Case Study

Bilateral temporomandibular joint dislocation in a 26-month-old child: A rare emergency

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ABSTRACT

Bilateral temporomandibular joint (TMJ) dislocation is very rare in children with only three cases previously reported in the literature. We report a case of a 26-month-old female child who presented to the emergency department of a tertiary care hospital with complaints of inability to close her mouth and drooling of saliva for the last two hours. Clinical examination and X-ray of the TMJ revealed bilateral TMJ dislocation. Bilateral TMJ reduction was achieved with the Hippocratic method after giving analgesia and procedural sedation. The child was able to close her mouth post-reduction, and was discharged with post-TMJ reduction instructions given to the mother and with maxillofacial clinic follow up. Our report is the first case of a child presenting to the emergency department with bilateral TMJ dislocation.

Keywords: Temporomandibular joint, dislocations, TMJ

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INTRODUCTION
A case of a 26-month-old child presenting to the Sultan Qaboos University Hospital Emergency Department (ED) with bilateral TMJ dislocation is reported here. Bilateral temporomandibular joint (TMJ) dislocation is extremely rare in children with only three cases previously reported in the literature. Cases previously reported were of children aged 10, 23 and 24 months old, our case is the fourth report of bilateral TMJ dislocation in a child but the first case presenting to an emergency department. Although the incidence of spontaneous TMJ dislocation is 5.3 per 100,000 adult patients presenting to an ED, it has never been reported in a child presenting to the ED. Young females between the age of 21 – 30 years are reported to have the highest incidence of TMJ dislocation. TMJ is a synovial type joint and its dislocation is associated with slippage of the mandibular condyle out of the glenoid fossa. TMJ dislocation can be anterior, posterior, lateral or superior, based on the position of the condyle in relation to the glenoid fossa. The pathophysiology of TMJ dislocation is either abnormal sequence of contractions of muscles of mastication namely the masseter, temporalis and lateral pterygoids, or direct blow to the jaw. The position of the jaw, open, partially open or closed, also determines the type of TMJ dislocation. In children, incomplete development of condyle and almost flat glenoid fossa is responsible for only a very few cases of TMJ dislocation. There are different methods of TMJ reduction such as the “Hippocratic method” and the “wrist and pivot method,” both with the aim of putting the condyles back into their normal position in the glenoid fossa. The procedures can be done with minimal sedation. In delayed cases or in traumatic dislocations, general anesthesia is required. Diagnosis is primarily clinical, with radiological imaging being used in traumatic or suspected traumatic dislocations. Inability to close the mouth, drooling of saliva, and anterior bite with palpable swelling in both preauricular area are the main clinical features. Children presenting in the ED with drooling of saliva, inability to close the mouth should be considered for bilateral TMJ dislocation, which if not treated promptly requires general anesthesia for later reduction.

CASE REPORT
A 26-month-old female child, with no known familial or genetic disorder, was brought by an anxious mother to the Emergency Department with complaint of the child not being able to close her mouth and drooling of saliva for the last two hours. She fed her child two hours earlier and at the time the child was normal. The mother observed no injury to the child. The clinical examination of the child showed an inability to close her mouth, anteriorly displaced lower jaw, abnormal bite and drooling of saliva. The child was unable to take orally and could not speak. There was mild tenderness in both TMJ regions with palpable preauricular swelling and fossa behind them. The child was vitally stable, not dehydrated and no injury marks were visible anywhere on her body. Systemic review was normal. As the condition was acute, TMJ X-ray, transcranial view at the open mouth position was performed to rule out any injury (Figure 1). It showed an empty glenoid fossae and anteriorly displaced condylar heads. The diagnosis of bilateral TMJ dislocation was made. Ultrasonography was not considered as it is more...
suited to diagnosis of joint effusion, which evolves gradually. Manual reduction of the dislocations was done under procedural sedation by gentle downward pressure of the posterior lower alveoli following the Hippocratic method. The child was transferred to the resuscitation area for procedural sedation, which was achieved with intravenous Ketamine 1mg/kg of body weight. The maximum intravenous dose of Ketamine is 2mg/kg of body weight. The child was observed for about an hour post-procedural sedation and discharged after full conscious level was achieved. Clinical confirmation of reduction was made by the child’s ability to move her lower jaw, ability to speak and to take orally with normal dental occlusion. Post-reduction X-ray was not performed as it is not indicated if clinical evidence of reduction is achieved. After reduction, the child was able to close her mouth and was discharged home on oral paracetamol and chin to vertex bandage to restrict wide jaw opening. Upon discharge, instructions were given to the mother regarding prevention of excessive jaw opening of the child during yawning and crying, which may dislocate the jaw again. The mother was advised to give the child a soft diet and to bring her back to the ED if she had any further problems closing her mouth, especially with drooling of saliva. Maxillofacial clinic follow up was also given.

**DISCUSSION**

TMJ dislocations are rare in children, particularly bilateral TMJ dislocations. Wide mouth opening, trauma, dental or ENT procedures and intubations are the main causes of TMJ dislocation. The rotational and gliding movements of the joint are responsible for lowering and upward movements, which are vital for the opening and closure of the mouth. Slippage of the mandibular condyle out of the glenoid fossa results in its dislocation. Spontaneous relocation is prevented by slippage of the condyle over the articular eminence. TMJ dislocation can be anterior, posterior, lateral or superior, based on the position of the condyle in relation to the glenoid fossa. Anterior dislocation is most common and is due to interruption in the normal sequence of muscle action when the mouth closes from extreme opening. The masseter and temporalis muscles elevate the mandible before the lateral pterygoid muscle rela
more than two hours with possible use of anesthesia due to increasing muscle spasm. According to the local hospital policy, any suitable agent can be used for procedural sedation however, ketamine is a preferred choice in children. Propofol should be avoided as it is associated with recurrent TMJ dislocation due to forceful yawning. A bandage may be wrapped around the head following reduction of the TMJ, restricting mandibular movements. For children, the use of a soft cervical collar is a good option due to their lack of understanding of post-reduction instructions of avoidance of yawning and wide opening of the mouth. Post-reduction instructions for parents include instructions regarding prevention of excessive jaw opening of the child, advice on diet and how to identify redislocation of the TMJ. Parents are advised to give soft diet to the child and to observe the child for inability to close the mouth, particularly with drooling of saliva, which may be an indication of redislocation of the TMJ.

CONCLUSION
Bilateral TMJ dislocation is rare in children but it should be considered in children presenting in the ED with drooling of saliva, inability to close the mouth and preauricular swelling. Prompt reduction is necessary as delay increases muscle spasm necessitating anesthesia for reduction.

REFERENCES