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CASE REPORT

Use of a Heister mouth gag as an aid to reduction in open treatment of condylar fracture

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Abstract

Introduction The management of condylar fractures remains controversial. Open treatment of condylar fractures is a routine treatment in cases of displaced or dislocated condylar and subcondylar fractures.

Technical note Because of the pull of the lateral pterygoid muscle, the condylar fragment is usually located anterior and medial to the mandible. Distraction of the mandible in an inferior direction simplifies proper reduction. Various distraction devices have been described in literature. We describe a technique of using the Heister mouth gag at the surgical site to aid in reduction of displaced dislocated condylar fractures.

Keywords Condylar fracture · Heister mouth gag · Maxillofacial trauma

Introduction

Open treatment of condylar fractures is a routine treatment in cases of displaced condylar and subcondylar fractures. However, many a time, the reduction of a condylar segment notably displaced and dislocated from the fossa or overriding fractured segments poses a challenge. Because of the pull of the lateral pterygoid muscle, the condylar fragment is usually located anterior and medial to the mandible. Distraction of the mandible in an inferior direction aids in visualizing and manipulating the condylar segment [1]. We describe a technique of using the Heister mouth gag at the surgical site to aid in reduction.

Indication:

1. Condylar fractures with overriding segments
2. Dislocated condylar head from the glenoid fossa
3. High condylar fractures

Contraindication: zygomatic complex fracture, zygomatic arch fracture, and temporal bone fracture.

Instruments: Heister's mouth gag

Technique

The fracture site is approached through the routine pre-auricular incision with Alkayat and Bramley [2] extension where deemed necessary. The zygomatic arch is exposed. The Heister gag is positioned with one arm resting on the zygomatic arch and the other on the distal fractured segment (Fig. 1). The gag is activated gently to create a gap between the segments. The displaced proximal fractured segment is then visualized and reduced. The Heister gag is then adjusted at the correct ramal height. This is followed by appropriate fixation.

The pitfall of this technique is that it can be used only in association with a pre-auricular incision. The superior arm of the Heister gag has to rest on intact stable bone, thereby its use

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Fig. 1 Surgical site with Heister's gag placed with one arm in the glenoid fossa and the other arm resting on the distal fracture segment

in case of associated temporal bone or zygomatic fracture is out of question.

Heister introduced a mouth gag of incentric pattern in 1714 with narrow blades which rest on the occlusal surface of molar teeth, with an incentric pivot and plain short handle [3]. In this article, we have described a technique for use of this device to aid in reduction of condylar fractures. The superior arm rests on the intact glenoid fossa whereas the inferior arm rests on the distal fracture segment. On activation, it distracts the distal segment and provides a clear view of the operative site and helps in controlled manipulation and repositioning of the proximal segment. This aids in reestablishing the vertical height of the ramus.

Various other techniques have been previously described like the use of a clamp, towel clip, or stainless steel wire placed at the angle [1]. Stewart and Bowerman described the use of a Moule pin in the condylar neck in reduction of the fractured condylar head [4]. A screw and wire technique to distract the distal segment has been described by Rao et al. [5].

In conclusion, the use of a Heister mouth gag aids in reduction of high condylar fractures with minimal addition to operative time or armamentarium.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participant were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from the participant included in the study.

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