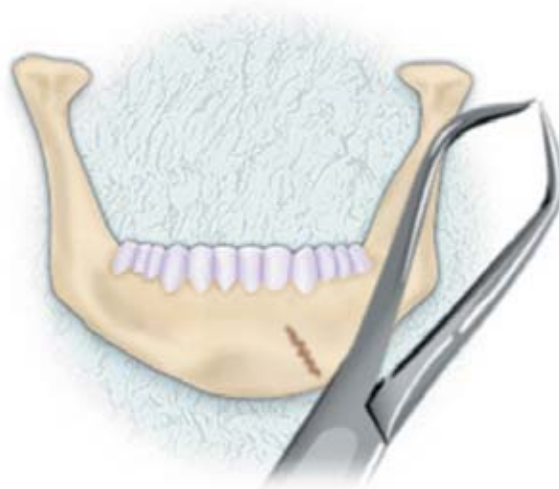


## Mandibular Fracture Reduction without Intraoperative Intermaxillary Fixation: A Technique Using Two Modified Reduction Forceps

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### Abstract

This case report demonstrates a technique that is useful for precompressing mandibular fractures and obtaining anatomical reduction of the fracture edges without the use of peroperative intermaxillary fixation (IMF) in a mandibular fracture by using two modified reduction forceps. The first forcep is positioned at the inferior mandibular border and the other in the neutral zone where it is an ideal location to place a fixation plate in mandibular fractures. This technique is indicated for the anatomic reduction in mandibular fractures of the partial dentate patient.

**Keywords:** Mandibular fracture, reduction, fracture reduction technique, rigid fixation

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## Introduction

Facial fracture management aims to restore aesthetics and function. Intermaxillary fixation (IMF) achieves these goals since it restores facial contouring and masticatory function. IMF may be performed with the use of the Erich arch bar, re-establishing functional occlusion through intercuspitation. The advent of fixation techniques using plates and screws enables immediate function while dispensing with the traditional 4-6 weeks of occlusal fixation associated with IMF. Despite new fixation approaches, the Erich arch bar utilization is still indicated during the intraoperative time for occlusal restoration.

This paper describes a method that uses two modified reduction forceps for intraoperative anatomic restorations, without the use of IMF.

## Case Report

Surgical treatment of patients with mandibular fractures includes surgical access, followed by fracture exposition, and rigorous curettage (Figure 1).

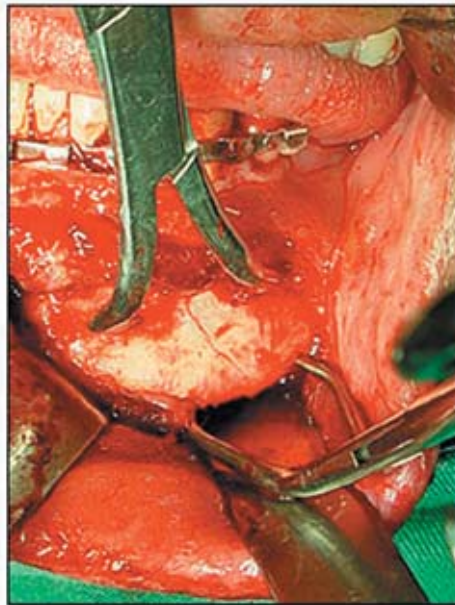
Anatomic reduction of the fracture is performed using two modified reduction forceps. One is positioned at the inferior mandibular border and the other in either the neutral zone, to neutralize the functional forces among the tension and compression forces in the mandible (Figure 2), or in the alveolar ridge (Figure 3A). After re-establishing the occlusal alignment and positioning the lingual cortical bone (provided by the forceps in the inferior mandibular border), fixation with plates and screws is performed (Figure 3B). This technique is indicated for unique fracture lines and preferentially performed up to seven days after fracture occurrence because anatomical reduction can be achieved in the absence of granulation tissue.

## Discussion

Dimitroulis<sup>1</sup> described the management of fractures of the mandibular angle without the use of intermaxillary wire fixation and recommended the use of manual reduction. The author also notes a decrease in the operating time of one hour, an earlier discharge of the patient, and a satisfactory occlusal recovery. Fordyce et al.<sup>2</sup> found similar results when comparing patients treated with or without intraoperative IMF. The



**Figure 1.** Mandibular fracture after curettage. The Erich arch bar was first installed. The patient was edentulous in maxilla.



**Figure 2.** Modified forceps positioned at the inferior mandibular border and in the neutral zone.

authors of this paper feel manual reduction is more economical, requires less time, and is safer for the operator. However, the authors do not use manual reduction because it fails to achieve favorable lingual cortical bone reduction.



**Figure 3. A.** The upper modified forceps in the alveolar ridge. **B.** Fixation of plates and screws. The anatomic reduction was performed.

The Erich arch bar is an important tool to restore proper occlusal relationships, especially in cases of comminuted and oblique fractures, along with the loss of continuity of the mandible. However, in cases where a unique fracture line is present, we perform the described technique.

**Summary**

In this article mandibular fracture reduction is performed with two modified forceps (Figure 4).



**Figure 4.** The modified reduction forceps.

The forceps positioned at the inferior border of the mandible is crucial for maintaining the lingual cortical reduction, allowing a good visual verification of alignment. The forceps located in the neutral zone allow the reduction and precompression of the fracture borders, helping the achievement of stability and reparation. It is also a promising approach for developing countries, since a great number of patients don't have enough teeth for IMF.

## References

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