CASE REPORT

Temporomandibular joint Ankylosis – A Case Report

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Abstract

Temporomandibular Joint (TMJ) ankylosis is a condition in which condylar movement is limited by a mechanical problem in the joint ("true ankylosis") or by a mechanical cause not related to joint components ("false ankylosis"). True ankylosis may be bony or fibrous. In bony ankylosis, the condyle or ramus is attached to the temporal or zygomatic bone by an osseous bridge. In fibrous ankylosis a soft tissue (fibrous) union of joint components occurs; the bone components appear normal. False ankylosis may result from conditions that inhibit condylar movement, such as muscle spasm, myositis ossificans, or coronoid process hyperplasia.

Most unilateral cases are caused by mandibular trauma or infection. The most common cause of bilateral TMJ ankylosis is rheumatoid arthritis, although in rare cases bilateral fracture may be the cause.

Here we report a case of TMJ ankylosis in a 10 year-old male patient showing most of the characteristic features of this condition.


Key words:

Introduction

Temporomandibular joint (TMJ) Ankylosis involves fusion of the mandibular condyle to the base of the skull. When it occurs in a child, 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. Trauma and infection are the leading causes of ankylosis. However, in a young patient a joint injury may not be noticed immediately. The first sign of a significant problem may be increasing limitation of jaw opening, usually noticed by the dentist. Pain is uncommon. Early diagnosis and treatment are crucial if the worst sequelae of this condition are to be avoided.
Optimal results can be achieved only after a complete assessment and development of a long-term treatment plan. We present a case report of TMJ ankylosis diagnosed and successfully treated in the early teen years.

Case Report

A 10-year-old male patient reported to our department with a chief complaint of difficulty in opening his mouth and pain in lower left front teeth region since 1 month.

Patients’ mother gave history of normal delivery, no H/o forceps using during delivery, no H/o trauma. She also gave history of fever and vomiting after 4 days of birth because of that patient was hospitalized than she noticed facial asymmetry. History of difficulty in eating food and habit of mouth breathing. No relevant history of ear infection, weight loss, drug history and family history.

General physical examination demonstrated with medium built, height was 4 feet; weight was 33 kg with normal gait. No signs of icterus, pallor and anaemia.

On extra oral examination obvious facial asymmetry, (fig.1) Flattening on the right side of the face, Fullness, roundness on left side (affected side of face), (fig.2) Deviation of mandible toward the left side (Affected side), (fig. 1). Prominent antegonial notch present on left side of face. Retrognathic mandible with TMJ movements was restricted.

Intraoral examination revealed mouth opening was restricted 0.9 cm, (fig.3) and lower left deciduous canine was grade II mobile.

The orthopantomogram, (Fig. 4) revealed elongation of left coronoid process of mandible with prominent antegonial notch on affected side and narrow joint space.
CT scan, (Fig. 5) revealed joint space preserved, irregular erosion of articulating surface suggesting of fibrous ankylosis.

Haematological investigations were normal in range except eosinophil count was high 8%. Liver and renal functions were normal in limit.

After completing all the necessary investigations, the patient was confirmed as having fibrous ankylosis of left Temporomandibular joint.

After complete evaluation, release of fibrous ankylosic mass, gap arthroplasty, on left TMJ, right and left side coronoidectomy and interposition with costochondral graft and exraction of lower left deciduous canine followed by regular follow-up till one year, and mouth opening is increased 3cm (fig.5), scaling and polishing, physiotherapy and orthodontic consultation for functional appliances.

Discussion

Ankylosis is a condition in which condylar movement is limited by a mechanical problem in the joint (‘true’ ankylosis) or by mechanical cause not related to joint components (‘false’ ankylosis).³

- True Ankylosis - is of two types:
  - Bony: condyle or ramus is attached to the temporal bone by an osseous bridge
Fibrous: soft tissue union of joint components occurs, bone components appear normal

- **False Ankylosis** - may result from conditions that inhibit condylar movement like muscle spasm, myositis ossificans or coronoid process hyperplasia.

**One year follow-up (Post-operative)**

Fibrous: soft tissue union of joint components occurs, bone components appear normal

- **False Ankylosis** - may result from conditions that inhibit condylar movement like muscle spasm, myositis ossificans or coronoid process hyperplasia.

**Causes**

Inflammatory destruction of synovial lining of joint. Inflammation may result from:

- Primary infection of joint
- Extension from neighbouring infection such as otitis media, mastoiditis, osteomyelitis of mandible
- Blood-borne infection from several sources
- Trauma to the joint
- Rheumatoid diseases like rheumatoid arthritis, ankylosing spondylitis, Reiter’s syndrome
- Hemarthrosis (such as those occurring in haemophiliacs)

Children are more prone to ankylosis because of greater osteogenic potential and an incompletely formed disc. Ankylosis frequently results from prolonged immobilization following condylar fracture. Moreover in case of TMJ ankylosis, an appropriate worldwide accepted protocol is to be administered which includes surgical intervention, elaborate resection early mobilization and aggressive physiotherapy for at least 6 months to one year postoperatively.

It is said that a child learns to explore the world through his mouth! 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. Speech aberrancy, poor oral hygiene, rampant caries and behavioural problem pose unique challenge to dentist.

Early aggressive postoperative physiotherapy has been recognized as an essential for the prevention or treatment of TMJ hypo mobility or ankylosis. The biological and physiological basis for increasing the range of motion using dynamic exercise in restoring normal functions after surgery and prolonged immobilization has been well documented in trauma, orthopaedic and physical therapy literature. The potential benefits of TMJ opening and closing exercises are improved muscle vascularity, increased muscle mass and protein metabolism, decreased muscle fatigue and increased strength, reversal of the atrophic and degenerative changes within the joints and restoration of the normal internal fibrous structure anatomy.
Interpositional Gap Arthroplasty is a highly effective and safe surgical management option for TMJ ankylosis with acceptable immediate and long term outcome, particularly when temporalis fascia and muscle are used for adults and costochondral grafts with fascia interposition used for children. A 7-step protocol has been developed for the treatment of TMJ ankylosis: 1) aggressive resection of the ankylotic segment, 2) ipsilateral coronoidectomy, 3) contralateral coronoidectomy when necessary, 4) lining of the joint with temporalis fascia or cartilage, 5) reconstruction of the ramus with a costochondral grafts 6) rigid fixation of the graft and 7) early mobilization and aggressive physiotherapy.

Conclusion

Ankylosis of the TMJ is a worrisome condition of children and adolescent which prevents normal feeding habits, impairs speech and causes facial deformity; but if proper diagnosis, adequate surgical intervention is carried out on time and with an intensive follow-up, prognosis is good.

References