TEMPOROMANDIBULAR JOINT ANKYLOSIS

REVIEW
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ABSTRACT... Temporomandibular joint (TMJ) ankylosis is a distressing and disabling disorder due to fibrous or osseous adhesions between the bony components of the joint[1]. It not only causes the inability to open the month but also alters the eating habits, speech ability, and cause malocclusion, facial disfigurement and psychological disorders[2]. The main cause is trauma in the childhood[3]. The treatment is early and aggressive surgical operation[4]. So many surgical procedures have been described but no one has been proven entirely satisfactory[5].

Key words: Temporomandibular Joint

INTRODUCTION

True ankylosis of TMJ is common in first two decades but no age is immune to this ailment. It can occur as early at birth due to application of the obstetric forceps[6]. Road traffic trauma is casue in 86%, followed by local infection[7]. It may cause local inflammation in the joint followed by the new bone formation which bridges between normal components of the TMJ i.e condyle and glenoid cavity, but also between ramus of the mandible, coronoid process and base of the skull - zygomatic arch and glenoid fossa in sever injuries. The atrophic condyle and articular disc may be saved. If trauma occurs in very early age before adolescence there is disturbance in the mandibular growth[8], causing asymmetry of mandible, if unilateral or retrognathic appearance or micrognathia called birds face appearance if bilateral[9,10] injury to TMJ. The patient is unable to open the mouth, there is also tooth decay gingivitis and calculus formation. The non-effected mandibular head also start getting destruction.

AETIOLOGY

Trauma is the commonest cause of this disease. Other causes are[11]

a). Intracapsular

1. Congenital aplasia, hypoplasia and hyperplasia of condyle.
2. Traumatic i.e fractured condylar neck.
3. Extensive inflammatory lesion from osteomyelitis bone and middle ear infection.
4. Arthritis - rheumatoid, osteoarthritis.
5. Tuberculosis.
6. Syphilis

b). Extracapsular

1. Congenital like haemangioma mandible.
2. Inflammation, associated with last molar tooth and muscle.
3. Myositis ossificans.
4. Inflammatory and neoplastic lesion of the parotid gland.
5. Scar tissues.

CLASSIFICATION

It may be classified as intra capsular, extra capsular, unilateral and bilateral. But for practical, purposes we take intra capsular ankylosis as real disease and divide it into four types[12].

I. The condyle may be deformed but fibrous adhesion are real cause of ankylosis.
II. The part of TMJ specially outer surfaces are fused by bony growth but medial part of the joint remains intact.
III. There is a bridge of bone between the ramus of the mandible and zygomatic arch. Medially atrophic condyle even the articular disc may be found.
IV. There is no trace of the joint which is replaced by a block of the bone between the ramus of the mandible and base of the skull i.e mandible notch, ramus, coronoid process to zygomatic arch and gelnoid fossa.

DIAGNOSIS

before surgery is undertaken the exact anatomy of TMJ and outgrowth of ankylosing bone is essential; but the

knowledge of relation of important structures to the pathological joint is also important. Anterior maxillary artery is medial to the neck mandible but lies more close to the joint, even runs within ankylotic bony mass. The block of ankylotic bone may get in close relation to important structures at the base of the skull like pterygoid plates, foramen spinosum with middle meningeal artery, foramina for carotid artery and jugular vein[13]. For type I and type II routine x-ray of the mandible and panoramic tomogram is enough but for type III and IV post contrast axial and coronal CT scan is essential[14,15,13]. It will illustrate the relations of bony ankylosis more accurately for letter surgical planning. It will reduce the operation time and reduce the surgical complications[16,17].

TREATMENT

Early and aggressive surgery is the essential part of the treatment[18,19]. No appropriate single procedure is universally accepted[20] but condylectomy and wide excision of the ankylosing bone is more popular[21]. For type I & II fibrous adhesion and condylar head is removed, shaved rounded and smooth until free movement have occured[22]. For type III & IV whole block of bone between ramus and base of skull is removed and the gap between the remnant mandible and the base of the skull is left as such which is called gap arthroplasty. It is the most commonly practiced operation[23,24]. It gives rise to shortening of jaw and more chances of reankylosis specially in type IV ankylosis[25].

To fill up this gap or to minimize reankylosis so many operations have been advised by different authors[26,27,28,29].

1. Disc replacement
2. Costochondral replacement
3. Allopathic replacement using acrylic[12] or silicon[30,31] Teflon[32], vitamin[33] graft
4. Temporalis superficial fascia
5. Temporalis fasiomuscular flap
6. Lympholised dura mater
7. Chondroossius graft from iliac bone
8. Metatarsal graft
9. Metatarso phalangeal graft
10. Clavicular bone
11. Sterno clavicular joint
12. Dermis

Disc replacement is recommended for type I & II ankylosis in young patients, with short history. It improves facial symmetry, there is minimum recurrence rate and can be used with temporalis graft[34,35].

Costochondral replacement was first described by Gillies[36] in 1920. It has unpredictable growth, jaw may deviate there may be prognothism and may give donor site problem. It is more useful for growing children specially type III & IV ankylosis and also useful in inadequate height of the ramus and big gap[25,37].

Temporal facial graft which is second best after costrochondral graft was first described by Murphy in 1912[38], not suitable for extensive osteotomy[39]. Tempora fasciomuscular graft has no special benefit over simple fascial graft[3]. Allo graft give more rejection extraction. Plastic surgical operation for chin (genioplasty) secodnary post operative deformity can be performed later on[40,10].

OPERATIVE TECHNIQUE

The operation is performed under GA by nasotracheal intubation. Preauricular approach is most commonly used[41]. (Though Yoon[42]) has described intraoral approach). Skin is incised, separating tragus cartilage, dissect sub periosteally posterior to zygomatic arch to protect temporal and zygomatic branches of the facial nerve till capsule of the joint is reached, cut the capsule by T- incision. Remove the residual condyle, and fossa by a rounded bur and leave a thin block of deeper bone to avoid injury to interior maxillary artery and pterygoid plexus of veins. Remove the rest of the deeper shell of bone carefully with a curyed chisel to produce at least 15 mm of gap. Try to save the residual disc to cover the condylar stump. If intraincisal gap is less than 30mm coronoidectomy of ipsilateral or both side should be done. The would is closed after leaving a tube drain in.

POSTOPERATIVE CARE AND COMPLICATION

Mobilization and physiotherapy should be started as soon as possible within 3 yo 6 day and continue for 3 to 6 months[43,25,44]. If malcclusion is observed or costochondral graft is put in then maxillomandibular fixation is applied for 3 weeks for cosmetically better and symmetrical

functions[43]. The aim of the operation is an average 30mm of interincisal opening.

Temporary facial paralysis, facial asymmetry, shot chin, malcclusion, anterior openbite, Frey's syndrome, painful joint and recurrence are some of the complication of this operation.

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EVERY MAN IS GUILTY OF ALL THE GOOD HE DIDN'T DO.

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