

Case Report

Temporomandibular Joint Fibrous Ankylosis – A Case Report

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ABSTRACT

Temporomandibular joint is unique, complex, synovial joint of the jaw playing a vital role in opening and closing movements of the mandible assisting in masticatory function. Ankylosis of the temporomandibular joint (TMJ) involves fusion of the mandibular condyle to the base of the skull due to trauma and infection in childhood leading to devastating effects on the future growth and development of the jaws and teeth. This can cause facial deformity, which worsens with growth having a profoundly negative influence on the psychosocial development of the patient. The treatment of TMJ ankylosis poses a significant challenge because of technical difficulties and a high incidence of recurrence. This case report is of a 6 year old boy who reported with inability to open the mouth, and giving and was diagnosed with bilateral fibrous TMJ ankylosis. This case was treated by immediate non invasive, non surgical approach mainly physiotherapy yielding a drastic improvement in mouth opening helping to restore the physical, psychological, and emotional health of the child patient.

Introduction

Temporomandibular joint is a unique, complex, bilateral diarthrodial synovial joint which provides both hinging (giglymoid joint) and gliding movement (arthroidial joint). Disorders involving temporomandibular joint embraces number of clinical conditions that involves the joint (TMJ) and masticatory muscles and associated structures.

TMJ ankylosis is one of the types of temperomandibular joint disorder that leads to restriction of the mouth opening from partial reduction to complete immobility of the jaw. Ankylosis is a Greek terminology meaning “stiff joint”. It can be defined as “inability to open mouth due to either a fibrous or bony union between the head of the condyle and glenoid fossa.”^[1]

In children, it can have devastating effects on the future growth and development of the jaws and teeth. Furthermore, in many cases it has a profoundly

negative influence on the psychosocial development of the patient, because of the obvious facial deformity, which worsens with growth^[2]. Impairment of speech, difficulty with mastication, poor oral hygiene, rampant caries, disturbances of facial and mandibular growth, malocclusion, and acute compromise of airway, etc. present a unique challenge to pediatric dentists in terms of the patient’s physical and psychological management.

Trauma and infection are the leading causes of ankylosis. However, it may go unnoticed in young patients early in life. But the dentist can recognize the slowly increasing limitation of jaw movement. Pain is uncommon. Although TMJ ankylosis is one of the most common pathologies afflicting the facial skeleton, it is also the most overlooked and undermanaged problem in children.^[3] Early diagnosis

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and treatment are the key to avoid complications in ankylosis.

This paper describes a case of bilateral fibrous ankylosis of TMJ causing problems in mastication, speech, appearance in a 6-year-old child.

Case Report

A six-year-old boy, reported to the Department of Pediatric and Preventive Dentistry with the chief complaint of difficulty in opening his mouth since 1 year. Parents gave history of trauma 1 year back due to fall during play time. No bleeding from mouth or face was noted at the time of injury. Patient's medical history revealed no specific problem and had no relevant past dental history. Extra oral examination revealed clicking sound of TMJ present on left side and tenderness on right side of TMJ. Mouth opening recorded was 5 mm (figure 1).

Radiographic examinations comprised of orthopantomogram and computed tomography which revealed lack of structural organization and obliteration of right and left TMJ space (Figure 2). Based on clinical as well as radiographic findings, a diagnosis of bilateral fibrous TMJ ankylosis was confirmed.

After a detailed clinical, functional and radiographic examination, this case was treated by immediate non invasive, non surgical approach mainly physiotherapy with ice cream sticks (figure 4).

- ❖ Mouth opening after 1 month-
- ❖ Mouth opening after 4 month-
- ❖ Mouth opening after 6 month-

Post-operative course

A mouth opening of 2.5cm was noted 6 month after physiotherapy. The patient was instructed to continue exercises for at least a period of 1 year.

Discussion

Temperomandibular joint (TMJ) ankylosis is osseous or fibrous fusion of the condyle of the mandible and the mandibular fossa of temporal bone. TMJ ankylosis is a rare condition that renders the afflicted individual unable to masticate, articulate well and maintain good oral hygiene.^{[4],[5],[6]} The clinical findings of TMJ ankylosis in children are affected by the age of onset, the duration, and whether the ankylosis is unilateral or bilateral. Unilateral ankylosis reveals unilateral hypoplasia of the mandible and deviation of the chin to the affected side.^[7]

Bilateral ankylosis results in severe retrognathia, mandibular alveolar protrusion, open-bite deformity, bird-face appearance, and hypertrophic and thick coronoid process. Night snoring and obstructive sleep apnea are the other clinical findings in bilateral ankylosis.^[8]

The most common etiological factor is trauma and it is hypothesized that intra-articular hematoma, along with scarring and formation of excessive bone, leads to the hypomobility.^[9]

The present case also had a history of trauma with probability of scar tissue formation. If ankylosis is suspected to be caused due to muscle fibrosis / formation of immature scar tissue formation, physical therapy and use of trismus appliance could be of use.^[10] Physical therapy includes exercises which relaxes the masticatory

muscles and improves its strength. Objective of physiotherapy include:

1. Reduction of oedema
2. Soften and causing stretch of scar tissue
3. Increasing the range of joint movement
4. Increasing muscle strength of masticatory muscles.

Devices are available that keeps the mouth open in a graded manner. Available devices are threaded tapered screw, dynamic bite opener, screw type mouth gag, fingers and stack of ice cream sticks.

Conclusion:

Any pathology that afflicts the TMJ and restricts the mouth opening carries a mental stigma that overweighs the physical disability posed by the problem in growing children. Such children are psychologically handicapped and hence call for a unique approach toward their rehabilitation. Every pediatric dentist who treats children is in a unique position to help such children physically as well as psychologically. A detailed history, clinical and functional examination, radiographic examination facilitating correct diagnosis followed by immediate physiotherapy yields a drastic improvement in mouth opening helping to restore the physical, psychological, and emotional health of the child patient.

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Figure 1: Extraoral view showing limited mouth opening

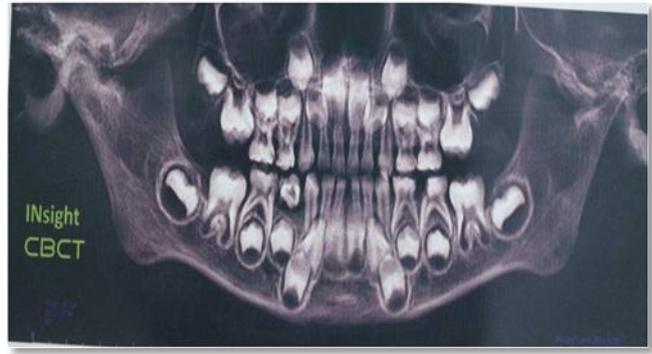


Figure 2: OPG showing lack of structural organization

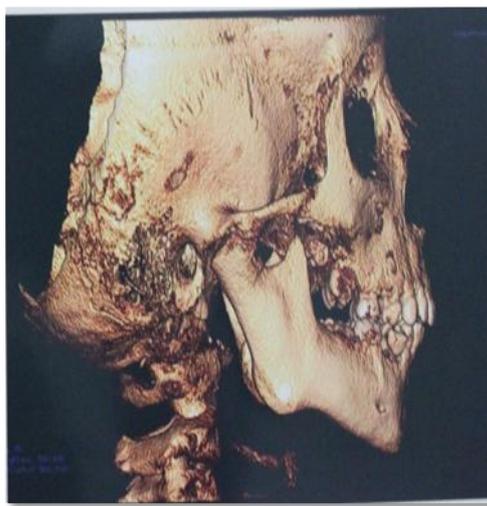
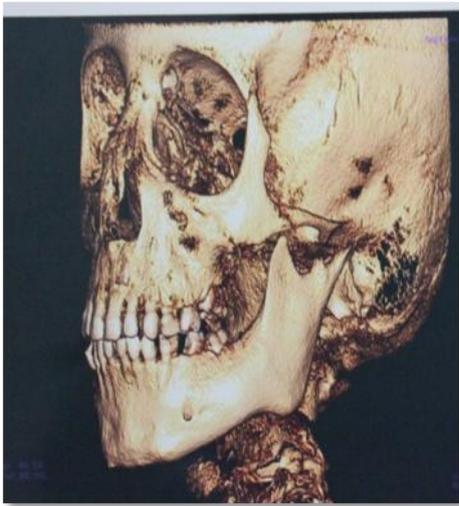


Figure 3: CBCT image showing obliteration of right and left TMJ space



Figure 4: Mouth opening after 1 month: 1cm



Figure 5: Mouth opening after 6 months: 2.5cm