



Intracapsular Unilateral TMJ Ankylosis - A Case Report

Abdul Ilah Touleimat*

Professor, Pittsburgh, Damascus and IUST Universities, Saudi Arabia

***Corresponding Author:** Abdul Ilah Touleimat, Professor, Pittsburgh, Damascus and IUST Universities, Saudi Arabia.

Received: June 16, 2020; **Published:** February 21, 2021

Abstract

Temporomandibular Joint (TMJ) ankylosis is a condition in which condylar movement is limited by a mechanical problem in the joint.

Trauma is the most common cause of bony ankylosis.

In bony ankylosis, what is called (true joint Ankylosis) the condyle disc controlled growth is enlarged to a size that the joint fossa is over filled with the ankylosis mass to a point that the jaw is locked to a minimal or no movement. In very rare cases the ramus is attached to the temporal or zygomatic bone by an osseous bridge.

Most unilateral cases are caused by mandibular trauma that damaged the disc, for the condylar part to grow in abnormal and controlled way to cause the state of ankylosis.

TMJ ankylosis in children, with its massive effect and disturbance on the mandibular growth is a matter. The gross deformity, limited mouth opening, will lead to condition usually affecting children and young adults. It causes problems in mastication, speech, appearance, poor general health and oral hygiene.

Here we report a case of unilateral TMJ ankylosis in a 14 year-old girl.

Keywords: *Temporomandibular; Joint; Ankylosis; Condylar; Movement; Disc, Gap Surgery*

Introduction

Temporomandibular joint (TMJ) is considered the most active functioning joint of the body. It is estimated that the daily joint movement during speech and mastication would be equal to five miles walking. Essentially it has two joints with bilateral R&L synovial articulation. Although of this bilateral articulation, these two joints work as one unit, so they are dependent of each other. TMJ is considered a unique type of joints in the body. It is formed from the joint capsule, articular disc, mandibular condyles, articular surface of the temporal bone, three ligaments, and lateral pterygoid muscles [1].

The growth center is located at the head of each mandibular condyle.

Mandibular joint is unlike typical long bone. It is a multidirectional in its growth capacity. This growth center allows the increased length of the mandible needed for the larger permanent teeth, as well as affecting on all shape of the face. The growth center of bone within the condyle will disappear with full maturity [2].

It has been a great experience for me working in the field of Maxillofacial surgery for more than thirty-five years, dealing with

at least two cases of ankylosis each month. This good and long period started at Presbyterian University Hospital of Pittsburgh. 1982 to end at Damascus and IUST universities at almost the end of 2011. During this long period of practice and research in the TMJ region, few basic facts were established:

1. In two separate independent studies, one was held at Eastman institute of London, the other was at the school of dentistry Damascus University; It was found that the early damaged disc plays the most important part in predisposing to ankylosis. The disc plays an important part guiding and controlling the way the growth center is performing.
2. During the first three years of life, the disc is fully blood supplied. After this age, this will leave the center of the disc to be only at its surrounding. This fact will reduce the disc ability to repair itself and to withstand damage.
3. At the disc damaged area the condyle will grow in an abnormal matter to produce a bony mass that at the end will fill the joint fossa preventing the jaw movement.
4. In many cases of ankylosis we could very easily separate the mass from the bony fossa and find the disc between the two bony surfaces.
5. Many authors define true ankylosis as a bony union between the condyle and the jaw fossa. (such these words could be founded in many articles) (Temporomandibular joint ankylosis).

The temporomandibular joint (TMJ) ankylosis involves fusion of the mandibular condyle to the base of the skull. It is a debilitating condition usually effecting children and young adults. It causes problems in mastication, digestion, speech, appearance, and oral hygiene).

I believe if that was the case, this will only occur in cases were the trauma had caused a fracture of both the con and the fossa beside tearing the disc.

Surgical intervention is the main way to treat ankylosis. No single option for surgery has been shown entirely successful. Different surgeries had been described in the literature including condylotomy [3], simple arthroplasty [4], interposition arthroplasty [5], using temporal muscle, deep temporal fascia, ear cartilage or alloplastic material and reconstruction of the joint using costochondral graft (CCG), fibula, iliac, clavicle crest, metatarsal head or alloplastic material like acrylic or titanium prosthesis [6].

Case Presentation

Fourteen years old girl presented with her family seeking solution for a severely limited mouth opening. The child has involved in a car accident at the age of 4 years. She had complained from swelling and pain of the side of her face. After some kind of symptomatic treatment, gradually subsided and neglected.

On the day of her present, her mouth opening was limited to 6 mm (Figure 1).

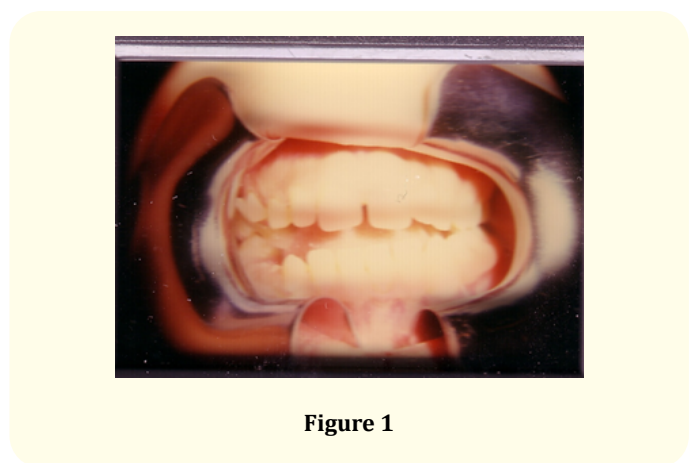


Figure 1

This limitation effects on feeding and had an impact on the child's health, forcing her family seeking for any kind of management.

After her admission to the Maxillo facial surgery department, a series of radiographic and lab tests were done preparing for surgery (Figure 2 and 3).

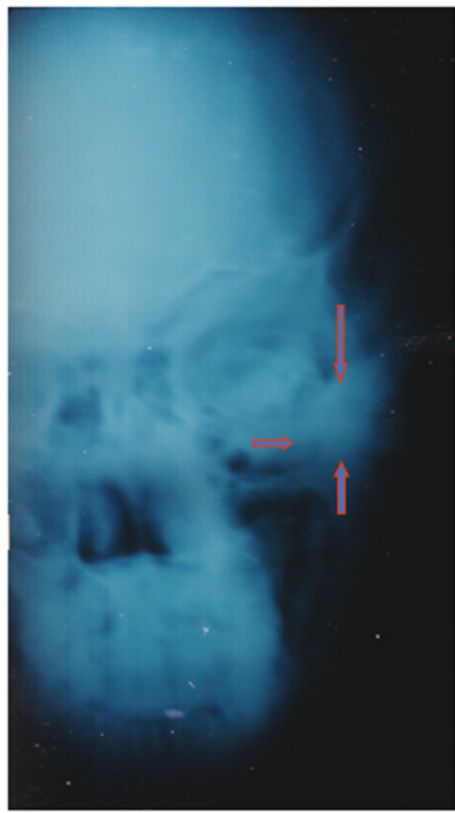


Figure 2: Skull PA view the calcified mass.

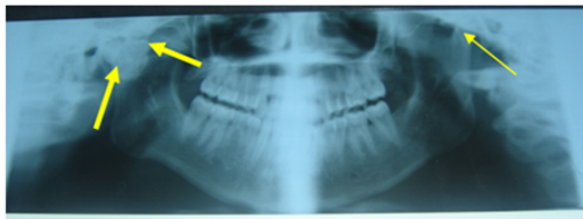


Figure 3: Panoramic, is good for comparison between the two sides.

The normal side has not been moving normally, it is almost fixed for a good long period of time, because of the ankylosis, will support the rejection to the theory, that long term of jaw immobilization will predispose to ankylosis.

Surgeons should keep in their minds that well experienced anesthetist is important dealing with this kind of surgery.

TMJ gap bony cut Surgery was done under Blind nasal intubation and through the usual classical preauricular surgical entrance (Figure 4-7).



Figure 4: The length of the release incision depends upon the size of the mass.

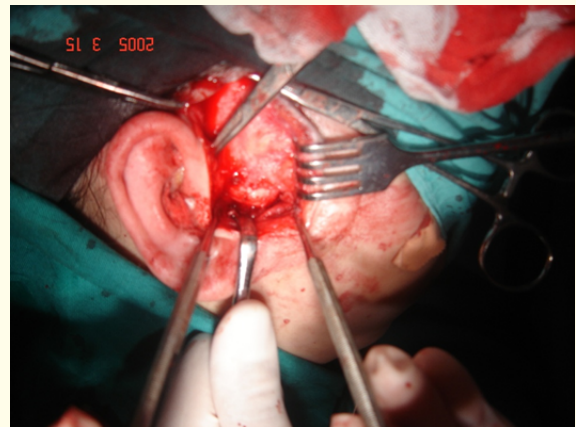


Figure 5: T shape cut to open the capsule.

The capsule is reflected to expose the mass. It is hard sometimes to distinguish the joint elements. (Since the calcification dose not reach the Zy. Arch; a palpated depression above it will get you somewhat oriented) (Figure 6).



Figure 6

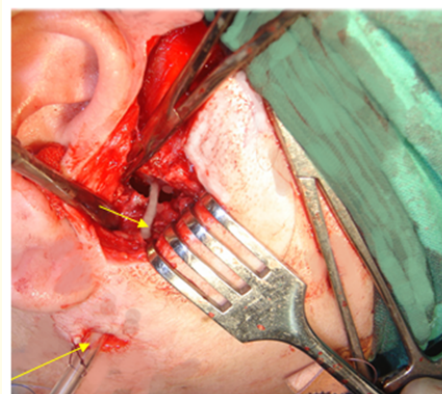


Figure 8

Using surgical burr the mass was cut at its lower part, the condylar part was performed, the upper part of the mass was easily separated and removed using a chisel, to see the disc laying and covering the glenoid fossa. This way a good amount of gap was created (Figure 7).



Figure 7



Figure 9

Then the mandible mobilized to check it has a complete release.

A tubing drain is inserted coming from a lower part of the created joint (Figure 8).

Then the capsule was sutured back and the wound closed in layers, to be dressed with a compressive dressing (Figure 9-13).

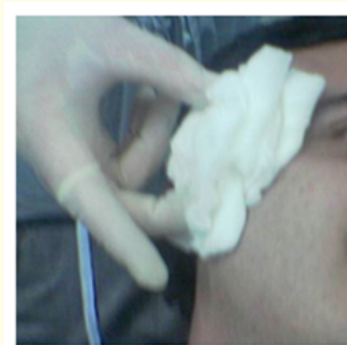


Figure 10

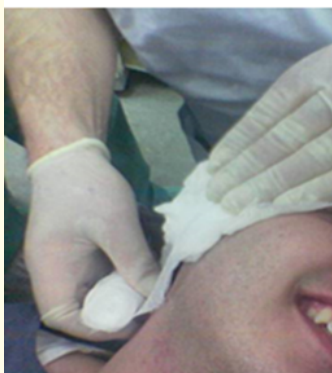


Figure 11



Figure 13



Figure 12

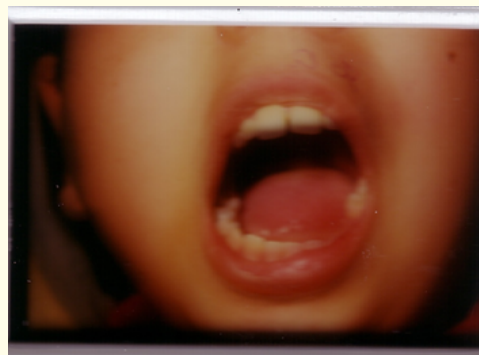


Figure 14

Patient would leave the OR. With a good jaw easily movement. to be left to move her jaw the time and the way she wants. No physiotherapy is applied; Forcing the patient to open his mouth during the first few days of surgery might interfere with tissue healing process causing much more scaring tissue that might resist the jaw movement.

Patient follow up

10 days PO.

The opening was 18 mm (Figure 13).

After One month 26 mm (Figure 14).

30 mm after 50 days (Figure 15).



Figure 15

Intraoperative mouth opening after 6 months is 30 mm. No Physiotherapy was applied. Just encouraging her to use her jaw and chew any thing she would.

Discussion

A statistical study shows that after successful removal of ankylosis we regain about 28 mm of oral opening.

So, surgery is not indicated unless the pt. opening is less than 25 mm.

In the past we used to delay the surgery if possible till the ankylosis mass is fully calcified (This might reduce the possibility of reoccurrence).

Though surgery in children has give us a good prognosis Specially that the use of the jaws has encouraged the growth to continue.

The youngest age we have performed surgery on was 3 Y.O. That was Bilateral Ankylosis of a girl that has a traumatic delivery. After one y. She has 23 mm opening and she was under the care of an Orthodontics trying to stimulate the growth of the mandible and preventing the little girl from having an open bite.

The treatment of TMJ ankylosis through creating an adequate gap with complete release of the jaw is of paramount importance in preventing any future recurrence and this can be achieved only when good access is gained to this complex anatomical joint, through a good temporalis muscle flap [7,8]. This flap has been used for many years by surgeons because of its ease of handling, proximity to the temporal joint, good functional results, successful clinical results, with minimal complications [7-9].

The first is general anesthesia. Well experienced anesthetist is important. Blind nasal intubation must be performed otherwise tracheostomy should be done before starting surgery. Blind nasal intubation was done here by well experienced anesthetist avoiding the child all the unpleasant complications of tracheostomy that may follow.

Conclusion

Trauma considers the most common etiological factor:

- Patients with possible trauma to TMJ should be evaluated carefully by the clinicians. It needs to make an accurate early diagnosis and treatment.
- Many cases of ankylosis came from poor families, where no attention was given to the babies after they having trauma.
- Mandibular deformity could be avoided If the surgery is performed early.

Bibliography

1. L Salentijn. Biology of Mineralized Tissues: Prenatal Skull Development. Columbia University College of Dental Medicine Post-Graduate Dental Lecture Series, 2007.
2. M Bath-Balogh, M Fehrenbach. Jump up to Illustrated Dental Embryology, Histology, and Anatomy, 2011:266.
3. NA. Malik. Textbook of Oral and Maxillofacial Surgery. Jaypee Brothers Publishers, 2008.
4. A Roychoudhury, H Parkash, A Trikha. Functional restoration by gap arthroplasty in temporomandibular joint ankylosis: a report of 50 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endodontol. 1999;87(2):166-169.
5. K Su-Gwan. Treatment of temporomandibular joint ankylosis with temporalis muscle and fascia flap. Int J Oral Maxillofac Surg. 2001;30(3):189-193.
6. NR Saeed, R Hensher, NM McLeod, JN Kent. Reconstruction of the temporomandibular joint autogenous compared with alloplastic. Br J Oral Maxillofac Surg. 2002;40(4):296-299.
7. Krushna Bhatt, Ajoy Roychoudhury, Ravindra Mohan Pandey. Functional outcomes of gap and interposition arthroplasty in the treatment of temporomandibular joint ankylosis. J Oral Maxillofac Surg. 2014;72(12):2434-2439.

8. R Rajan, NV Reddy, A Potturi, D Jhavar, PV Muralidhar, B Reddy. Gap arthroplasty of temporomandibular joint ankylosis by transoral access: a case series. *Int J Oral Maxillofac Surg.* 2014;43(12):1468-1472.
9. Yogendra Kumar Singh, Pallavi Pandey, Amit Srivastava, Sohail Solanki. Temporalis myofacial flap in TMJ ankylosis with gap arthroplasty: a case report. *Ann Int Med Dent Res.* 2017;3(3):30-33.

Volume 4 Issue 2 February 2021

**© All rights are reserved by Joann Pauline George,
*et al.***