

Temporomandibular Joint Ankylosis- A Preventable Entity?

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This is a prospective study, which includes 51 patients who were operated at The Department of Oral and Maxillofacial Surgery, Mayo Hospital Lahore, during last two years. Although this entity has multiple etiologies, it was post traumatic in majority of the cases in our study. We also conclude that proper posttraumatic rehabilitation may reduce the incidence.

Key words: TMJ ankylosis

The mandibular condyle is the most commonly injured area of the mandible in children^{1,2,3}. Those in earlier age groups are mainly due to falls while older children are involved in bicycle and motor vehicle accidents^{1,2,3,4}. Diagnosing these injuries in children requires tact and patience, as they are often apprehensive and unwilling to cooperate with examination. TMJ ankylosis has a number of etiologies but in our setup it is posttraumatic in most of the cases* and is really a preventable entity if suspected and looked after in immediate post trauma period. We present our experience at The Department of Oral and Maxillofacial Surgery, Mayo Hospital Lahore, during last two years along with review of the literature.

Patients and materials

This study was carried out at The Department of Oral and Maxillofacial Surgery, Mayo Hospital Lahore. All those cases, which presented with temporomandibular joint ankylosis, were registered for the study. Diagnosis of temporomandibular joint ankylosis was based on history, clinical examination and radiographic examination. Standard orthopantomogram was obtained in every case as routine. In two of the cases CT scan was also required to reach conclusion preoperatively. A detailed questionnaire regarding the disease was completed including the biodata of the patient. Particular point of interest was the mode of the injury and a detailed inquiry was made in this regard. Preoperative record included interincisal opening. Frontal and lateral photographic views were also taken pre and post operatively.

Results

A total of 51 cases presented with TMJ ankylosis during two years, which included 21 (41.2%) males and 28 (54.9%) females. Majority of the cases (27 i.e. 53%) belonged to 10-20 years of age. (Table 1)

It was very interesting to note that in unilateral cases, left side involvement was more common in males while in females it was right side, which was more frequently involved. Out of 23 male cases, 5(21.7%) cases presented with right-sided involvement while 9(39.1%) cases had involvement of left side. Among females, out of 28 cases, 13 (46.4%) cases had right-sided involvement and only 3(11%) cases showed left-sided involvement. In

this series, bilateral involvement of the TMJ was found in 21(41.2%) cases (Table 2).

In this series, ankylosis was posttraumatic in 36 (70.6%) cases, result of birth trauma in 5(9.8%) cases and in other 6(11.7%) cases it was post infective. In 4(7.8%) of the cases no definite cause was noted and the entity was considered secondary to some missed trauma. Fall from height was the most common mode of injury i.e.; a total of 19 cases (37.3%) had history of fall either from roof, ladder or bed. A total of 17 cases (33.33%) presented with history of road traffic accidents. (Table 3)

A total of 5 cases under went surgical procedures for the entity in the past while three of the cases, which were operated in the department, presented with recurrence.

Discussion

TMJ ankylosis is development of significant or complete limitation of movement of the joint⁵. It can be classified as true (intra-articular) or false (extra-articular) and also as bony or fibrous, depending on the type of fusion between the articulating elements^{6,7}.

There are many causes of true ankylosis of the TMJ, but the more common include trauma, infection and juvenile rheumatoid arthritis^{8,9,10}. In recent years the frequent cause of ankylosis has also been failed TMJ surgery¹¹. Postoperative fibrous ankylosis is a possible complication of all TMJ surgery, but disk repositioning techniques are more prone to it¹¹. Where as ankylosis occurred most commonly as a complication of childhood illnesses some years ago, this has rarely been the case since antibiotic medications have been available to control secondary infections¹².

The commonest cause of ankylosis today is trauma. Fracture of the condyle, with involvement of the articular surface, hemorrhage and subsequent elevation of the periosteum followed by clot organization, occasionally produces bony union between the ramus of the mandible and the zygomatic arch¹³. The most common cause of a false ankylosis is a fracture of the zygomatic arch with impingement on the coronoid process. This leads to a fibrous union outside the joint and immobilizes it¹⁰.

Although the incidence of ankylosis appears to be decreasing and techniques for its correction have improved as a result of the principles learned from orthognathic

surgery^{14,15}, management of TMJ ankylosis is difficult¹⁶. In younger age group micrognathia may be complication of ankylosis because of the lack of the condylar growth center. Surgical correction of this deformity may also be required to develop an acceptable cosmetic and functional result¹³.

Our study confirms that single most common cause of ankylosis, in our setup, is trauma. There were only six cases in which the problem was secondary to infection in the area. We did not come across any case secondary to juvenile rheumatoid arthritis. In our setup children are most frequent victims of TMJ ankylosis and unfortunately many of them develop this problem before the age of 10-12 years and thus growth of mandible is severely affected. As a result many of these patients are seen with deviated chin and micrognathia and thus make the management more difficult. On the basis of the results of the present study, it is also evident that TMJ ankylosis is a preventable entity if looked after in immediate posttraumatic period. All those cases with common patterns of injury or disturbance to the TMJ must be managed keeping TMJ ankylosis as a possible posttraumatic complication. These cases include: direct or indirect blow to the TMJ area, fall causing impact to the region of chin, stretching and tearing of internal structures of the joint and dislocating forces⁵.

In most of the cases parents have not witnessed the incident and may not be able to give a good history. Concomitant soft tissue injuries of the chin are frequent and raise ones suspicions¹⁷. On the other hand, fractures of bones surrounding the temporomandibular joint and injuries to adjacent soft tissues can either mimic a fractured condyle or produce confusing sign and symptoms. Clinical observation plays an important role in diagnosis.

On the basis of the study we conclude that adequate post injury physiotherapy must be performed to maintain normal joint function. In majority of our patients, we recommend conservative treatment by intermaxillary fixation with arch bars and elastics for ten days. In cases with bilateral fracture dislocation and an anterior open bite four to six weeks of intermaxillary fixation may be necessary.

Patients in risk group should be kept under regular review at six monthly intervals for about two years and then yearly until mandibular growth is complete at the age of about 16 in the female and 18 in male.

Summary

We have described our experience regarding the incidence and etiology of TMJ ankylosis. In our set up trauma is the most common cause of TMJ ankylosis and in that context we are of the opinion that this complication is a

preventable entity if posttraumatic rehabilitation is instituted properly. Post injury physiotherapy and regular follow up have very important role in preventing this complication.

Table 1. Age and sex distribution

Age (years)	Male	Female	Total
Upto 10	7	10	17
11-20	12	15	27
21-30	3	2	5
31+	1	1	2
-	-	-	51

Table 2 Involvement of the joints

	Right	Left	Bilateral	Total
Male	5	9	9	23
Female	13	3	12	28
	18	12	21	51

Table 3 Etiological factors

	Trauma	Infection	Birth trauma	Un-known	Total
Male	16	3	2	2	23
Female	20	3	3	2	28
	36	6	5	4	51

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