

MANAGEMENT OF AN UNRECOGNIZED AND DELAYED DIAGNOSED CASE OF BILATERAL CONDYLAR DISLOCATION FOLLOWING ORAL CANCER SURGERY - A CASE REPORT

Maxillofacial Surgery

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ABSTRACT

Temporomandibular joint (TMJ) dislocation is characterized by displacement of the mandibular condyle from the glenoid fossa. There are various reasons for the dislocation of TMJ, among which iatrogenic dislocation is one of the cause which is generally overlooked. Acute dislocations can be corrected by various conservative methods like manual reduction, but long standing chronic dislocation requires surgical management. Here we present a case report of an unrecognized and delayed diagnosed case of bilateral condylar dislocation following oral cancer surgery under general anaesthesia with iatrogenic fracture of ramus of mandible which was managed surgically by vertical ramus osteotomy and ORIF.

KEYWORDS

Temporomandibular joint (TMJ), chronic long standing dislocation, external vertical ramus osteotomy (EVRO), occlusion.

INTRODUCTION:

Temporomandibular joint (TMJ) dislocation is characterized by displacement of the mandibular condyle from the glenoid fossa[1]. The temporary or incomplete dislocation that the patient can overcome himself/herself within a few hours is called subluxation[2]. It can occur during yawning, eating, endoscopy, intubation, and dental work requiring prolonged opening of the mouth. Dislocation of TMJ has been classified into acute, recurrent, or chronic; unilateral or bilateral [3]. TMJ evaluation is a key component of the preoperative airway examination as suggested by The American Society of Anesthesiologist practice guidelines for the management of the difficult airway[4]. However, anesthesiologist's manipulation during intubation or extubation can also lead to TMJ dysfunction or dislocation. The incidence of TMJ dysfunction following

endotracheal intubation is reported to be 5% [5]. TMJ dislocation is not always obvious and can be easily overlooked. If recognized in acute condition manual reduction of the joint back into the glenoid fossa is possible. In rare situations, TMJ dislocation may remain undiagnosed for a long period. This may include severe illness, neurological diseases, tetanus and prolonged hospitalization with oral intubation and sedation. It can be easily overlooked especially by clinicians who are unfamiliar with this condition.[6] When presented late, closed reduction becomes very difficult due to spasm of the masticatory muscles, morphological changes, progressive fibrosis, and adhesions in and around the dislocated joint[7] Thus, surgical approach becomes necessary. There are numerous surgical procedures that have been discussed in the literature.

Here we present a case report on surgical management of post-operative case of Squamous cell carcinoma (SCC) of Right Lower Gingivobuccal sulcus (LGBS) treated in a cancer hospital, with long standing bilateral TMJ dislocation diagnosed 2 months postoperatively.

Case Report:

A 51-year-old male patient reported with the chief complaint of inability to close his mouth since 2 months following surgery for SCC of the right LGBS in a Cancer Hospital. The patient was on Ryle's tube feeding post-surgery, so the inability to close his mouth came to the notice on resumption of oral feeding. He also gives a history of bilateral pain in the auricular and preauricular region and an increase in pain and swelling in the right side of the face after previous attempts to manually reduce the jaw.

Extraorally the mandible was found to be virtually immobile in the horizontal plane and in a prognathic relationship to the maxilla along with presence of open bite. There was an obvious preauricular

depression bilaterally. Intraoral findings included anterior and posterior open bite, and interincisal opening of 35 mm. Loss of alveolar bone and missing tooth in 42-48 region. Radiologic examination (orthopantomogram) showed marginal mandibulectomy extending from 42 to the sigmoid notch region and confirmed the diagnosis of bilateral anterior dislocation of TMJ with right mandibular ramus fracture. (Fig 1)

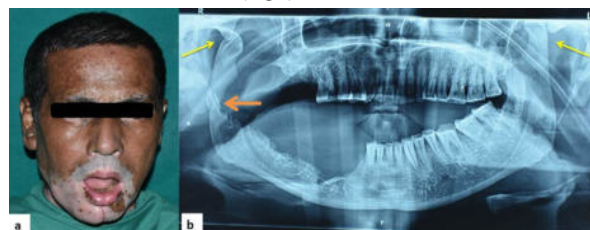


Fig 1: (a) Preoperative clinical picture showing patient with inability to close the mouth. (b) OPG showing marginal mandibulectomy done for SCC of the right LGBS with bilateral anteriorly displaced condyle (yellow arrows) and fracture of the right ramus of the mandible (orange arrow).

No manual reduction was attempted at our centre due to the presence of fracture at the ramus region and the patient was planned for surgical intervention. Patient was taken to OT and premedicated and nasoendotracheal intubation was done. Under all aseptic and antiseptic conditions, manual reduction was attempted in OT under GA, but with failed results. Then left submandibular incision was given and subplatysmal flap was elevated. After exposing the ramus region, osteotomy (External Vertical Ramus Osteotomy, EVRO) was done from the sigmoid notch to the level of the lower border of the mandible in the angle region. Intraoral incision was given and fracture site was exposed. The malunited fracture segment was refractured using chisel and mallet. Following this manual manipulation of the mandible was done to bring it into occlusion but failure to achieve occlusion by this procedure lead us to expose and explore the previous surgical site to relieve the fibrous adhesions. So the surgical site was explored through the previous scar in the right submandibular region with lip split and all the fibrous attachments were released. Following this again manual manipulation of the mandible was done and occlusion was achieved successfully. Arch bar was placed and maxillomandibular fixation (MMF) done. After stabilizing the occlusion, fixation of the left EVRO and right ramus fracture was done with titanium plates (Fig 2). Closure was done in layers.

Immediate post-operative OPG shows teeth in proper occlusion and patient being able to close his mouth (Fig 3). Active mouth opening exercises were followed after 1 week postoperatively. Patient received adjuvant RT following the surgery. The 6 months follow up showed the

patient with proper occlusion but mild decrease in mouth opening. No other complications or functional limitations were seen.

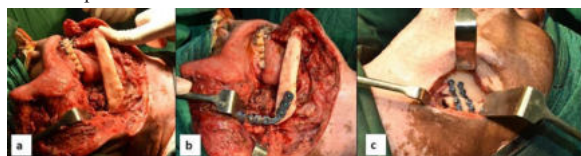


Fig 2: (a) Intraoperative view showing removal of the fibrous adhesions of the previous surgery and the mandible in occlusion (b) ORIF for ramus fracture with reconstruction plate (c) Fixation of the ramus osteotomy done with miniplates.



Fig 3: (a) Postoperative clinical picture showing ability to close the mouth in occlusion (b) Postoperative OPG showing teeth in occlusion and ORIF for ramus fracture and fixation of the ramus osteotomy done with miniplates.

DISCUSSION:

TMJ dislocation occurs when one or both mandibular condyles are displaced in out of the articular eminence. Most cases are nontraumatic. Acute TMJ dislocation is easy to manage and should be done as early as possible.

Chronic TMJ dislocation is a challenging situation to manage. The manual reduction should be attempted initially but good results are rarely obtained.[7] In our patient, the diagnosis of TMJ dislocation was delayed. It was unclear when the dislocation occurred; it could have been any time during intubation or extubation, intraoperatively or in the postoperative period. Several factors were present that compounded the delay in diagnosis: the most important was the elimination of the oral route of feeding due to the intraoral surgical site, the associated pain and symptoms of surgery which masked the signs of TMJ dislocation due to the site of previous surgery, pain medications prescribed after surgery and the somnolent behavior of the patient in the postoperative period. Another reason could possibly be due to the unfamiliarity of the attending staffs to the symptoms of condylar dislocation.

After dislocation occurs, spasms of the masseter and pterygoid muscle worsen over time.[6] If a mandible is dislocated for a long period of time, it induces morphological alterations in the intrinsic and extrinsic ligaments of the TMJ and atrophy of masticatory muscles [8] In our patient, besides these, there was fibrosis and adhesions of previous surgery and also the presence of iatrogenic fracture of mandible which made the surgical plan very challenging.

There are numerous surgical procedure described in literature [9] and taking various factors into consideration the procedure chosen by us was vertical subsigmoid osteotomy (EVRO). This procedure does not maintain the relationship between condyle and glenoid fossa, instead maintains a new joint position and at the same time corrects occlusion. The proper occlusion was adequately achieved after surgery with mild reduction of mouth opening postoperatively, which was satisfactory for the patient.

REFERENCES:

1. Baur DA, Jannuzzi JR, Mercan U, Queresby FA. Treatment of long term anterior dislocation of the TMJ. *Int J Oral Maxillofac Surg*. 2013 Aug;42(8):1030-3.
2. Merrill RG. Habitual subluxation and recurrent dislocation in a patient with Parkinson's disease: report of case. *J Oral Surg*. 1968 Jul;26(7):473-7.
3. Littler BO. The role of local anaesthesia in the reduction of long-standing dislocation of the temporomandibular joint. *Br J Oral Surg*. 1980 Jun 1;18(1):81-5.
4. Practice guidelines for management of the difficult airway: an updated report by the American Society of Anesthesiologists Task Force on Management of the Difficult 2013; Available from: <https://pubs.asahq.org/anesthesiology/article-abstract/118/2/251/13535>
5. Agrò F, Salvinelli F, Casale M, Antonelli S. Temporomandibular joint assessment in anaesthetic practice [Internet]. Vol. 90, *British Journal of Anaesthesia*. 2003. p. 707-8. Available from: <http://dx.doi.org/10.1093/bja/aeg561>
6. Pillai S, Konia MR. Unrecognized bilateral temporomandibular joint dislocation after general anesthesia with a delay in diagnosis and management: a case report. *J Med Case Rep*. 2013 Oct 18;7:243.
7. Singh A, Sharma N, Pandey A, Verma V, Singh S. Temporomandibular joint dislocation [Internet]. Vol. 6, *National Journal of Maxillofacial Surgery*. 2015. p. 16. Available from: <http://dx.doi.org/10.4103/0975-5950.168212>
8. Klüppel L-E, Olate S, Serena-Gomez E, De Moraes M, Fernandes-Moreira R-W. Efficacy of eminectomy in the treatment of prolonged mandibular dislocation. *Med Oral Patol Oral Cir Bucal*. 2010 Nov 1;15(6):e891-4.

9. Bauss O, Sadat-Khonsari R, Fenske C, Engelke W, Schwestka-Polly R. Temporomandibular joint dysfunction in Marfan syndrome. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2004 May;97(5):592-8.