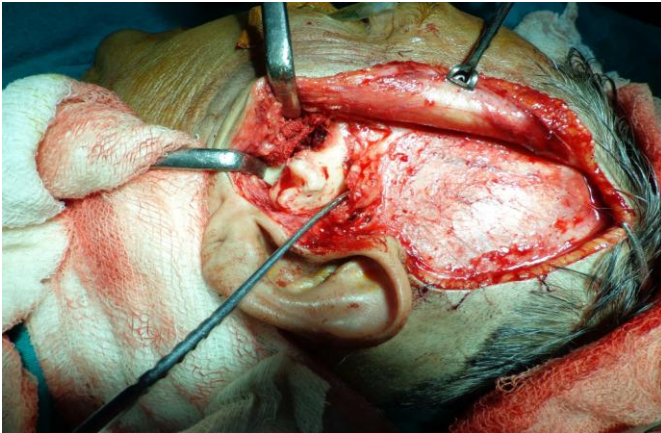


Figure 2. Removed ankylotic chunk in toto



Figure 3. Gap of 1.5- 2cm created after excision of ankylotic mass



Figure 5. Postoperative mouth opening of more than 35mm achieved



Figure 5. Postoperative prosthetic appliance placement



Procedure for prosthetic appliance

An acrylic plate was planned to facilitate use of wooden sticks on the edentulous residual ridge. Maxillary and mandibular impressions were made with irreversible hydrocolloid impression material. Primary casts were poured and an acrylic resin custom tray was fabricated. Border molding was done with low fusing green stick impression compound and then dual impression was made with zinc oxide eugenol impression paste and irreversible hydrocolloid impression material. Acrylic plate was fabricated on the master cast. The plate extended up to the functional depth of the vestibule in both the arches. Mandibular plate extended both buccally and lingually around the teeth present for retention. An occlusal ramp was incorporated with slope anteriorly in mandibular and posteriorly in maxillary arch. A C-clasp was given on right maxillary canine for retention. Patient was given demonstration for use of wooden sticks and instruction about maintenance of oral hygiene. Incorporation of occlusal slope on the plate helps in stabilizing the plate in situ. Thus protects the mucosa in the edentulous span.

DISCUSSION

The main causes of TMJ ankylosis are trauma and infection. Estimates of a traumatic origin range from 26% to 75% and of infection from 44% to 68%. Roy Choudhury et al retrospectively studied 50 cases of TMJ ankylosis and showed that trauma was documented as a major etiologic factor in 86% of all cases [4]. In the present study the main causes were infection and trauma. This may be because most of our patients were from a less well-informed population without easy access to the specialty. The ensuing ankylosis could therefore be a reflection of misdiagnosis, or nondiagnosis of condylar fractures or infections, which were not managed appropriately nor received no treatment at all. Because the patient generally have some movement though restricted, definitive treatment may not be indicated. If function is inadequate or the restriction is intolerable, surgery is the only definitive treatment available. When surgical therapy is called for, the surgeon should remember that elevator muscles are likely to be in a state of myostatic contracture and must be appropriately treated after the ankylosis is resolved. The treatment of TMJ ankylosis poses a significant challenge

because of technical difficulties and a high incidence of recurrence. A variety of techniques for its treatment have been described in the literature. However, no single method has produced uniformly successful results. The most frequently reported operations include gap arthroplasty, interpositional arthroplasty and joint reconstruction with autogenous or alloplastic materials [8,9]. In the present case we did Gap arthroplasty with stripping of muscles along with bilateral coronoidectomy. Gap arthroplasty alone gives rise to a gap between the articular cavity and the mandibular ramus and has the advantage of simplicity and short operating time. On the other hand it has the disadvantage of generating a pseudo-articulation, with shortening of the mandibular ramus and, in addition, it seems to increase the risk of recurrence. Matsuura et al studied the functional and anatomic changes after gap arthroplasty by using animal models and showed that this procedure for TMJ ankylosis did not restore TMJ functionally and histologically to its preexisting state [5,6]. In the other hand, Vasconcelos et al reported 8 cases of ankylosis (type I to IV) treated by gap arthroplasty and found no recurrence in their series with a follow up of at least 24 months [7].

Complications such as the development of an open-bite in bilateral cases, premature occlusion on the affected side with contralateral open bite in unilateral cases, and limited mouth opening post-operatively are possible. TMJ reconstruction may be necessary for patients with extensive osteotomy and consequently insufficient ramus height. Irrespective of the technique chosen by the surgeon, aggressive resection of the bony or fibrous ankylotic segment is crucial to avoid recurrence. In addition, a dissection of the muscles of the mandibular ramus and ipsilateral coronoidectomy must be carried out to prevent inadequate intraoperative interincisal opening, because the coronoid process may be elongated in long-standing cases. If a 35 mm opening is not achieved a contralateral intraoral coronoidectomy should be done [8]. After that, aggressive physiotherapy should be recommended in order to disrupt and prevent adhesions, redevelop normal muscle function. Gap arthroplasty for the treatment of ankylosis is shown to be efficient in relation to the post-operative maximal incisal opening, recurrence and articular function.



CONCLUSION

In the present case of Chronic mandibular hypomobility due to long standing unilateral ankylosis, the management of patient with Gap arthroplasty along with

bilateral coronoidectomy have shown to be efficient in relation to the post-operative maximal incisal opening, recurrence and articular function.

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