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## RESEARCH ARTICLE

# USE OF NEEDLE CAP INSTEAD OF TROCAR IN MANAGEMENT OF MANDIBULAR ANGLE FRACTURE: A CASE REPORT

\*Richa Sharma

Bharati Vidyapeeth, India

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\*Corresponding author:  
Mushtaq Chalkoo

### ABSTRACT

This case report focuses on the use of a minimally invasive transbuccal method in open reduction and internal fixation of mandibular angle fractures, as well as the limits and benefits of doing so. It entails a mix of transbuccal and intraoral techniques. Following reduction, the mandibular angle fracture was fixed transbuccally using a needle cap for drilling and miniplate fixation. With this approach, adequate reduction and firm fixation were obtained with less intraoperative time. The transbuccal method is a minimally invasive, cosmetic, and better alternative to the extraoral approach for rigid internal fixation of mandibular fractures, with a very low complication rate <sup>1</sup>.

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## INTRODUCTION

This article describes an alternate transbuccal procedure that does not require the use of a trocar. A cap of a common 1&1/2 inch 24 gauge needle is removed. It's important to remember that it has a wide open end and a tight closed end. Scissors are used to cut the thin end. We now have a 1 inch-long cut needle cap with both ends open. A tiny extraoral stab incision is made on the cheek to allow the needle cap to be inserted. Keeping the fracture site and the position of the facial arteries in mind, the location of the extraoral stab incision is decided. After making the incision, the mosquito artery forceps is inserted through it till it reaches the intraorally fractured spot. Beaks of mosquito forceps are then opened and used to grasp the needle cap. The cap is removed via the incision and secured with artery forceps so that the wider end is pointing towards the bone <sup>1</sup>. After that, the bur is inserted through the cap and holes are drilled. The cap is taken off, screws are inserted through the same incision, and the intraoral and extraoral stab wounds are sutured. With the benefits and drawbacks of both intraoral and extraoral approaches in mind, a combination strategy known as the "transbuccal approach" was developed <sup>2</sup>.

In the transbuccal method, the fracture site was primarily exposed and reduced by an intraoral approach, with a percutaneous stab incision made extraorally in the cheek to permit the insertion of the transbuccal trocar. Despite all of the benefits of this procedure, it has certain drawbacks, such as the need for a complete armamentarium (trocar, cannula), the fact that it is technique sensitive, and the surgeon must be knowledgeable with the armamentarium and adept in using the trocar cannula.

We've outlined an alternative to this procedure that involves utilising a cut needle cap instead of a trocar, which has the same benefits as a trocar but is less costly; the armamentarium needed is readily available in any surgical setting and is not technique sensitive. It can also be used as an emergency trocar replacement if one is not accessible for whatever reason. The procedure is identical to that of inserting a through-and-through drain, which most aspiring surgeons are already familiar with. Scar development at the location of the stab incision is a downside of this technique, which is also seen with the use of a trocar. However, at the end of 1–2 months, the scar is generally barely visible <sup>3</sup>.

## MATERIALS AND METHODS

A patient with mandibular angle fracture requiring Open Reduction and Rigid Fixation was selected. General Anesthesia was induced and patient was intubated via nasal intubation. At first the Maxillary and Mandibular Arch Bar were placed. Traditional Ward's incision was made with a 15 number blade, with the distal release incision continuing further up along the anterior edge of the ramus till the coronoid process. To obtain exposure till the coronoid process, subperiosteal dissection was performed. A periosteal elevator was used to reduce the fragments intraorally<sup>1</sup>. A stab incision was made extraorally in the area overlaying the fracture site using an 11 number blade. This was determined using a needle that was passed intraorally across the fracture site percutaneously to detect the fracture line. This helped to align the fracture line extraorally and advise the precise placement of the stab incision. After blunt dissection with artery forceps, a 24 gauge needle cap was inserted into this stab wound. Through the intraoral method, two mini plates were put superiorly and inferiorly across the fracture line after reduction of the fractured segments. Drill bits and screws were inserted perpendicular to the angle of the mandible via the needle cap, resulting in firm fixation of the fracture. Closure was done with 3-0 Vicryl for intraoral suturing and 4-0 ethilon for extraoral stab incision once hemostasis was achieved<sup>1</sup>.

## CASE REPORT

A 23-year-old male patient presented to the casualty with pain and swelling in lower right back regions of his mouth, as well as pain when chewing food. He gave history of Road Traffic Accident due to skidding of two-wheeler with no history of loss of consciousness, vomiting, seizures, or ear or nose bleeds. A CT scan and an OPG revealed a displaced right mandibular angle fracture. No additional comorbidities were noted. Under general anaesthesia, upper and lower arch bar was placed. Later, open reduction and internal fixation was performed utilising the transbuccal and intraoral approaches<sup>2</sup>. Postoperative OPG showed accurate reduction and fixation of the fractured segments. Patient on follow-up after 2 months reported with maximum intercuspation and stable fixation without any fresh complaints. No damage to the facial nerve function was noted<sup>1</sup>.

## DISCUSSION

The use of a transbuccal method in conjunction with an intraoral approach for the fixation of mandibular angle fracture demonstrates the superiority of this strategy over intraoral or extraoral approaches alone. The fracture site was exposed and the fracture was reduced mostly by an intra-oral approach in this procedure. Using the intraoral technique, titanium mini-plates were also placed over the fracture site. A percutaneous stab incision is performed extra-orally in the cheek to assist the insertion of the needle cap.

The use of a needle to connect the fracture site extraorally was a unique approach utilised in this practise. Through the transbuccal incision, titanium screws were fixed perpendicular to the bone, resulting in lateral plating. There was no need for intermaxillary fixation after surgery since there was no occlusion disparity on follow up visits.

Thus, intra-operatively set arch bars were beneficial for attaining occlusion alone. Minimally displaced or undisplaced vertical mandibular ramus fractures, isolated mandibular ramus or angle fractures, young adults who require higher aesthetic results, patients in whom closed reduction is contraindicated, such as epileptic or neurologically compromised patients, or those with nutritional deficiencies are among the indications for this technique. Patients with highly displaced or comminuted fractures, insufficient mouth opening intraoperatively, unskilled surgeons or amateurs, and the presence of simultaneous condylar or coronoid fractures that prevent effective reduction intraorally are all contraindications<sup>2</sup>.

**CONFLICT OF INTEREST:** None

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