

Temporomandibular joint dislocation in an epileptic and mentally retarded patient: a case report.

Mabongo M

University of the Witwatersrand, School of Oral Health Sciences, 7 York Road, Parktown, South Africa.

Temporomandibular joint (TMJ) dislocation is defined as an excessive forward movement of the condyle beyond the articular eminence with complete separation of articular surfaces and fixation in that position.¹ Theories regarding the pathogenesis of TMJ dislocation propose laxity of TMJ ligaments or capsule, excessive activity of the lateral pterygoid muscle (LPM) and erosion of the eminence.² TMJ dislocation can occur in an anterior, posterior, lateral and superior direction.² Clinical presentation of dislocated TMJ includes inability to close the mouth, deviation of the mandible away from the affected side in unilateral cases, hollowing in front of the tragus, spasm of muscles of mastication and severe pain of the TMJ.³ Radiographs show an empty condylar fossa with the condylar head located anterior to the articular eminence.

Anterior TMJ dislocation usually follows excessive mouth opening during yawning, laughing, eclamptic fit and motor vehicle accident (MVA).⁴ Iatrogenic causes of TMJ dislocation are excessive mouth opening during dental treatment, intubation, and otorhinolaryngological procedures.⁴ Some drugs are associated with TMJ dislocation, these include antiemetics such as metoclopramide and compazine which produce extrapyramidal effects⁵ and neuroleptic drugs.⁶ Systemic connective diseases like Ehlers-Danlos and Marfan syndromes have also been implicated in TMJ dislocations.^{5,7} The purpose of this article is to report management challenges of an epileptic and mentally retarded patient with recurrent TMJ dislocation.

A Case Report

A 20 year old girl was brought by her grandmother with a complaint of inability to close her mouth, which according to the grandmother was caused by dislocation of TMJ. The patient had been managed for TMJ dislocations in a local health facility on a number of occasions in the previous three years. She was referred to the maxillofacial unit of the University of the Witwatersrand because the dislocation could not be reduced in the local facility.

The medical history revealed that the patient was epileptic and mentally retarded. She developed epilepsy after head injury. She was on tegritol, lamotrigine, folic acid and omeprazole. In the maxillofacial unit, relocation was done under local anaesthesia. In the first three months she had about six episodes of TMJ dislocations. In the fourth month the episodes of dislocations increased to five per week.

At that stage it was agreed that surgery should be performed to correct the dislocation. Clinical photographs and orthopantomographs could not be taken as the patient was uncooperative and non

compliant. Lateral view radiographs of the TMJ were taken while the patient was under sedation. These showed the condyles of the mandible were out of the fossa (Figure 1).

Due to increased frequency of TMJ dislocations and the mental status of the patient, bilateral eminectomies were recommended. In the theatre preauricular incision and blunt dissection in an anterior inferior direction up to the temporal fascia was done to expose the superior joint spaces. Eminencies were exposed (Figures 2A and 3A). Osteotomies of the eminencies was done with a #702 burr and completed with osteotomies (Figures 2B and 3B). The osteotomy sites were smoothed with a flame shaped bur. The easy movement of the mandible over the osteotomy site was confirmed. The layered closure of the wounds was performed. The patient was discharged 24 hours after the operation. There were no signs of facial nerve deficits. No exercises were carried out as the patient was uncooperative. The patient was reviewed after a week and mouth opening was good. No complications occurred during and after the operation. The patient was reviewed for 12 months and no recurrence reported.

DISCUSSION

TMJ dislocation is a relatively uncommon condition, as it accounts for 3% of all dislocations in the body.³ During epilepsy, TMJ dislocation is believed to be caused by excessive contraction of the lateral

Correspondence: Dr. Mzubanzi Mabongo
University of the Witwatersrand,
School of Oral Health Sciences,
7 York Road, Parktown, South Africa.
Tel: 27824594994, Fax: 27862731850
e-mail-Mzubanzi.Mbango@wits.ac.za

pterygoid muscle (LPM) and infra hyoid muscles⁴. However, the selective contraction of LPM during epilepsy while all muscles of mastication are supplied by the same nerve, mandibular division of trigeminal nerve cannot be explained. Hence we hypothesize that excessive contraction of supra hyoid and infra hyoid muscles, and force of gravity are responsible for anterior dislocation of the TMJ during epileptic attacks, as these muscles are supplied by different nerve(s).

A number of treatment modalities for managing recurrent TMJ dislocations have been recommended. These are classified into conservative or surgical. Conservative treatment modalities comprise of

instructing the patient to avoid opening wide, physiotherapy, manual relocation of the joint, injection of botulinum toxin type A into the LPM⁸, injecting sclerosing agent around the joint and intermaxillary fixation (IMF), and injection of autologous blood into the glenoid fossa and IMF for two weeks^{9,2}. The conservative options of management of TMJ dislocation, especially those that involve intermaxillary fixation could not be considered due to the mental status and the medical history of the patient. Secondly, these conservative modalities do not produce immediate results and recurrence also occurs^{9,2}.

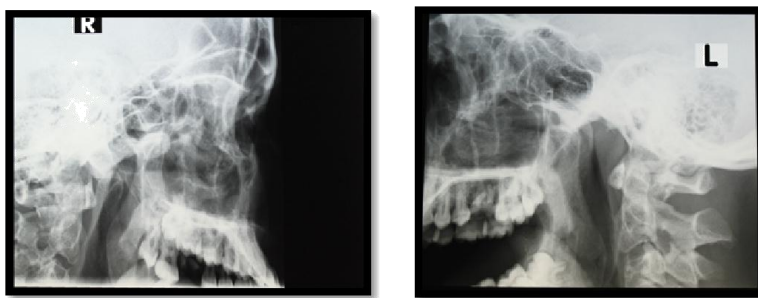


Figure 1 shows plain x-rays of the left and right condyles,

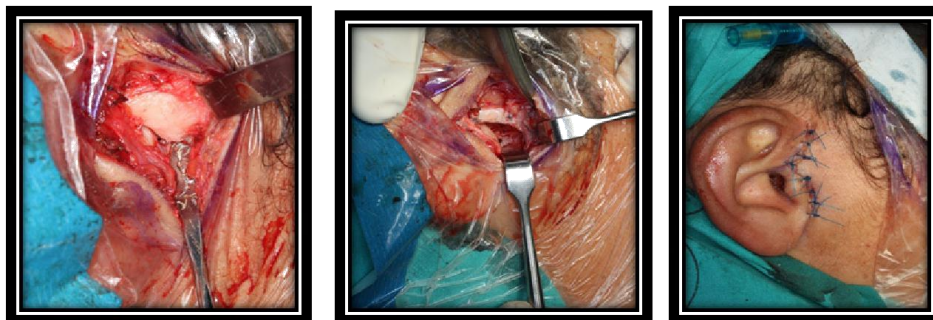
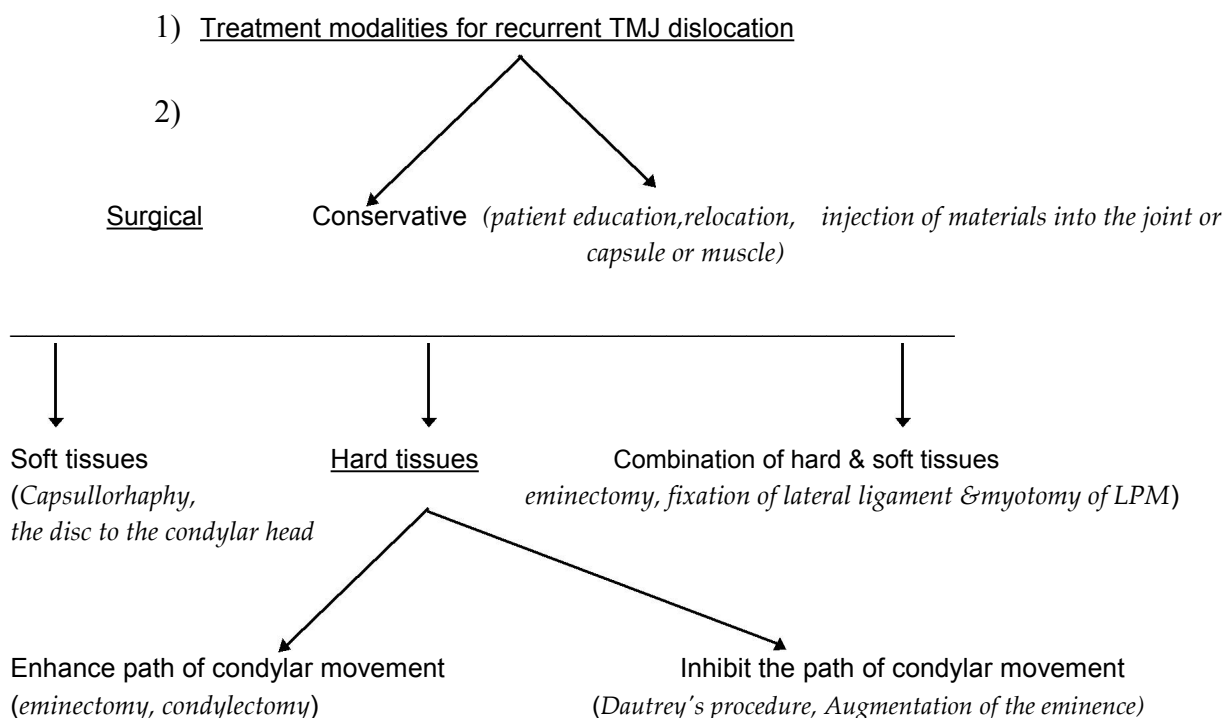


Figure 2. A, shows an exposed articular eminence. B, shows the joint after eminectomy and C, shows a sutured the preauricular incision.



Figure 3. A, shows an exposed articular eminence. B, shows the joint after eminectomy and C shows a sutured the preauricular incision

Figure 4: Flow chart of treatment modalities for TMJ dislocations



The flow chart above was used in deciding the ideal option for managing TMJ dislocation in this patient (Figure 4).

Surgical procedures are categorised into those that focus on soft tissues only, hard tissues only and those that focus on both hard and soft tissues. Some soft tissue procedures are aimed at reducing laxity of the ligament and capsule such as capsulorrhaphy, injection of sclerosing agents into the capsule.

While surgical procedures focus on hard tissues only, with the goals of inhibiting the path of condylar movement for example augmentation of the eminence with autograft or an alloplast, Leclerc procedure / Dautrey's procedure and use of plates, and those that enhance the path of condylar movement like eminectomy and condylectomy¹⁰. Cascone et al (2008) described a technique that corrects dislocation by managing both soft tissues and hard tissues. In this technique, eminectomy is done and then followed by fixation of the lateral ligament and the disc to the head of the condyle with a resorbable screw. This modified technique addresses all possible causes of TMJ dislocation¹¹. A more aggressive surgical procedure for management of longstanding TMJ dislocations which involved condylectomy and reconstruction with alloplastic total joint replacement has been described⁵.

Güven (2000) recommended surgical modalities for patients whose TMJ dislocations are frequent and

associated with systemic disorders¹². Since cooperation and compliance were serious challenges with the management of the patient, surgical modalities that involve the hard tissues were considered. Augmentation of eminences with alloplasts were ruled out because of known complications like infections, fracture of plates¹³ and fracture of zygomatic arch¹⁰, while augmentations with autograft are known to undergo resorption. Limitation of mouth opening is one of the complications of these augmentations of the eminence and procedures that involve the down fracture of the zygomatic arch^{14,10}.

Literature suggests that eminectomy is the most commonly performed procedure and has a very high success rate^{3,12,1}. Better functional results are achieved with eminectomy than augmentation procedures^{12,6}. Hence eminectomy was chosen as the treatment of choice for this patient. However, despite the impressive success rate, slight reduction in MMO which is believed to be caused by fibrosis has been reported¹. Unfortunately no postoperative exercises could be done by our patient due to lack of compliance.

CONCLUSION

Eminectomy has proved to be a reliable procedure and an excellent option especially for uncooperative and non compliant patients with recurrent TMJ dislocations.

REFERENCES

1. Vanscelos BC, Porto GG. Treatment of chronic mandibular dislocation: A comparison between eminectomy and miniplates. *J Oral Maxillofac. Surg* 2009;67:2599-2604
2. Anjum S, Faisal M, Nadeem M, Warraich RA. Outcomes of autogenous blood injection in the treatment of recurrent dislocation of temporomandibular joint (TMJ). *Pakistan Oral and Dental Journal* 2011;33:13-16
3. Shorey CW, Campbell JH. Dislocation of the temporomandibular joint. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2001;89:662-668.
4. Ugboko VI, Oginni FO, Ajike SO, Olasoji HO, Adebayo ET. A survey of temporomandibular joint dislocation: aetiology, demographics, risk factors and management in 96 Nigerian Cases. *Int. J. Oral Maxillofac. Surg* 2005;34: 499-502.
5. Baur DA, Jannuzi JR, Quereshy FA. Treatment of long term anterior dislocation of the TMJ. *Int. J Oral Maxillofac. Surg* 2013;42:1030-1033.
6. Undt G, Weichselbraun A, Wagner A, Kermer C, Rasse M. Recurrent mandibular dislocation under neuroleptic drug therapy, treated by bilateral eminectomy. *Journal of cranio-Maxillofacial surgery* 1996;24:184-188.
7. Lee KH, Chou HJ. An interesting case of recurrent temporomandibular joint dislocation. *New Zealand Dental Journal* 2009;105:128-130.
8. Ziegler CM, Haag C, Muhling J. Treatment of recurrent temporomandibular joint dislocation with intramuscular botulinum toxin injection *Clin Oral Invst* 2003;7:52-55.
9. Daif ET. Autologous injection as a new treatment modality for chronic recurrent temporomandibular joint dislocation. *Oral Surg Oral Med Oral Path Oral Rad Endod* 2010;109:31-36.
10. Gadre KS, Kaul D, Ramanojam S, Shah S. Dautrey's procedure in treatment of recurrent dislocation of the mandible. *J Oral Maxillofac Surg* 2010;68:2021-2024.
11. Cascone P, Ungari C, Paparo F, Marianetti T M, Ramieri V, Fatone MG. A new surgical approach for the treatment of chronic recurrent temporomandibular joint dislocation. *Journal of Craniofacial Surgery* 2009;19: 510-512.
12. Guven O. Management of chronic recurrent temporomandibular joint dislocations: A retrospective study. *Journal of Cranio-Maxillofacial Surgery* 2009;37:24-29.
13. Shibata T, Yashumita T, Nakajima N, Ueda M, Ishijima T, Shigezum M, Arisue M. Treatment of habitual temporomandibular joint dislocation with miniplate eminoplasty: a report of nine cases *Journal of Oral Rehabilitation* 2002;29: 890-894.
14. Puelacher WC, Waldhart E. Miniplate eminoplasty: a new surgical treatment for TMJ-dislocation *Journal of Cranio-Maxill-facial Surg* 1993;21:176-178.