

# Treating Acute Trauma To The TMJ Using Pivot Appliance



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## Introduction

Pivot appliances have been used in dentistry since the 1930s to alleviate pain experienced by patients suffering from misaligned jaws. The pivoting appliance is a hard acrylic device that covers one arch and usually provides a single posterior contact in each quadrant. This contact is usually established as far posteriorly as possible. When superior forces are applied under the chin, the tendency is to push the anterior teeth close together and pivot the condyles downwards, around the posterior pivoting point.<sup>1</sup> The only appliance that can routinely distract a condyle from the fossa is a unilateral pivot appliance.

## Case Report

A 24 year old male patient reported to the department of prosthodontics, referred by the department of oral surgery, with a complaint of restricted mouth opening and inability to chew. On questioning, patient revealed history of trauma since 24 hrs due to an accident. On clinical examination, patient was found suffering from restricted mouth opening (fig-1) to a maximum of 1.5cm along with mandibular



*Fig 1. Pre-operative (restricted mouth opening)*

deviation to the right side. Further examination showed inability to come back to maximum intercuspation(fig-2).



*Fig 2. Pre-operative (on occlusion)*

After thorough radiological and clinical examination, and keeping in view the need for relief to the patient, the pivot appliance was deemed to be more ideal line of treatment for the patient.

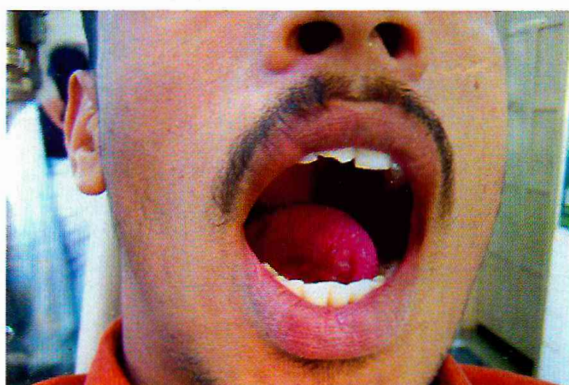
Diagnostic casts were made and mounted on semi adjustable articulator. Occlusal splint was fabricated using a self-cure acrylic resin, covering the mandibular occlusal surface, providing the unilateral posterior contact on the second molar on right side of the patient. After finishing and polishing, pivot appliance was inserted (fig-3) and patient



*Fig 3. Pivot appliance*



was advised to wear it for 12 hrs during day time, with the intermittent opening and closing of jaw movements over the pivot appliance, and a soft diet was recommended. The patient was examined at periodic intervals, progress was noted and required adjustments were done. It was observed that the pivot appliance along with the jaw exercises resulted in a gradual progress towards normalcy. After 15 days of this treatment, the patient was able to open his mouth to a maximum of 4 cm (fig-4). Pain had completely disappeared,



*Fig 4. Post-operative (mouth opening)*

also mandibular deviation was not observed and in addition, maximum intercuspation was observed (fig-5). The patient



*Fig 5. Post-operative (on occlusion)*

further revealed that he was able to chew without any discomfort.

### **Discussion**

The Pivot appliance was originally developed with the idea that, it would lessen inter-articular pressure and thus unload the articular surface of the joint. This was thought to be possible when the anterior teeth moved closer together, creating a fulcrum around the second molar and pivoting the condyle downwards, away from the fossa. The studies demonstrated that, pivoting appliance without extra oral

force does not unload the TMJs<sup>2,3</sup>. In another study contradicting this statement by Moncayo S.<sup>4</sup> the patients were asked to place their lips together and bite on the bilateral pivoting appliance without any extra oral force. In this study tomograms revealed an average of 1.3mm condylar lowering in the fossa. When a unilateral pivot is placed in the second molar region, closing the mandible on it will load the contralateral joint and slightly distract the ipsilateral one (i.e. increase the discal space)<sup>1,2</sup>. The author explains the mechanism by which the pivot appliance acts, by demonstrating radiographically, the direction and extent of condylar movement while biting on a pivot appliance.<sup>5</sup>

### **Conclusion :**

The unilateral pivot appliance revealed effectiveness in treating acute trauma to the TMJ.

### **Acknowledgement :**

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