

Temporomandibular Joint Dislocation: A 12-year Experience at a Public Tertiary Care Center in Malaysia

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ABSTRACT

Background and Objectives: Temporomandibular joint (TMJ) dislocation is a condition in which the mandibular condyle is displaced from its articulation, and assistance may be required to return it to the original position. The current study was designed to highlight the demographic, etiological, and clinical profiles of TMJ dislocation cases requiring medical interventions in Malaysia. The treatment modalities used and their effectiveness were also assessed.

Materials and Methods: This was a cross-sectional study. The medical records of all the patients with TMJ dislocation, who received treatment during 2005–2016 at the Sultanah Bahiyah Hospital, Alor Setar, were reviewed. The information collected included general demographics; underlying medical conditions; causes, types (acute or chronic), and sites (unilateral/ bilateral) of dislocation; number of recurrent episodes; treatment modalities used; and treatment outcomes. All the data were descriptively analyzed, and were presented as frequencies and percentages.

Results: Over the 12-year period, the hospital recorded 50 cases of TMJ dislocation, the majority of which were acute (88%) and bilateral (80%). Most of the patients were male (64%) and Malay (66%), in the age range of 20–29 (24%), and 60–69 years (26%). Five cases (10%) were attributable to yawning, while the contributing factors for more than half of the cases were unrecorded. All the cases were resolved by manual reduction, in which local anesthesia was predominantly used.

Conclusion: Despite their demographic, etiological, and clinical profiles, the findings confirm that conservative methods have been effective in managing TMJ dislocation cases presenting to a public tertiary care center in Malaysia. Nevertheless, there is a clear need to for improved documentation, particularly of etiology of dislocation, to optimize the treatment outcomes.

Keywords: Joint dislocations, Malaysia, Mandibular condyle, Temporomandibular joint, Yawning

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INTRODUCTION

The temporomandibular joint (TMJ), a special joint between the temporal bone of the skull and the mandible, plays an essential role in guiding mandibular motion and distributing stresses caused by daily activities, such as speaking, chewing, and swallowing.^[1] Nevertheless, there are certain conditions, in which the head of the mandibular condyle is displaced from its articulation in the glenoid fossa.^[2] Such conditions are typically referred to as TMJ dislocation, which could be complete (luxation)

or partial (subluxation), unilateral or bilateral, and acute or chronic.^[3]

The reasons for acute dislocation vary, ranging from anatomic factors, dental or medical procedures, trauma to prolonged mouth opening due to yawning, laughing, vomiting, and singing.^[4] Sometimes, certain medications and underlying medical conditions, such as connective tissue diseases, neurodegenerative diseases, and muscle disorders, could also predispose patients to acute dislocation.^[5,6] On the other hand, chronic dislocation

includes acute dislocation left untreated or insufficiently treated for more than 72 h, and recurrent dislocation as a result of daily activities.^[7]

Normally, partial dislocation is self-reducible by patients. Nonetheless, in cases of luxation, assistance may be required to return the head of the mandibular condyle to its normal joint position.^[5,8] Within this context, a number of treatment modalities, both surgical and conservative, have been recommended and widely used to manage TMJ dislocation.^[3,5,9-12] However, to date, there has been a dearth of research on TMJ dislocation and its management in Malaysia. The current study was designed to highlight the demographic, etiological, and clinical profiles of TMJ dislocation cases seen by a public tertiary hospital in Northern Malaysia over a 12-year period. In addition, the treatment modalities used and their effectiveness were assessed.

MATERIALS AND METHODS

This was a cross-sectional study undertaken at the Sultanah Bahiyah Hospital, Alor Setar. The medical records of all the patients with TMJ dislocation, who were referred to the Oral and Maxillofacial Department during January 2005 and December 2016, were examined. The data collected included general demographics; underlying medical conditions; cause, type (acute or chronic), and site (unilateral/bilateral) of dislocation; number of recurrent episodes; treatment modalities used; and treatment outcomes. All the data were descriptively analyzed using the SPSS 21.0 (IBM, New York), and were presented as frequencies and percentages.

RESULTS

Throughout the 12-year period, the hospital recorded a total of 50 TMJ dislocation cases. The majority of the patients were male (64%) and Malay (66%), mainly in the age range of 60–69 years [Table 1].

Bilateral dislocation composed 80% of the cases. Approximately 40% of the patients were found to have underlying medical conditions which were likely to be associated with TMJ dislocation, including cardiovascular diseases (20%), osteoarthritis (8%), asthma (4%), and gastroesophageal reflux disease (4%). In addition, a small number of the cases were attributable to yawning (10%) and para-functional habits, notably pencil biting (2%). Nonetheless, it is noteworthy that the contributing factors for more than half of the cases were unrecorded. Recurrence, in the range of 2 to 4 times, took place in 12% of the patients, all of whom were above 70 years of age. However, notwithstanding the type and etiology of dislocation, the vast majority (98%) of the patients, including those with recurrent dislocation,

were successfully treated through manual reduction with local anesthesia. None of the cases required invasive procedures [Table 2].

DISCUSSION

To the investigators' knowledge, this is the first study on TMJ dislocation and its management in

Table 1: Demographic profile of TMJ dislocation cases (n=50)

Characteristics	Number of cases (%)
Age group, years	
10–19	3 (6)
20–29	12 (24)
30–39	3 (6)
40–49	3 (6)
50–59	6 (12)
60–69	13 (26)
70–79	6 (12)
≥80	4 (8)
Gender	
Male	32 (64)
Female	18 (36)
Ethnicity	
Malay	33 (66)
Chinese	17 (34)

TMJ: Temporomandibular joint

Table 2: Etiological and clinical profiles of TMJ dislocation cases (n=50)

Characteristics	Number of cases (%)
Type	
Acute	44 (88)
Chronic recurrent	6 (12) ^a
Chronic protracted	0 (0)
Site	
Unilateral	10 (20)
Bilateral	40 (80)
Contributing factor	
Habitual	
Yawning	5 (10)
Pencil biting	1 (2)
Underlying medical conditions	
Cardiovascular	10 (20)
Osteoarthritis	4 (8)
Asthma	2 (4)
Gastroesophageal reflux disease	2 (4)
Unrecorded	26 (52)
Treatment modality	
Manual reduction with LA	49 (98)
Manual reduction with GA	1 (2)
Surgery	0 (0)

GA: General anesthesia, LA: Local anesthesia, TMJ: Temporomandibular joint. ^aTwo patients experienced 4 recurrent episodes, while four patients experienced 2 recurrent episodes

Malaysia. Unlike a number of case reviews that focused predominantly on the effectiveness of specific treatment modalities,^[8,9,11,12] the current study provides information on the demographics, common etiology and clinical subtypes of TMJ dislocation in Malaysia, which could be used to guide the treatment options and patient education in the future. Besides, given that TMJ dislocation is an uncommon condition,^[3] it is worth highlighting that the current study had a considerably large sample size as compared with the previous studies.^[6,13,14]

Similar to the other studies,^[6,13,14] the results show that TMJ dislocation took place in patients of a wide age range, from young adults to elderly individuals. Nevertheless, as opposed to the third to fifth decade of life that was commonly reported,^[6,13,15] the age range of peak incidence of TMJ dislocation found in the current study was 60–69 years. Furthermore, it is noted that patients aged 60 years or above constituted approximately half of the cases. This is consistent with the anticipation that Malaysia has been heading toward an aging country since the past decade.^[16] As there is a concern over the limitation of treatment options due to the brittleness of the bones in geriatric patients,^[17] more effective preventive management for TMJ dislocation, particularly its recurrence, including education, counseling, and monitoring, is warranted.^[18]

Consistent with the existing studies,^[2,6,14] most of the TMJ dislocation cases were found to be bilateral. This finding would be expected, as bilateral dislocation has been shown to be more common than unilateral dislocation, which is more often associated with trauma.^[19,20] However, while several studies showed that long-standing, untreated TMJ dislocation is a common phenomenon in developing countries,^[6,14] no similar cases were reported in the current study. In part, this is likely due to the generally high accessibility to health-care services in Malaysia.^[21] Besides, the severe pain and disfigurement might have caused the patients, who had an acute dislocation, to seek treatment immediately.^[22]

Interestingly, the presence of underlying illnesses, in particular, cardiovascular diseases and osteoarthritis, were recorded in approximately 40% of the patients. However, such conditions are known to be more related to recurrent dislocation,^[14] which took up only 12% of the dislocation cases. In addition, in contrast to the previous studies which attributed acute TMJ dislocation mainly to excessive mouth opening,^[6,13] habitual factors, such as yawning and pencil biting, were found to contribute to only 12% of the dislocation cases. It is also noteworthy that the contributory factors for approximately half of the cases were unrecorded. All these findings primarily

reflect the lack of documentation of the etiology for TMJ dislocation in the hospital, highlighting the need for an improved documentation system to optimize its management and patient education.

Nonetheless, despite the type, site and etiology of dislocation, all the cases were successfully managed by manual reduction with anesthesia, corroborating the findings of the previous studies that conservative methods have been generally effective worldwide.^[5,6,14] Furthermore, there were no complicated or protracted cases that required surgical interventions found in the current study. Typically, conservative methods remain the preferred treatment modality for acute dislocation due to its high success rate and fewer complications.^[6,14] Anyhow, it is also important to note that there were six recurrent cases recorded in the current study, in which a degree of internal joint derangement should be anticipated and other treatment modalities, either surgical or non-surgical, should be considered.^[14,23]

The major limitation of the current study is its single-center design, and thus the findings might not be generalizable to other health-care settings. Moreover, unlike the other studies, the information on the position of TMJ dislocation (anterior, posterior, medial, lateral, and superior), which was likely deemed to be less important for treatment selection by clinicians, was not available in the current study. Besides, the lack of documentation of the etiology for TMJ dislocation made the findings more difficult to compare with those of the similar studies.

CONCLUSION

The current study provides insight into the demographic, etiological, and clinical profiles of TMJ dislocation cases in Malaysia, providing evidence to guide the treatment options and patient education in the future. The results suggest that the majority of TMJ dislocation cases that require medical interventions in Malaysia are acute and bilateral, mainly taking place in the patients aged between 60 and 69 years. While manual reduction with anesthesia is confirmed to be an effective treatment modality, there is a clear need to for improved documentation, especially of etiology of dislocation, to optimize its management and patient education.

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