

UNILATERAL TMJ ANKYLOSIS IN 30-YEAR-OLD A CASE REPORT

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Abstract

Temporomandibular joint (TMJ) ankylosis is a serious disabling condition characterized by fusion of the mandibular condyle with the glenoid fossa, disc, and/or eminence, resulting in severely restricted mouth opening and significantly reduced mandibular movements. The condition often has a deteriorating effect on the patient's daily functions such as speech, chewing, breathing, and oral hygiene as well as their wellbeing and quality of life. Furthermore, childhood TMJ ankylosis frequently has a detrimental impact on the facial growth resulting in facial asymmetry, micrognathia, and/or class II malocclusion with posterior or anterior open bite. Trauma is the main cause of TMJ ankylosis, but the condition can also occur as a result of surgery, local or systemic infections, or systemic disease. Surgery is the mainstay of treatment, and several approaches have been applied, including gap arthroplasty (GA), interpositional gap arthroplasty (IGA), reconstruction arthroplasty (RA), or distraction osteogenesis (DO). The aim of this article is to present a post-traumatic TMJ ankylosis case in a 30-year-old male who was treated with resection and Interposition with temporalis muscle flap.

Introduction:

Ankylosis is a Greek terminology meaning "stiff joint". It can be defined as inability to open the mouth due to either a fibrous or bony union between the head of the condyle and the glenoid fossa [1]. TMJ ankylosis is a disorder that results in restricted mouth opening and inability to perform normal jaw functions or may sometimes lead to immobility of jaws. It may occur because of trauma (13- 100%), local or systemic infections (0-53%) or systemic diseases like psoriasis, ankylosing spondylitis, rheumatoid arthritis [2]. In ankylosis, the normal architecture of the joint is altered. It is a severe disability that results in restricted mouth opening, difficulty in mastication, speech, yawning, and nutrition. There may be associated restricted airway problems (obstructive sleep

apnea- hypopnea syndrome). When this disease occurs in a growing child, it mostly affects the mandibular development, leading to complex and extensive dentofacial deformities with associated malocclusion [3,4]. Temporomandibular ankylosis is one of the most common pathologies encountered in children but it mostly remains undiagnosed and unmanaged resulting in social and psychological impacts on their lives

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. We hereby report a case a unilateral TMJ ankylosis and its surgical management. The commonly applied surgical management includes gap arthroplasty (GA), interpositional gap arthroplasty (IGA), reconstruction arthroplasty (RA), and distraction osteogenesis (DO).

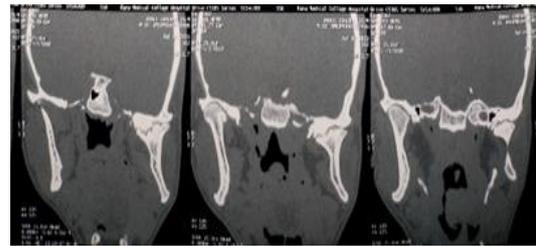
Case report:

A 30 year-old male reported to our department of oral and maxillofacial surgery with the chief complaint of inability to the open mouth since 30 years. He gave a history of a trauma to his chin due to fall from height during his childhood. No medical or surgical intervention was done in the past. Extra oral examination revealed facial asymmetry with fullness of cheek on the right, ramus height and mandibular body was reduced in size compared to contralateral side, with increased gonial angle. His diet was limited to liquid intake due to trismus and inability to mastication. He had a convex facial profile, severely retrognathic mandible, maxillary protrusion and absence of chin prominence. Intra oral examination revealed nil mouth opening. Upper and lower teeth were badly aligned and proclined. Radiographic examinations comprised of the orthopantomogram and computed tomography scan. (Fig.4) revealed a lack of structural organization and the obliteration of right TMJ space. Based on these findings, a diagnosis of

unilateral left bony TMJ ankylosis was confirmed.



Pre operative image of unilateral TMJ ankylosis



Computed tomography Scan

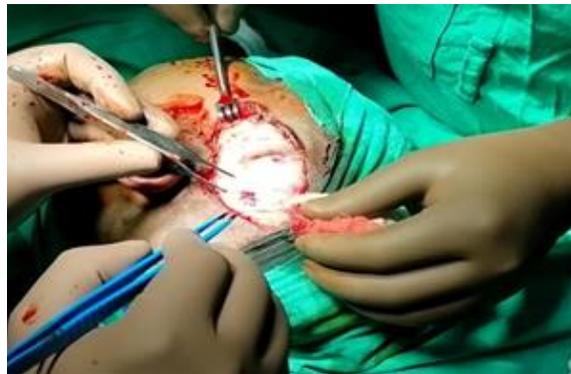
Management:

After complete evaluation, a surgical treatment with interpositional gap arthroplasty on the left TMJ using Kaban's protocol was planned under general anesthesia. Due to the patient's extremely restricted mouth opening, the procedure was performed under general anaesthesia using fibre-optic-assisted nasotracheal intubation. The surgical approach consisted of Alkayat and Bamley preauricular incision. Full thickness mucoperiosteal flap was reflected and the ankylosis site was exposed. The resection of ankylotic mass was achieved by two horizontal

osteotomy cuts which were placed at the level of the joint (below the zygomatic arch) and removal of a bony wedge was done so that a gap was created between the roof of the glenoid fossa and the ramus. It was not possible to remove the entire ankylotic segment hence, the bone was removed carefully by using surgical burs until the bone is thinned which was then removed using a chisel or osteotome. Simultaneously ipsilateral coronoidectomy was performed to achieve adequate mouth opening. The joint cavity was then irrigated with normal saline, and the bony margins were smoothed using bone file. Aggressive early mobilization of the jaw by creating a forceful mouth opening of about 45 mm using the mouth gags at the time of surgery was achieved. Temporalis fascia flap harvested from the same surgical site and rotated over the zygomatic arch to cover the whole of the glenoid fossa and sutured anteriorly, laterally, and posteriorly. Suction drain was placed, and the flap was sutured using 3-0 vicryl for deeper layers and the skin was closed using staple sutures. The width of the bone removal is considered crucial. It is recommended to create a gap of at least 1 cm to prevent re-ankylosis. It is also important to create a gap of equal dimension both laterally and medially, so that the possibility of re-ankylosis due to bone contact is avoided. Post-operative

Care: The postoperative course was uneventful. A mouth opening of 30 mm was noted 2 days after surgery. Vigorous postoperative physiotherapy was started to maintain the mobility of the joint. After 7 days with physiotherapy using a wooden spatula, the mouth opening was noted to be 30mm. The patient was advised mouth opening exercises.

Marking of Skin Incision



Flap raised



Exposure of Ankylosis



Discussion

Temporomandibular joint ankylosis is a serious disabling condition that has a significant impact on the patient's quality of life, with deteriorating effects on nutrition, speech, oral hygiene,

growth, occlusion, facial aesthetics, and—in severe cases—can cause micrognathia, which could lead to obstructive sleep apnoea. In children, unilateral ankylosis of TMJ often results in facial asymmetry due to deviation of the chin towards the affected side, which often has a compromised mandibular growth. The condition can be classified according to the site (intra or extra-articular), the type of tissue involved (bony, fibrous, or fibro-osseous tissue), or the degree of fusion (complete or incomplete). TMJ ankylosis had also been classified into “true ankylosis”, where a condition (e.g., trauma, infection, or arthritis) promotes bony or fibrous adhesions within the TMJ capsule; or “false ankylosis” (also called pseudoankylosis) if joint movements are restricted by pathologies not related to the joint components, e.g., muscular or neurologic disorders

As a result of TMJ ankylosis patient’s mouth opening is restricted which carries a mental stigma that overweighs the physical disability posed by the problem. Such patients are psychologically handicapped and hence call for a unique approach to their rehabilitation. A detailed history, clinical and functional examination, radiographic examination facilitates correct diagnosis followed by immediate effective surgical intervention, and physiotherapy can help to restore the physical, psychological, and emotional health of the TMJ ankylosis patients.

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