



Bilateral temporomandibular joint ankylosis

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ABSTRACT

Ankylosis is the fusion of joint surfaces by bone or fibrous tissue. Temporomandibular joint (TMJ) ankylosis may cause difficulty in chewing, speech, oral hygiene maintenance, and esthetic disfigurement. This condition can be unilateral or bilateral, complete or incomplete. TMJ ankylosis may occur due to various factors, such as trauma, local and systemic inflammatory conditions, neoplasms, and TMJ infection. Trauma due to forceps delivery causing bilateral TMJ ankylosis is rare. We report a case with difficulty in mouth opening, eating, speech, oral hygiene maintenance, facial disfigurement as a result of bilateral TMJ ankylosis caused due to trauma by forceps delivery. This report implores upon preventing such disabling complications due to forceps delivery.

Key words: Temporomandibular joint, ankylosis, bony

ÖZET:

Ankiloz, kemik ya da fibröz doku ile eklem yüzünün füzyonudur. Temporomandibular eklem (TME) ankilozu, çiğneme, konuşma, oral hijyen sağlanması ve estetik açıdan şekil bozukluğuna neden olabilir. Bu durum, tek taraflı(unilateral) ya da iki taraflı (bilateral) , tam ya da tam olmayan biçimde olabilir. TME ankilozu, travma, local ya da sistemik enflamatuvar durumlar, kanserler ve TME enjeksiyonları gibi birçok nedenden oluşabilir. Biz, forceps uygulaması sonucu iki taraflı (bilateral) TME ankilozunun neden olduğu ağzını açma, yemek yeme, konuşma, oral hijyen sağlama güçlüğü ve fasiyal şekil bozukluğu olan olguyu sunuyoruz. Bu sunum, forcepsle doğum uygulaması sırasında buna benzer komplikasyonları önlemeyi amaçlamaktadır.

Anahtar kelimeler: Temporomandibular eklem, ankilozis, kemik

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INTRODUCTION

Ankylosis is the fusion of joint surfaces by bone or fibrous tissue. Temporomandibular joint (TMJ) ankylosis may cause difficulty in chewing, speech, oral hygiene maintenance, and esthetic disfigurement. TMJ ankylosis may be classified in various ways such as intra or extra-articular (according to the site), bony, fibrous or fibro-osseous tissue (depending on the type of tissue involved), and complete or incomplete (based on the degree of fusion).^[1] TMJ ankylosis may occur due to various factors, such as trauma, TMJ infection, local and systemic inflammatory conditions and neoplasms. Trauma and infection are the most common etiological factors according to the previous studies.^[2,3]

CASE REPORT

A 9-year old girl reported to the Department of Oral Medicine and Radiology with a chief complaint of difficulty in mouth opening. Difficulty in mouth opening was initially noticed by the parents shortly after birth. As the child grew parents also noticed difficulty with eating, chewing, speech, maintenance of oral hygiene and retruded chin which was of esthetic concern. Patient's parents gave a history of forceps delivery after uneventful and full-term pregnancy. No other pre and postnatal complications were reported by the parents. Patient's family history was non-contributory. On extraoral examination, the patient had a convex profile and bird face appearance. Mandibular retrognathism was noticed. Mouth opening was restricted and interincisal distance was 6 mm (Figure 1 ABC). No TMJ movements were appreciated while opening the mouth and there was no tenderness in the TMJ region on palpation. A thorough intra-oral examination was not possible due to the limited mouth opening. Protrusion of maxillary incisors and the anterior open bite was noticed. Radiographic examinations comprised of the panoramic radiograph and TMJ views. Bilateral condylar morphology was altered with compromised joint space and bony fusion (Figure 2 A). TMJ view showed altered morphology with irregularity with mandibular condyle and TMJ fusion. TMJ movements could not be appreciated with TMJ views (Figure 2 B). Based on these findings, bilateral bony TMJ ankylosis was diagnosed. She was referred to the department of oral and maxillofacial surgery for management. The patient could not afford treatment due to financial constraints and was lost to follow up.

DISCUSSION

Ankylosis has its origin in the Greek word *ankulōsis*, which means stiffness of a joint due to abnormal adhesions or rigidity resulting in a bent or crooked appearance.^[4] Similarly, Ankylosis of the Temporomandibular Joint (TMJ) is one such condition that results in decreased mobility of the joint due to the fusion of the mandibular condyle to the glenoid fossa. It can be classified as bony, fibrous or fibro-osseous, complete or partial, unilateral or bilateral.^[4]

Ankylosis can be secondary to trauma, infection, systemic disorder or post-surgical manipulation of the joint. Literature also suggests that ankylosis can be due to Congenital deformities, idiopathic factors, and iatrogenic causes.^[5] In the present case there was no history of pre and postnatal complications. In our case, the causative factor could be attributed to forceps delivery. There is an increased incidence of TMJ problems in cases of forceps delivery.^[4] The use of obstetrical forceps in aiding delivery was started in 1973. Excess pressure with forceps causes tissue damage.^[6] Trauma to the TMJ region can result in an intra-articular haematoma which further leads to fibrosis, excessive bone formation, and hypomobility of the joint.^[7] Instrument vaginal deliveries although have decreased due to maternal and postnatal complications, they are still practiced in centers where advanced facilities are not available. Although reports of increased TMJ problems have been mentioned, there are not many reports of TMJ Ankylosis secondary to forceps delivery.^[8]

An occurrence of TMJ Ankylosis in early childhood has deleterious effects, as the condylar cartilage is a growth center that dictates the growth and the development of the jaws and teeth.^[6] TMJ Ankylosis, as seen in our case, not only causes skeletal defects which secondarily affects the development and function of muscles and soft tissue around but also hinders oral feeding, speaking, difficulty in maintaining oral hygiene resulting in increased dental caries and periodontal disease.^[9] Along with all these very obvious physical problems, the child will also have a severe negative effect on the mental well-being, with the inability to engage in normal, everyday activities resulting in decreased quality of life.

According to Sawhney, TMJ Ankylosis can be classified, taking into account the degree of TMJ mobility limitation into 4 types.^[10] In type I, the condylar head is visible but the edges are deformed, with limited TMJ movement due to



Figure 1 ABC. Clinical photographs showing A) fullness of cheek B) Bird face appearance with mandibular retrognathism C) Restricted mouth opening

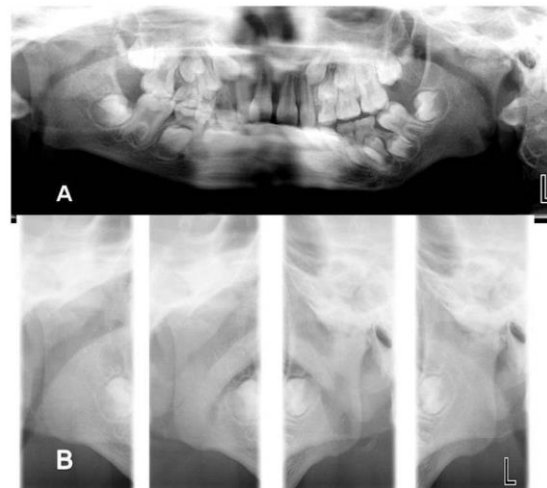


Figure 2AB. A) Panoramic radiograph showing altered condylar morphology bilaterally, compromised joint space with bony fusion. B) TMJ view showed altered morphology, irregularity with mandibular condyle and bony fusion

Table 1. Classification of TMJ Ankylosis based on Joint mobility by Sawhney CP^[9]

Type	Features
Type I	Visible and significantly deformed head of the condylar process, with the fibro-adhesions making TMJ movement impossible
Type II	Consolidation of the deformed head of the condylar process and articular surface occurs mostly at the edges and in the anterior and posterior parts of the structures, and the medial part of the surface of the condylar head remain undamaged
Type III	The ankylotic mass involves the mandibular ramus and zygomatic arch; an atrophic and displaced fragment of the anterior part of the condylar head is in a medial location
Type IV	TMJ is completely obliterated by bony ankylotic mass growing between the mandibular ramus and cranial base

fibro-adhesions. Type II shows minor deformity in the anterior and posterior aspect of a condylar head with an undamaged medial aspect. Type III shows ankylosis between the mandibular ramus and zygomatic arch with an atrophic condylar head. Type IV shows complete obliteration of TMJ space by the bony union between the mandibular ramus and cranial base.^[10,11]

In our case, since there was absolutely no movement in the TMJ complex, and on the radiograph, TMJ was completely obliterated by bony mass growing between the mandibular ramus and cranial base; the Ankylosis was categorized as Type IV.

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Management of TMJ Ankylosis is by surgical correction of ankylosis regardless of the age of the patient. The use of autogenous costochondral grafts in children was considered best for subsequent growth. The previous study showed that early mobilization and aggressive physiotherapy reduced the chances of ankylosis.^[12]

CONCLUSION

Present report highlights the clinical and radiographic features of bilateral TMJ ankylosis. Early diagnosis and immediate treatment are required to improve patient condition. This report implores upon preventing such disabling complications due to forceps delivery.

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