Giving a Second Thought to Brisement Force – A Case Report

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Fractures of temporomandibular joint (TMJ) may be caused by indirect trauma where force of trauma is transmitted to the mandibular condyle from a blow elsewhere or in other situations may also result from direct trauma. TMJ trauma in children is usually accompanied with pain, swelling, limited jaw movement and other additional findings. This report highlights a case of post traumatic trismus successfully managed with Brisement force - gradual tractional forces applied to the temporomandibular joint.

***Keywords**: Brisement force, haemarthrosis, condyle, temporomandibular joint, traumatic injury*

INTRODUCTION

Mandibular hypomobility occurs from direct injury to, or due to disorders affecting the supporting structures of the temporomandibular joint (TMJ). TMJ ankylosis is an intra-articular process characterized by fibrous, fibro-osseous or osseous obliteration of the joint space.[1]

TMJ ankylosis protocols suggest early surgical intervention, elaborate resection, early mobilization and aggressive physiotherapy for at least 6 months postoperatively.[2] Principal aim of brisement force is to restore motion inhibited by fibrous pathology in the TMJ complex and to rehabilitate function lost due to disuse. Considerable bony and soft tissue remodelling occurs around TMJ in the first few months. By means of this forcible maneuver the elastic is stretched and the inelastic intra-articular, periarticular and perimuscular adhesions torn which might be the reason for motion restriction.[3] In such cases, the patient undergoes under anesthesia, forced dilatation (brisement) to ensure adequate incisal opening.[4] This is a case of post traumatic trismus managed with Brisement forces applied to the TMJ.

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Report of a Case

A six year old female reported to department of pedodontics with reduced mouth opening since 15 days which kept decreasing to 14 mm at presentation (Fig 1). There was a history of fall 18 days back with no loss of consciousness or bleeding from ear, nose and oral cavity. Patient gave a history of pain while chewing in the right TMJ region.

On examination, there was tenderness but a healed laceration with scab over the chin. Although right TMJ was tender on palpation but both the condylar heads were found normal on opening and closing of mouth. Lateral excursive movements were within normal range and facial symmetry maintained. Inter incisal opening (IIO) was 14 mm (measured at central incisors). Occlusion was found to be normal.

Computed tomographic (CT) image did not show any fracture of the condyle either side. However there was relative increase in the radiopacity in the joint space on right side TMJ suggesting hemarthrosis (Fig 1). Final diagnosis of hemarthrosis of right TMJ was formulated.

Patient was advised to undergo forcible manipulation of the joint i.e. Brisement force under inhalational sedation and local anesthesia, using a mouth gag wrapped with thick pads of gauze at its ends to avoid dental trauma. IIO of 33 mm was achieved (Fig 2). Patient was recalled everyday for 15 days for maintenance sessions to be carried out under local anesthesia for 15 minutes everyday. The session duration was increased to 30 minutes after a week. Patient was advised physiotherapy by using a block of wooden ice cream sticks held together with the help of rubber bands to maintain IIO of 33 mm (Fig 3). Periodic monthly follow up continued up to one year to ensure that the IIO was maintained and painless.

Fig 1. - Reduced inter incisal opening (IIO) of 14 mm and Computed Tomographic (CT) image of the TMJ suggesting heamarthrosis of right TMJ

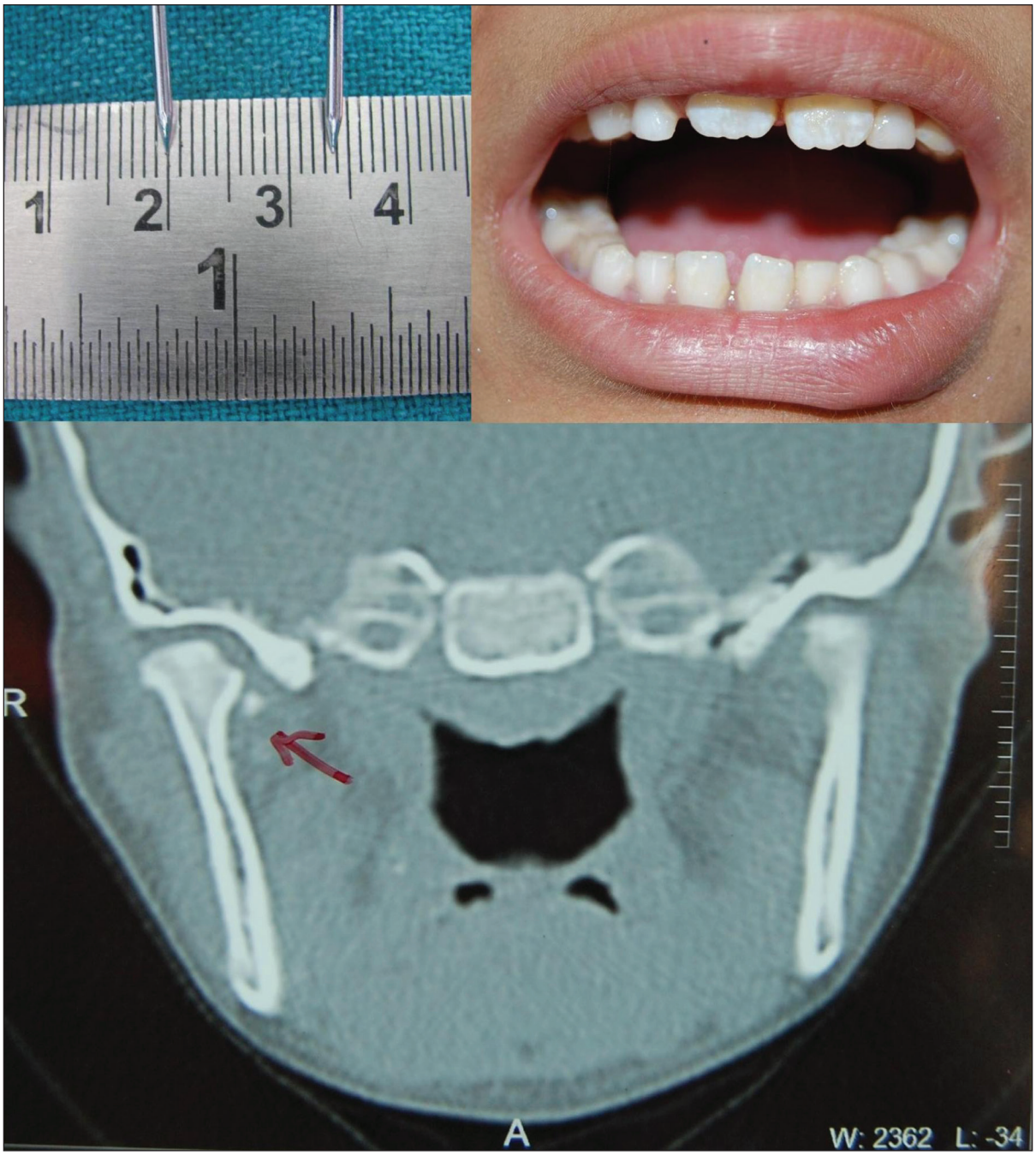

Fig 2. - Brisement force under inhalational sedation and local anaesthesia, using a mouth gag, which helped to achieve an IIO of 33 mm

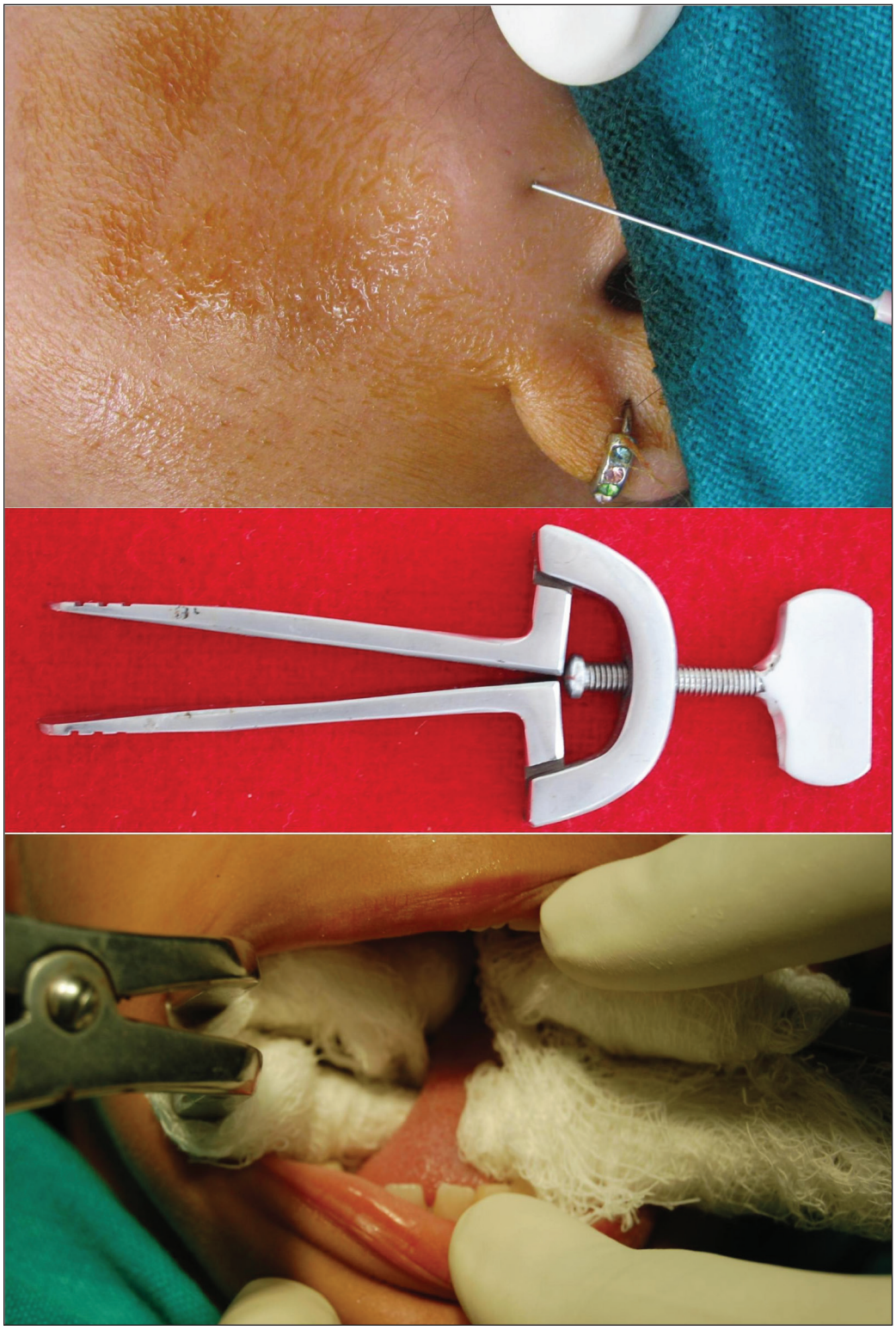

Fig 3. - Physiotherapy by using a block of wooden ice cream sticks held together with the help of rubber bands to maintain IIO of 33 mm

DISCUSSION

Falls commonly cause indirect trauma to the condyles with chin injury among children below 10 years of age.[5] When chin laceration is the presenting sign TMJ should always be examined radiographically. TMJ trauma in children is usually accompanied with pain, swelling, limited jaw movement and other additional findings.[6] Mandibular condyle in children is short, stout, highly vascular with thin cortical plate. Any injurious impact forces the condyle posterosuperiorly against the glenoid fossa leading to injuries ranging from capsular tear, hemarthrosis of the joint to fracture of condylar head or neck. Hemarthrosis is bleeding into a joint and which is an important cause of monoarticular joint pain and swelling. Diagnosis of hemarthrosis may be ascertained based on a suggestive history, physical examination, imaging studies and joint aspiration

In unilateral TMJ injury, unlike adults, in children there is a deviation in the midline towards the opposite side rather than towards the site of injury owing to the hematoma and swelling within the joint. In children, it is better to rely on factors like intensity of pain, IIO, occlusion and dental age, which if found normal, simple soft diet restrictions would be fruitful. . Fibrous ankylosis is a clinical diagnosis rather than radiographic as fibrous tissue cannot be deciphered in the radiographs. Mandibular hypomobility accompanied with young age of the patient increases the chances of ankylosis hence jaw stretching should be performed at the earliest.[7]Brisement force in such cases can be applied with the help of mouth gags to open the mouth forcefully. If diagnosed as early as during the formation of fibrous tissue in the TMJ region, brisement force is a good option coupled with vigorous physiotherapy.

CONCLUSION

In the past, Brisement force was often found to be discouraging due to: (1) absence of pre-operative treatment, (2) disregard of contraindications, (3) incorrect technique, and (4) neglect of adequate after-treatment. A systematic and principled approach of Brisement force in indicated cases and a thorough follow up remain important factors for good prognosis, however this is just a single case and to affirm this supposition more such clinical conditions should be treated similarly.

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