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Temporomandibular Joint Ankylosis - A Case Report and Review

Dr. Megha Bahal[1], Vanshika Saggar[2], Maninderjit Singh[3], Simranjeet Kaur[4], Chetanya Dhingra[5], Varinder Kaur[6]

[1]Assistant Professor, Department of Oral Medicine and Radiology, Baba Jaswant Singh Dental College, Hospital and Research Institute, Ludhiana Punjab.

[2, 3, 4, 5, 6] Intern, Baba Jaswant Singh Dental College, Hospital and Research Institute, Ludhiana Punjab.

ABSTRACT

Temporomandibular joint is the most unique joint in the whole body as it is two joints in one. It is a ginglymoarthrodial type of joint having a complex combination of rotation and translation movements to maintain normal form and function. Ankylosis refers to the intracapsular union of the components of the joint restricting the opening of the mouth and several physiological functions of the face. This report describes the multidisciplinary involvement in the surgical intervention for the treatment of TMJ ankylosis in a 35-year-old male.

KEYWORDS: Ankylosis, Temporomandibular joint, computed tomography scan, arthroplasty,

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INTRODUCTION

Ankylosis is derived from a Greek word which means "to stiffen" or get rigid[1]. Ankylosis, in medicine, is stiffness of a joint as a result of trauma or any underlying disease. Temporomandibular joint (TMJ) ankylosis is defined as a bony or fibrous adhesion of the anatomic joint components accompanied by limitation in opening the mouth .Ankylosis can be classified into several types: False or true, extraarticular or intraarticular, fibrous or bony, unilateral or bilateral and partial or complete.[1,2] Etiology of TMJ ankylosis are trauma, infections, inflammation and rare systemic causes. The basic pathogenesis reflects to be triggered by trauma which further progresses to lead to the formation of blood clot. Haemorrhage in the joint space progresses to changes like clot formation and bone deposition with the action of several chemical mediators if movement and function is not initiated. Such kind of case has been demonstrated in the upcoming case report to demonstrate the treatment plan.[3]

CASE REPORT

A 35-year-old male patient visited the department of Oral Medicine and Radiology in a Dental college in Punjab with a chief complaint of difficulty in opening and closing of mouth from the past 2.5 years with consistent decrease in mouth opening. Patient reveals history of having met with a road traffic accident two and a half years back, falling from his bike, having a direct impact on the chin. He stated of getting admitted in the hospital for minor stitches for the injury and reported of having a progressive decrease in mouth opening since then. Past dental history of the patient revealed consultation for regular dental check up 3 months back. On examination facial asymmetry was prevalent with bony overgrowth bilaterally in the preauricular region. Corresponding mouth opening was an interincisal distance of 0.5 cm. Patient has restricted movement of mandible with bilateral regional solitary submandibular regional lymph nodes palpable. Size of the lymph nodes was approximately 1-2cm, was non tender and was soft to firm in consistency. Intra oral examination revealed partial edentulous maxillary and mandibular arch with multiple teeth present with grade III mobility corresponding to chronic generalised periodontitis. Patient had generalised non tender inflamed oral mucosa with intermittent burning sensation present corresponding to mild to moderate oral mucositis.

Patient had undergone Orthopantomograph for radiographic investigation which revealed post traumatic bilateral TMJ ankylosis. Further specialised investigation 3D CT was performed, which showed ankylotic bony mass present in bilateral Temporomandibular joint, more severe on the left side. Osteophytic projections were noted in the medial aspect of TMJ on either sides.The ankylotic mass on the lateral aspect of TMJ measured approximately 2.5 by 2.2 cm on the left side and 1.7 by 1.4 cm on the right side. The

bony ankylotic mass was in close proximity with the internal maxillary and middle meningeal artery on both sides.

Patient was advised surgical intervention for treatment. The procedure for surgical treatment was explained to the patient and bystander and written consent of the patient was obtained. The procedure was performed under general anaesthesia, tracheostomy was done by an ENT specialist for airway passage maintenance. Bilateral gap arthroplasty was performed under general anaesthesia through preauricular approach with bilateral coronoidectomy and temporalis myotomy through intra oral approach. Patient was advised aggressive physiotherapy post procedure. Patient was followed up thrice at intervals of 2 months and showed drastic increase in mouth opening. Aggressive periodontal therapy was given to the patient with prosthesis placement. Psychological counselling was the hallmark of every follow up visit.

DISCUSSION

The clinical features of TMJ ankylosis are classic in determining the type and stage of involvement. The clinical features of TMJ ankylosis are affected by the duration, severity and time of onset of ankylosis.[4] The main clinical features of TMJ ankylosis are progressive limitation of mouth opening, facial deformity and obstructive sleep apnoea syndrome. Patients usually present with limitation of mouth opening and a maximum interincisal distance of 0.2 mm. Aesthetic defects of the face with malocclusion and occlusal malformation are common in occurrence. TMJ ankylosis has been classified in different grades by Topazian (1966) and Sawhney (1986).[4,5] TMJ imaging includes pain radiography, tomograms, conventional CT, arthrography, magnetic resonance imaging, ultrasonography and radionuclide imaging. Diagnosis of fibrous and bony ankylosis is a great challenge. Prompt and thorough knowledge of clinical features and radiographic diagnosis helps clearly distinguish between the two.[6] Patients with fibrous ankylosis find forceful opening of mouth painful however it is not a feature of bony ankylosis. In fibrous ankylosis the articulating surfaces are usually irregular because of erosions. Joint space is usually very narrow and two irregular surfaces appear to fit into one another like a jigsaw puzzle. In bony ankylosis, the joint space may be partly or completely obliterated by osseous bridge which may be a section of a bone or a complete mass. The other changes involves a compensatory elongation of coronoid process and deepening of the antegonial notch in ramus on the affected side as a result of muscle function during attempted mandibular opening.[7]

The basic treatment objectives for TMJ ankylosis are well standardised and requires multidisciplinary approach requiring step to step treatment plan as follows a) release and resectioning of bony mass, b) release of all restrictive forces preventing the opening of jaw, c) allowing for normal or near normal movements of TMJ, d) ensure maintenance of gap created to prevent reankylosis, e) to promote growth and correct subsequent occlusal and cosmetic deformities. Interpositional arthroplasty is nowadays most practiced.[8]

CONCLUSION

Multidisciplinary treatment approach with team work of several medical and dental specialties serves towards better outcome in order to capture the richness of experience in the lives of the patient to restore normal form, function and stability.[9] Any pathology that affects TMJ and restricts mouth opening carries mental stigma that overpowers the disability.[10] A detailed history of patient , understanding of etiology, apt radiographic investigations , prompt and early surgical and medical treatment with regular follow ups , physiotherapy and psychological counselling forms the standard approach to TMJ ankylosis which is clearly depicted in this case report.[10] Diagnosis of TMJ ankylosis is usually made by clinical examination and imaging studies. The management goal in TMJ ankylosis is to increase the patient's mandibular function, correct associated facial deformity, decrease pain, and prevent reankylosis.[11]

DECLARATION OF PATIENT's CONSENT

The authors certify that they have obtained all the appropriate patient consent

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Nil

CONFLICTS OF INTEREST

There are no conflicts of interest.

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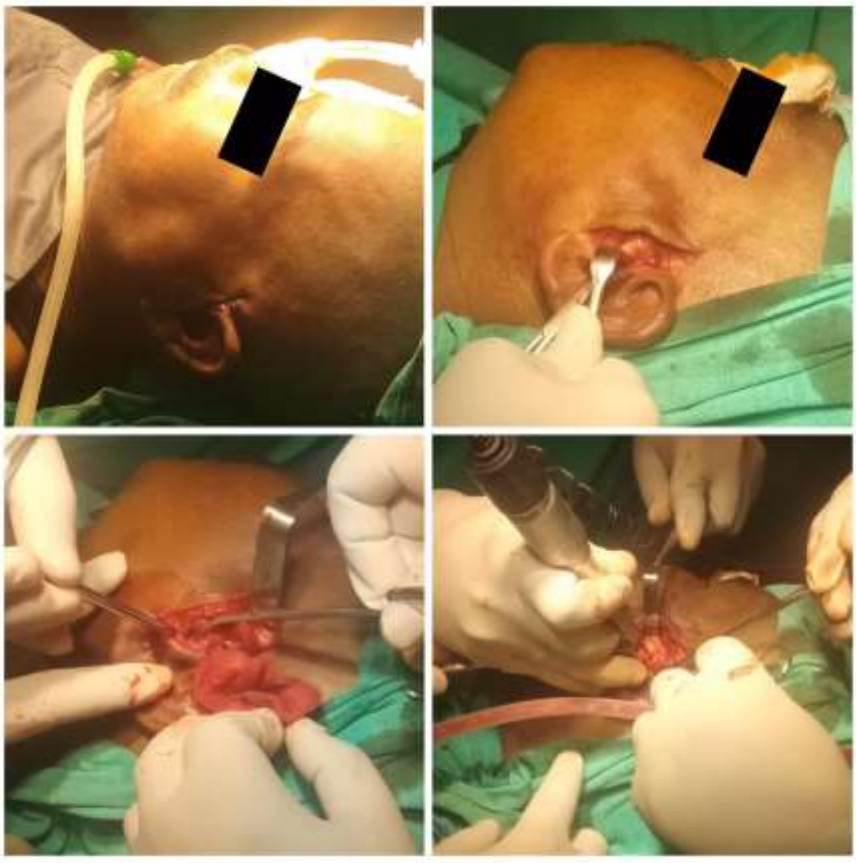
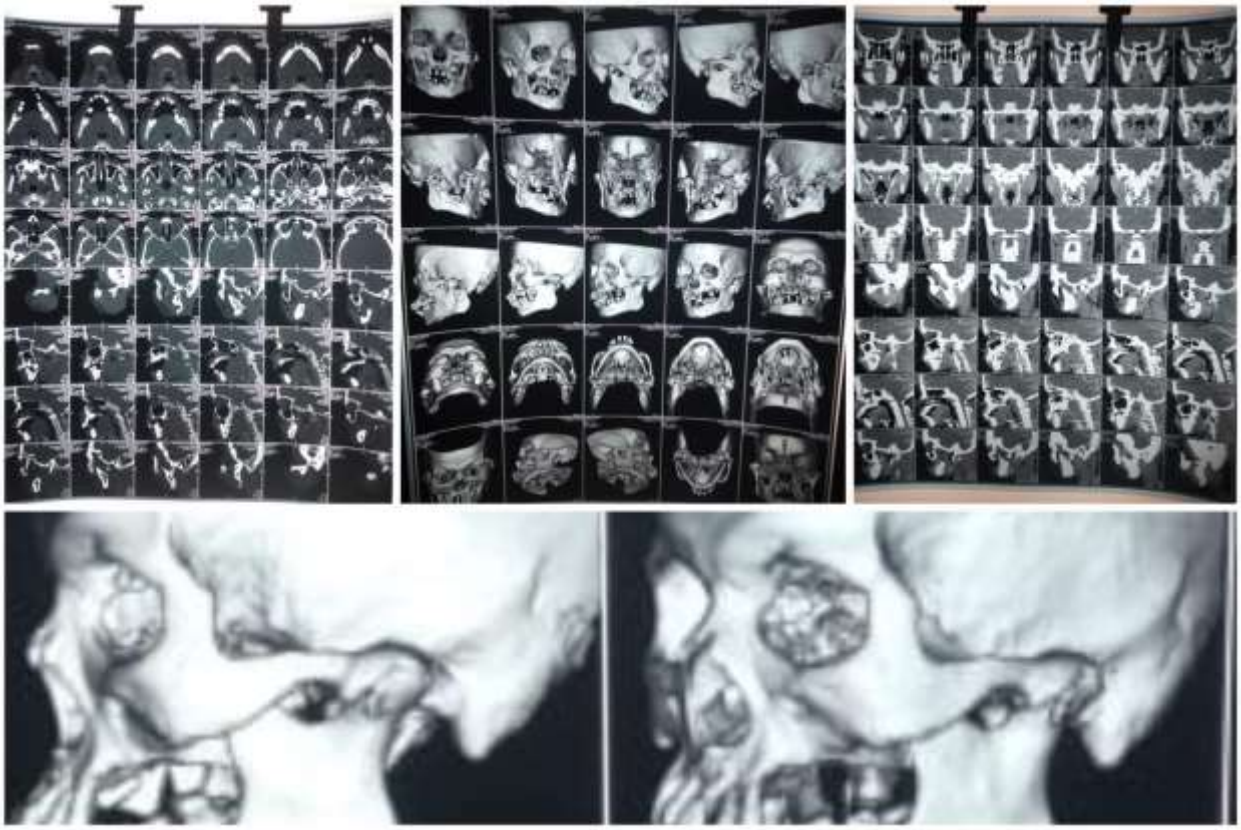
Preoperative images of the patient



Intraoperative images of the patient



Radiographic investigations of the patient