

MODIFICATION OF THE SCREW AND WIRE TECHNIQUE FOR REDUCTION OF CONDYLAR FRAGMENTS: A TECHNICAL NOTE

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INTRODUCTION

Condylar fractures account for about 17 to 50%^[1] of all the mandibular fractures. The fractured fragment is most prone to medial displacement due to the pull of the lateral pterygoid muscle. This pattern of displacement of the condylar segment makes it difficult to reduce the fragments intraoperatively which may further necessitate a larger skin incision with more aggressive retraction of soft tissues resulting in increased morbidity.

We summarize in this technical note a modification of the Screw and Wire technique used commonly as an aid to condylar fracture fixation^[2] that we have successfully adopted to reduce medially displaced condylar fractures.

Anatomic reduction and rigid fixation of the fractured condyle are required for restoration of the ramal height, upright positioning of the condylar head in the glenoid fossa and restoration of the complex anatomic TMJ articulation.

The approach to the condylar fractures is usually dictated by the location of the fracture and operator convenience. Literature states various methods of retraction of ramal fragment inferiorly which have been used either preoperatively or intraoperatively to restore the lost ramal height, like: Preoperative bite block traction, intraoperatively manipulation of the ramal segment inferiorly by the assistant's fingers pushing the fragment intraorally over the molar area or using a retractor over the sigmoid notch area^[3]. However, it has been noticed that access to the condylar fragment by these methods are still limited due to the action of the strong elevator muscles of the mandible or may also require a larger incision for increased instrumentation^[3].

The use of screw and wire technique has successfully minimised instrumentation ,helped visualise the override and aided in reduction and fixation^[2]. We have adopted a modified screw and wire technique with the use of an **inter-maxillary fixation screw**.

The fracture site is exposed and an Inter-maxillary fixation screw is secured on the lateral border of the ramus. A 24 or 26 gauge wire is introduced at the site through a wide bore needle guide .



Fig.1 Inter-maxillary Fixation screw secured over Ramus

The wire is looped and secured around or passed through the Capstan design of the screwhead until it is engaged and is then held with a strong instrument like a long artery forceps or a wire twister which is in turn pulled for traction to retract the ramal fragment inferiorly to increase the visibility of the displaced condylar fragment .The need to twist the wire is eliminated if the wire is passed through the opening present on the Capstan head in comparison to a fixation screw which also needs one or two threads left exposed to accommodate the wire .



Fig.2 Comparison of the design of Inter-maxillary Fixation Screw and Fixation Screw

Care should be taken at the site of introduction of the needle such that the underlying skin remains uninjured while twisting the wire or while retraction by placing a gauze or cotton pad underneath .



Fig.3 Traction with wire-twister with the help of Inter-maxillary Screw ,a modification of the Screw and Wire Fixation technique

After reduction and fixation, the site of the needle prick can be approximated with a steri-strip or with a single suture for minimal scarring.

The use of IMF screw results in better bony anchorage than fixation screw design which is partially engaged and also causes lesser damage to soft tissues.

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