ABSTRACT

Fibrous ankylosis is a common complication of trauma to the temporomandibular joint (TMJ) in children. Proper treatment and regular follow-up is necessary for its successful management. This report highlights a case of posttraumatic fibrous ankylosis successfully managed with brisement force—gradual tractional forces applied to the TMJ under local anesthesia without any associated complications. Mouth opening increased significantly from 15 to 35 mm. The patient was advised to perform rigorous physiotherapy at home, to maintain interincisal opening of 35 mm. The case was followed up for 6 months with no decrease in mouth opening.

Key words: Brisement force, fibrous ankylosis, physiotherapy, trauma

CASE REPORT

A 15-year-old female patient reported to the Department of Oral and Maxillofacial Surgery at our institution with the chief complaint of reduced mouth opening associated with pain for 8 months. The patient had a history of trauma 9 years back in which she sustained injuries to the chin. There is a positive history of right ear bleed with no history of loss of consciousness, convulsions, and vomiting. The patient was taken to the hospital and suturing was done to close the laceration on the chin after which medications to relieve pain were prescribed. The patient was also advised orthopantomogram, but since the patient was relieved of pain, the radiographic investigation was not done. Over the years, reduction in mouth opening associated with pain was observed by the patient. On the day she reported to the department, the interincisal opening was 15 mm [Figure 1].

Extraorally, facial asymmetry was noted with the lower third of the face on the right side appearing more rounded and the left side appearing flattened with a deviation of the chin to the right. There was decreased condylar movement on the right side. Intraorally, the dental midlines did not coincide with the occlusal plane.

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with the mandibular midline away from the maxillary midline by 4 mm toward the right.

The patient was advised orthopantomogram which revealed irregularity of the articulating surfaces of the right TMJ. Features of the right condylar fracture which was displaced anteromedially were noted. The joint space on the right appeared narrowed with a slight increase in its radiopacity. Antegonial notch was prominent on the right side [Figure 2]. A diagnosis of right TMJ fibrous ankylosis was formulated.

The patient was advised the application of brisement force under local anesthesia, using a Fergusson mouth gag wrapped with thick pad of gauze to avoid dental trauma. This procedure enabled us to achieve an interincisal opening of 35 mm [Figure 3]. The patient was advised to perform physiotherapy, which included mouth opening exercises using Heister’s mouth gag and a block of wooden ice-cream sticks held together with the help of rubber bands to maintain the interincisal opening of 35 mm [Figure 4]. The case was followed up for 6 months with no decrease in mouth opening.

The correction of the deviation of chin on opening of mouth was achieved using an elastic traction with e-chain placed on an arch bar [Figure 5]. The postoperative mouth opening achieved was satisfactory functionally [Figure 6].

**DISCUSSION**

The hypomobility or immobility of TMJ may be due to various reasons, ankylosis being one of them. Trauma and infections account for the majority of the etiology in TMJ ankylosis. In children below the age of 10 years, fall on the chin causes indirect trauma to the condyles. Fractures of the condyle in children are more prone toward developing into ankylosis due to the typical anatomy of the pediatric condyle, which has a broad neck and highly vascularized head that has rich osteogenic potential compared to an adult condyle. It is hypothesized that the extravasation of the blood into the joint called as hemarthrosis, along with the disruption of the fibrocartilage integrity, permits the ingrowth of fibrous connective tissue into the joint which subsequently results in ossification, leading to the fusion of mandibular condyle to the articular surface of the temporal bone. The most common types of fractures reported include the intracapsular crush fractures of the condylar head and high condylar fracture through the neck above the sigmoid notch. The TMJ disc plays an important role in preventing ankylosis by acting as a barrier between the articulating surfaces. Damaged or displaced discs might predispose the disease.
Ankylosis in children is a serious and disabling condition with impairment of speech, difficulty in mastication, poor oral hygiene, rampant caries, disturbances of facial and mandibular growth, and compromise of airway present a unique challenge to maxillofacial surgeon in terms of patient’s physical and psychological management.[9] Osseous ankylosis presents characteristic radiographic features which facilitate the diagnosis. Fibrous ankylosis is a clinical diagnosis rather than radiographic as fibrous tissue cannot be deciphered on the radiographs.

A variety of techniques for the treatment of TMJ ankylosis have been described, but no single method has produced uniformly successful results.[9] However, the treatment should be initiated as soon as the condition is recognized with the main objective of re-establishing the joint function.[10] In the management of fibrous ankylosis, the forced opening of the jaw with the application of the brisement force is the oldest method. In this procedure, the jaw is forced open by means of a mouth gag and mobilized as much as possible by forceful manipulation. After jaw has been mobilized, the patient may be further benefited by exercise with the rubber block inserted between the teeth on the affected side.[11] The use of ice cream sticks held together with a rubber band or Heister’s mouth gag can also be used to maintain the interincisal opening consistent.

**CONCLUSION**

Through this case report, it can be proposed that the application of brisement force to the TMJ in fibrous ankylosis is a feasible method with minimal to nil associated complications and high success rates. Patient compliance is as important as a programmed and coordinated treatment plan to yield optimal results.

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There are no conflicts of interest.

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