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## Case Report

# Conservative management of a 3 months long standing bilateral temporomandibular joint dislocation: A case report

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## ABSTRACT

**Background:** Temporomandibular joint (TMJ) dislocation is a type of condition where the condyle is anteriorly displaced beyond the articular eminence. Long standing cases with TMJ dislocation condition persisting for more than a month becomes challenging to treat. Its management includes closed reduction to complicated surgical procedures so as to reduce the dislocated condyles. Mandibular dislocation cases present with its own distinctive features. The aim of the report is to reduce the dislocated condyles through conservative management.

**Materials and Methods:** This paper presents with non-invasive and conservative method for management of a long standing case (three months old) of TMJ dislocation in patient with acute renal failure and uncontrolled diabetes giving excellent outcome using elastic traction. Elastic traction with fulcrum on molars for reduction and inter-maxillary fixation was done in order to stabilize the mandibular condyles into the glenoid fossa. Here we stressed on the effectiveness of continuous traction using elastics and Inter-maxillary fixation (IMF) in achieving a complete repositioning of the mandibular condyles back into the fossa.

**Results:** Condyles were reduced back in glenoid fossa with excellent outcome.

**Conclusions:** Where manual reduction is not possible, elastic traction and IMF is the only method to reduce condyles. In long standing chronic TMJ dislocation case, only manual reduction was not sufficient. Since no standard rules for the ideal strategy are available till date, initial approach must be conservative so to preserve surgical treatment for later if needed.

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## 1. Introduction

TMJ dislocation is a type condition where condyle is anteriorly displaced beyond the articular eminence, that makes it difficult for the patient to close his/her mouth. Mandibular condyles could be dislocated anteriorly, posteriorly, cranially; the most frequently situation that is encountered clinically is anterior dislocation. In cases of dislocation, there is reflex contractions of the masticatory muscles due to abnormal positioning of the mandibular

condyles, that makes it difficult for the condyles to move back to the fossa.<sup>1</sup> Dislocation can be any of these complete or partial, unilateral or bilateral, acute, chronic or recurrent.

Dislocation present within 2 weeks of time is considered to be as acute and can be reducible by traditional manoeuvre technique. After two weeks, spasm and shortening of the masseter muscle and temporalis muscle begins and fibrosis starts around the dislocation that makes manual reduction almost impossible. This often leads to the commencement of chronic protracted TMJ dislocation.<sup>2</sup> The long standing TMJ dislocations cases that persists for more than one month are the most challenging to treat.

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Its management varies from closed reduction to complicated surgical procedures for the reduction of dislocated condyles. Management is difficult as fibrosis start around the dislocated condyles. In this present case approach opted is conservative one, preserving surgical treatment for later if needed. Here we emphasized on continuous traction with the use of elastics and IMF for achieving full repositioning of the condyle back into the glenoid fossa in a long standing case of 47-year-old women with uncontrolled diabetes and renal failure.

## 2. Materials and Methods

Elastic traction was done with fulcrum on molars and intermaxillary fixation provided stabilization to the condyles.

## 3. Case Report

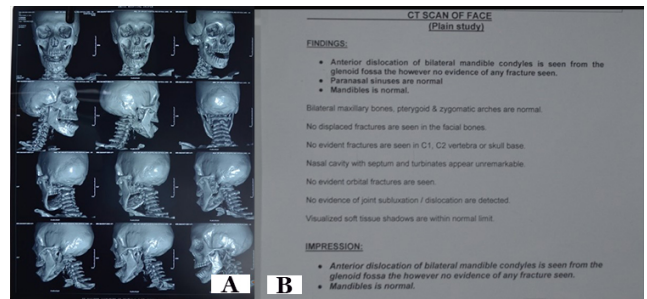
A 47-year-old female reported with chief complaint of difficulty while closing her mouth since three months with difficulty in speech and eating. Three months back she suddenly became unconscious for which she was taken into ICU (Intensive Care Unit), intubated & other emergency procedures were performed after getting discharged she noticed that she was unable to close her mouth. She is a known case of diabetes form last 24 years now suffering from renal failure so dialysis has to be performed twice in a week.

Upon extra oral examination the mandible was protruded with bilateral pre-auricular hollowness. On Intraoral examination mandibular molars were having pre-mature contact with anterior open bite. (Figure 1)



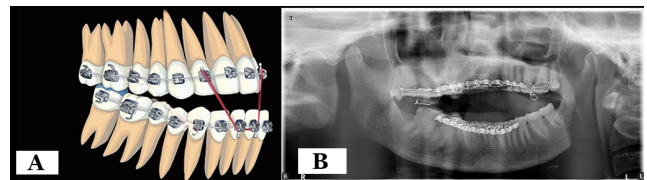
**Figure 1:** Pre-treatment intraoral photograph

As she was suffering from diabetes and renal failure under these circumstances considering these illness, patient was unfit for the surgical procedure so conservative approach was planned. Computed tomography (CT scan) showed anterior dislocation of condyles in front of the articular eminences bilaterally. (Figure 2 A,B).



**Figure 2:** CT scan showing anterior dislocation of bilateral mandible condyles

Based on patient's history, clinical and radiographical examination, chronic anterior dislocation of bilateral mandibular condyles diagnosis was made. Patient was counselled for management of this case more conservatively using posterior acrylic bite block with elastic traction. After receiving patient's consent, impressions for both the arches were made. Plaster model was made for making acrylic bite block, Erich's arch wire was fixed to maxillary and mandibular arches with 10mm bite blocks made up of cold cure were tied on 2<sup>nd</sup> molars bilaterally which acted as fulcrum. Anterior traction with elastics was given. Reduction happened gradually in upcoming 15 days wherein every alternate day patient was recalled & elastics were replaced. (Figure 3 A,B)



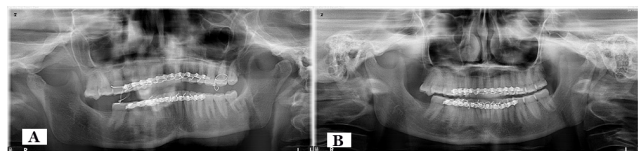
**Figure 3: A,B):** Elastic traction and treatment proceeded with elastics

OPG was done on every 2<sup>nd</sup> day, after 3<sup>rd</sup> visit first left condyle was reduced and came up to eminence, on that side class III elastic traction was given on left side. On next visit right condyle was reduced to tip of articular eminence, posterior class III elastics were given on right side now OPG shows both the condyles in glenoid fossa. Bite block were removed and IMF (Inter Maxillary Fixation) was done and kept for 10 days after that arch wire and elastics were removed. Post treatment OPG showed reduction of condyles in the glenoid fossa (Figure 4 A,B).

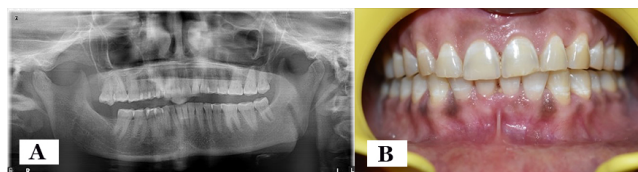
There was excellent outcome. (Figure 5 A,B)

## 4. Result

Dislocated condyles were reduced in glenoid fossa with uneventful outcome.



**Figure 4: A, B):** Reduction of mandibular condylar heads into the glenoid fossa



**Figure 5: A, B):** Post treatment recovery outcome

## 5. Discussion

TMJ dislocation occurs due to movement of the condyle in forward direction, slipping under the anterior slope of articular eminence or complete displacement out of the glenoid fossa. Mostly it is a result of mouth opening to extreme extent or any trauma.<sup>3</sup> In this current case the patient due to renal failure or diabetes got unconscious and was intubated during which mandible might have got displaced after which she was unable to close her mouth. On OPG mandibular condyles were found to be placed in front of the articular eminence bilaterally.

As seen in clinical and radiological evaluation relationship of the head of mandibular condyle to that of the articular eminence, Akinbami classified the TMJ dislocation into following three types.

Type I: The condylar head is directly placed below the eminence tip.

Type II: The condylar head is in front of the tip of the eminence.

Type III: The condylar head is high up in front of the eminence base.<sup>4</sup>

Based on clinical and radiological examination the condylar dislocation was marked as type III in our patient. The main aim of the treatment should be directed towards returning the mandibular condyles back to their original position and conservative management as the first line of choice.<sup>2</sup> Its management varies from closed reduction to complicated surgical procedures. Reduction of condyles conservatively with or without local anaesthetics along with sedatives is one of the best treatment. Reduction done with this method could be achieved in many cases. As the time span of dislocation increases, the joint cavity fills with the connective tissue, cartilaginous changes often appear, adhesions grow between joint surfaces, and there is contraction of the masticatory muscles. Temporalis muscle fibrosis and encroachment of the coronoid have also been reported which makes the reduction difficult. So, in

long-standing cases, the manual reduction solely becomes difficult and might require inter-maxillary fixation along with elastic traction.<sup>2</sup>

In case of protracted dislocation that are chronic, elastic rubber traction with arch bars, ligature wires and inter-maxillary fixation (IMF) are beneficial to achieve the condylar reduction.<sup>5</sup> Few of the conservative surgical treatments are: (Finck's technique) use of a bone hook passed over the sigmoid notch or inserted into the bur holes and placed at the angles, Bristow elevator is placed through the temporal incision so as to apply posterior pressure at the anterior aspect of the mandibular condyle. Surgical methods include the following: open reduction, condylar resection, increase/decrease in the height of the articular eminence, removal or repositioning of the meniscus, sometimes extension with coronoidectomy.<sup>2</sup> Noninvasive reduction is desirable for the treating long-standing TMJ dislocation cases. Conservative treatment of a previous dislocation includes manual reduction along with reduction using a lever action.<sup>6</sup>

Condylectomy have been previously reported to be performed using an intra-oral method, along with extraoral approach. The use of intraoral condylectomy can avoid the complications associated with the extraoral approach. However, there could be a risk associated with the damage to surrounding structures like maxillary artery, pterygoid plexus, and retromandibular vein.<sup>7,8</sup>

In this present article a case of 3 months long standing chronic bilateral TMJ dislocation is described. Condylar reduction was successfully done under local anaesthesia and with achievement of satisfactory inter-cuspal relationship of the posterior teeth with IMF and elastic traction. Diagnosis for such long standing TMJ dislocation might be difficult and require a thorough knowledge and also observation of the clinician. Though management of such cases require frequent follow-ups, still this method is safest as compared to inherent risks of surgery, especially noting in elderly patients who might be unfit for the surgical intervention. In the present case, as both the mandibular condyles were reduced to their normal state of position. Here we stressed on the significance of continuous traction using elastics for attaining complete repositioning of the condyles back into the glenoid fossa. This conservative technique should be opted to gain a higher rate of success in long standing cases of TMJ dislocation.

## 6. Conclusions

Where manual reduction is not possible, elastic traction and inter-maxillary fixation is the only method to reduce condyles. Because of long standing chronic TMJ dislocation, manual reduction alone was not enough. So, elastic traction with fulcrum on molars for reduction and IMF was done to stabilize the mandibular condyles into the glenoid fossa. As no standard rules or conventions for

the ideal strategy are there in different circumstances till date, it is vital to have knowledge of various conservative methods for reduction in our armamentarium and to apply them wherever conditions are feasible.

## 7. Source of Funding

None.

## 8. Conflict of Interest

None.

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