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Tmj Ankylosis- A Review

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ABSTRACT: -
The TMJ is a diarthrodial, ginglymus ,synovial joint that is capable of both rotational and translator movement.it is formed by the articulation of the glenoid fossa of the temporal bone and the head of the condyle. TMJ ankylosis refers to a partial or complete inability to open the mouth which result in functional or growth deformities if the mandible. being responsible for the various movements of the jaw ,any pain or restriction of function can cause immense distress to the patient

Key words: -temporomandibular joint, tmj disorder, ankylosis, trauma

INTRODUCTION: -

TMJ Ankylosis is the pathological fusion of parts of joints resulting in restricted movement across the joint[1]. It is an arthrogenic disorder of the tmj, refers to restricted mandibular movement with deviation to affected side on opening of the mouth. Ankylosis may range from simple fibrous restriction of jaw movements to a bone formation within the joint restricting movement completely

ETIOLOGY: -

TRAUMA: -Delivery, Intracapsular fractures, Congenital

INFECTION AND INFLAMMATION: -

- Otitis media
- Parotitis
- Mastoiditis

SYSTEMIC CAUSE: -

- Scarlet fever
- Meningitis
- Small pox

PATHOPHYSIOLOGY: -

Intracapsular fracture of bone

Bleeding within joint cavity

Bone fragments with very high osteogenic potential

Organisation of haematoma within joint

Conversion to fibrous tissue

Subsequently to bone

CLASSIFICATION OF TMJ: -

Based on the type of tissue causing the ankylosis; -

- Fibrous ankylosis
- Bony ankylosis

Based on the side involved: -

- Unilateral
- Bilateral

Based on the severity of the ankylosis: -

- Partial
- Complete

Based on the type of etiology for trismus: -

- Pseudo ankylosis
- True ankylosis

KAZANJIAN CLASSIFICATION: -

- Intra articular
- Extra articular

SAWHNEYS GRADING OF ANKYLOSIS: -

Type 1: -flattening or deformity of the condyle with little joint space seen on the radiograph. Extensive fibrous adhesion seen during operation

Type 2: -bony fusion of the outer edges of the articular surface with no fusion in the deeper areas of the joints

Type 3: - A bridge of bone is seen between ramus of the mandible and zygomatic arch

Type 4: - Entire joint is replaced by a mass of bone

DIAGNOSIS OF TMJ ANKYLOSIS: -

History: -

Accurate history is important to differentiate the condition of pseudo ankylosis and true ankylosis. History of trauma either directly to the joint or indirectly to the chin. Duration of trismus should be asked[2].Extracapsular causes such as an untreated zygomatic arch fracture should be ruled out. History of ear infection in childhood. History of forceps delivery of the child

Clinical examination: -

- Restricted mouth opening patients will complain of difficulty in mastication
- Protrusive movement are absent on involved side
- Partial mobility or complete immobility of the condyle is noticed on palpation

UNILATERAL ANKYLOSIS: -

1. Facial asymmetry
2. Affected side appears normal
3. Opposite side appears flat
4. Chin deviated to ankylosed side
5. Deep ante gonial notch on ankylosed side
6. Reduced condylar movement on affected side
7. Class 2 malocclusion on the affected side
8. Posterior cross bite
9. Poor oral hygiene

BILATERAL ANKYLOSIS: -

1. Bird face
2. Trismus
3. Class 2 malocclusion
4. Deep ante gonial notch
5. Poor oral hygiene
6. Crowding of teeth
7. Protrusion of upper anterior teeth
8. Anterior open bite
9. No condylar movement palpable

INVESTIGATION: -

Radiographic findings

Orthopantomography: - will show both the joints picture which can be compared in unilateral area

Lateral oblique view: -will give anteroposterior dimension of the condylar mass.Elongation of coronoid process can be seen[3]

Cephalometric radiograph: -is taken to evaluate the associated skeletal deformities

Posteroanterior radiograph: -will reveal the mediolateral extend of the bony mass.it will also highlight that asymmetry in unilateral cases

CT scan: - very helpful guide for surgery. Relation to the medial cranial fossa, the anteroposterior width, mediolateral depth can be assessed. Any presence of fractured condylar head on the medial aspect of ramus can be located

SEQUELAE OF AN UNTREATED ANKYLOSIS: -

- Facial deformity
- Speech difficulty due to decreased mouth opening, maloccluded teeth and tongue position
- Nutritional deficiency
- Respiratory distress
- Malnutrition
- Malocclusion
- Poor oral hygiene

MANAGEMENT OF T.M.J Ankylosis: -

Basically 3 types: -

- Condylotomy
- Gap arthroplasty
- Interpositional arthroplasty

APPROACHES TO TMJ: -

1. Preauricular incision
2. Postauricular incision
3. Hemi coronal
4. Submandibular incision
5. Post ramal
6. Endaual incision

CONDYLECTOMY: -

Advocated in case of fibrous ankylosis, where joint space is obliterated with deposition of fibrous bands but there is not much deformity of condylar head .Preauricular approach used commonly ,other include AI kayat Bramley, inverted hockey stick[4]

GAP ARTHROPLASTY: -

Section consists of two horizontal osteotomy cuts and removal of bony wedge for creation of a gap .NO substance is interposted between the two cut bony surface. Minimum gap of 1cm to prevent reankylosis

INTERPOSIIONAL ARTHROPLASTY: -

Involves creation of gap, but in addition a barrier is inserted between the cut bony surface to minimize risk of recurrence and to maintain vertical height of ramus

COMPLICATION DURING SURGERY: -

DURING ANESTHETIC: -

As the patient cannot open mouth, awake blind intubation has to be done where co-operation is required which is difficult to achieve sometime. Because of small mandible and altered position of larynx, intubation poses a problem. Aspiration of blood clot, tooth or foreign body during extubation. Danger of falling back of tongue and obstructing airway is always there after extubation[5]

DURING SURGERY: -

- Haemorrhage
- Damage to external auditory meatus
- Damage to zygomatic and temporal branch of facial nerve
- Damage to auriculotemporal nerve
- Damage to parotid gland
- Damage to glenoid fossa

DURING POST OPERATIVE FOLLOW-UP: -

- Infection
- Open bite
- Recurrence of ankylosis

RECURRENCE OF ANKYLOSIS: -

Several factors said to be responsible

Inadequate gap created between fragments

Fracture of costochondral graft

Loosening of costochondral graft due to inadequate fixation to ramus

Inadequate postoperative physiotherapy

Inadequate coverage of glenoid fossa surface

Higher osteogenic potential and periosteal osteogenic power maybe responsible for high rate of recurrence in children

DISCUSSION: -

Prior to 1951 TMJ ankylosis was considered to be incurable. Brisment force was tried without success. Esmarch suggested wedge resection of the body of mandible. condylectomy in early cases.

Gap arthroplasty led to recurrence. Osteoarthrotomy improved the prognosis. Excision of callus & joint reconstruction become the treatment of choice.

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