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Post-traumatic bilateral temporomandibular joint ankylosis secondary to condylar fracture: A case report

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ABSTRACT

Temporomandibular joint ankylosis (TMJA) is due to union of the condyle with the glenoid fossa as it results to a long-standing, persistent, difficulty in mouth opening. It affects facial growth leading to facial deformity. It is also related to poor oral hygiene, dyspnea, mastication and deglutition which in turn affect the quality of life of the patients. In this article, we present a case report on post-traumatic bilateral temporomandibular joint ankylosis secondary to condylar fracture.

Keyword: Temporomandibular joint Ankylosis, Post-traumatic, Condylar Fracture.

1. INTRODUCTION

The term anklyosis is a Greek word denoting "stiffness" (Nivedita & Khurana, 2017). Temporomandibular joint ankylosis (TMJA) is the most stressful complication of trauma due to union of the condyle with the glenoid fossa as it results to a long-standing, persistent, inability in opening the mouth (Nivedita & Khurana, 2017). Due to factors like trauma or local and systemic causes TMJ Anklyosis can be caused; Systemic causes may be Arthritis (Rheumatoid), bony Ankylosing spondylitis, and psoriasis (Arakeri et al., 2012). Condylar fracture is the most common etiology for post-traumatic TMJ ankylosis (Orhan, 2008). Earlier in 1938, Kazanjian classified it into Extra-articular and Intra-articular. Further it was classified as fibrous, fibro-osseous and bony TMJ Ankylosis (Erol et al., 2006). This present case report overviews a case of TMJ Ankylosis secondary to condylar fracture due Road Traffic Accident (RTA).

2. CASE REPORT

35 years old reported to the Dental OPD with the chief complaint of reduced mouth opening since 3 years. The History revealed he met with RTA 2 years ago due to fall from the bike. There was history of bleeding from right and left

ear. There was no history of unconsciousness, vomiting, and nasal bleed. Patient did not get himself treated after the RTA. Patient had habit of Tobacco chewing for 8 years. On General Examination, all the vitals were within normal limits. On Extraoral Examination, No gross facial deformity was present. Lip were competent, No regional lymphnodes were palpable. On TMJ examination, the mouth opening was of 6mm (Figure 1). Movements were not appreciable because of reduced mouth opening and tenderness was absent. On Auscultation of TMJ, no sounds were heard. On Intraoral examination, Occlusion was stable with no derangement (Figure 2).

Figure 1 Reduced mouth opening of 6mm

Figure 2 Stable occlusion on right and left side

Occlusal caries with 46, 47 and Stains and Calculus was present. Considering all the clinical signs and symptoms, we gave the clinical provisional diagnosis of Post-traumatic TMJ ankylosis, with differential diagnosis of Osteoarthritis. An Orthopantomogram revealed, displaced condylar heads with right and left TMJ suggestive of Malunited fracture of both the condyles; Opacification involving right and left condylar region, glenoid fossa with obliteration of right and left joint spaces (Figure 3).

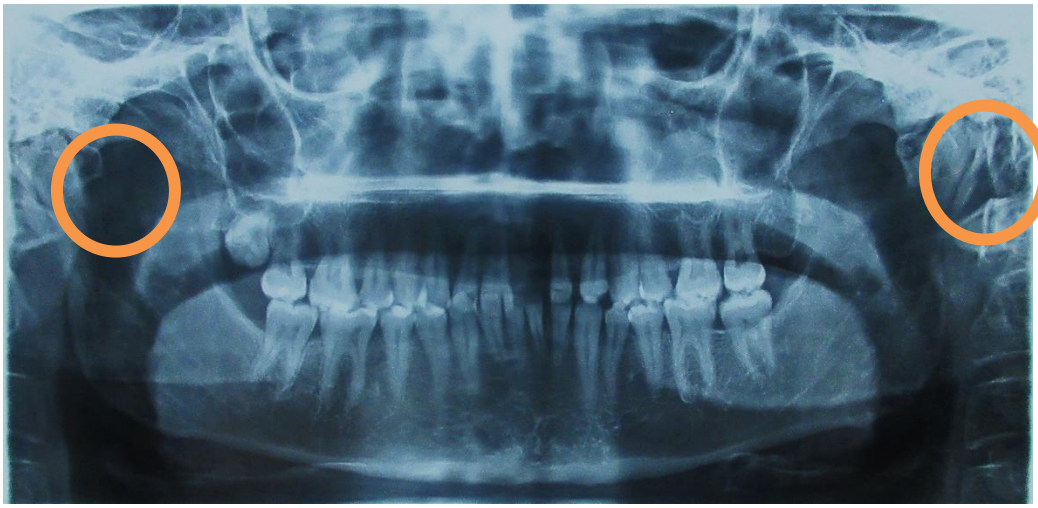

Figure 3 Displaced condylar head on both the sides of TMJ.

Computed Tomography (CT) revealed (a) Medial displacement of right and left condylar head, (b) fibro-osseous ankylotic mass on left side and fibrous ankylotic mass on the right side of TMJ (Figure 4). Based on the clinic-radiological findings, a final diagnosis of Bilateral TMJ Ankylosis was given. The operative procedure was planned, fiberoptic naso-endo-tracheal Intubation was done because of the less invasiveness. The Preauricular approach was taken with Blair's Incision (Figure 5).

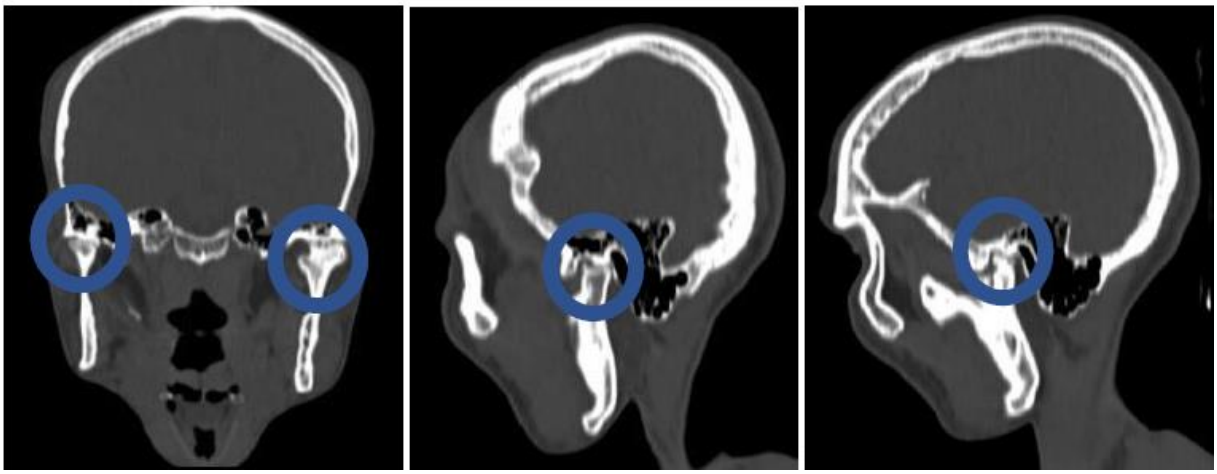

Figure 4 Coronal Section of CT Scan showing ankylotic mass on right and left side of TMJ and Saggital section showing fibrous ankylosis on right side and fibro-osseous ankylosis on left side.

Figure 5 preauricular approaches with Blair's Incision

Figure 6 Introperative view of condylectomy done on Left side and Condylar shaving done on right side

Condylectomy was done on left side and Condylar shaving was done on right side (Figure 6) followed by interpositional arthroplasty with masseter muscle was done (Figure 7). The Post-operative mouth opening was 22mm (Figure 8) and the patient was later counselled about the post-surgical instructions and physiotherapy.

Figure 7 intraoperative views of the resected ankylotic segment and interpositional arthroplasty with masseter muscle

Figure 8 showing post-operative mouth opening 22mm

3. DISCUSSION

Theosseous or fibrous unification of the anatomical components of the joint and their resulting loss of function states the ankylosis (Erol et al., 2006). The condyle and the glenoid fossa, or between any tissue component of the mandible (hard and soft) and the maxilla, zygoma, or the skull base can unite to form Ankylosis (Erol et al., 2006). The most common factor responsible for ankylosis is misdiagnosis, delayed treatment, inadequate surgery, prolonged immobilization, or insufficient physiotherapy for intracapsular or subcondylar fractures (He et al., 2011). Osseous, fibrous and fibrosseous are the types of TMJ Ankylosis (He et al., 2011).

In the present case, there was fibrous ankylosis on right side whereas, fibro-osseous ankylosis on left side. It affects facial growth leading to facial deformity. It is also related to poor oral hygiene, dyspnea, mastication and deglutition (Erol et al., 2006). TMJ Ankylosis most commonly affects the age group of 10 yaers but could be found at any age. Unilateral ankylosis is described to be commoner than bilateral (1.5:1) (Kaban et al., 1990).

TMJ Ankylosis has a multifactorial etiology that include trauma, local or systemic infection, or disorder. The intra-articular haematoma caused due to trauma leads to fibrosis, extra bone formation, and eventually leads to reduced joint movements (Ware & Brown, 1981). Systemic infections like Gonorrhoea, Tuberculosis and scarlet fever may lead to otitis media and mastoiditis through the haematogenous spread. Systemic diseases like bony ankylosing spondylitis, arthritis (rheumatoid), and psoriasis are involved in causing TMJ ankylosis (Vibhute et al., 2011; Hakim & Metwalli, 2002). Radiography has a significant role in evaluating TMJ ankylosis and comprises of panoramic radiography, CT and MRI. The value of 3D- CT plays an essential part prior to surgery (Vanza et al., 2016).

Kaban et al., (1990) suggested a management protocol for TMJ ankylosis consisting of aggressive resection, ipsilateral coronoidectomy, contralateral coronoidectomy when necessary and costochondral graft can be used for restoration of the ramus of mandible, rigid fixation, and primary mobilization and forceful physiotherapy (Nitzan et al., 2012). Currently, the only treatment option for treating TMJ ankylosis is surgery (Mehrotra et al., 2011). Gap arthroplasty, interpositional arthroplasty, reconstruction

arthroplasty and total joint replacement are the four most commonly used surgical procedures to treat TMJA (Mehrotra et al., 2011). The commonly encountered post-surgical complications are limited mouth opening and reankylosis. Temporary pares is of facial nerve, anterior open bite and Frey's syndrome (Mehrotra et al., 2011).

4. CONCLUSION

The importance of correct diagnosis cannot be over emphasised. In the present case, the correct treatment was addressing the fracture which was overlooked by the treating private practitioner. Post traumatic fusion of joint are treated on the same lines of TMJ ankylosis using the established protocols. The post trauma/treatment, physiotherapy is an absolute necessity.

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Authors Contribution

All the authors have equally contributed to the case report.

Informed Consent

Appropriate signed consent was taken from the patient before writing this case report. Identity of the patient was not revealed in this case report.

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Conflict of Interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are presented in the paper.

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