

Policy of removal of bone plates in craniomaxillofacial trauma and orthognathic surgery: a 10-year review

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Abstract

Background. Removal of titanium miniplates is a controversial topic in maxillofacial surgery. The aim of this 10-year review was to assess the removal of plates following osteosynthesis in maxillofacial trauma and orthognathic surgery.

Methods. The medical records of all patients who underwent removal of bone plates after facial trauma or orthognathic surgery between 2001 and 2010 at the Division of Maxillofacial Surgery, University of Turin were reviewed.

Results. A total of 239 plates were removed from 211 patients (73 females, 138 males) (mean age, 34 years), that had undergone facial trauma (145 patients) or orthognathic (66 patients) surgery. The most common indication for removal was subjective discomfort (56.87%), followed by infection (19.9%), prophylactic reason (third molar in fracture line)(15.64%), exposure of the plate in the oral cavity (7.1%), and young age (0.47%). (Figure 1)

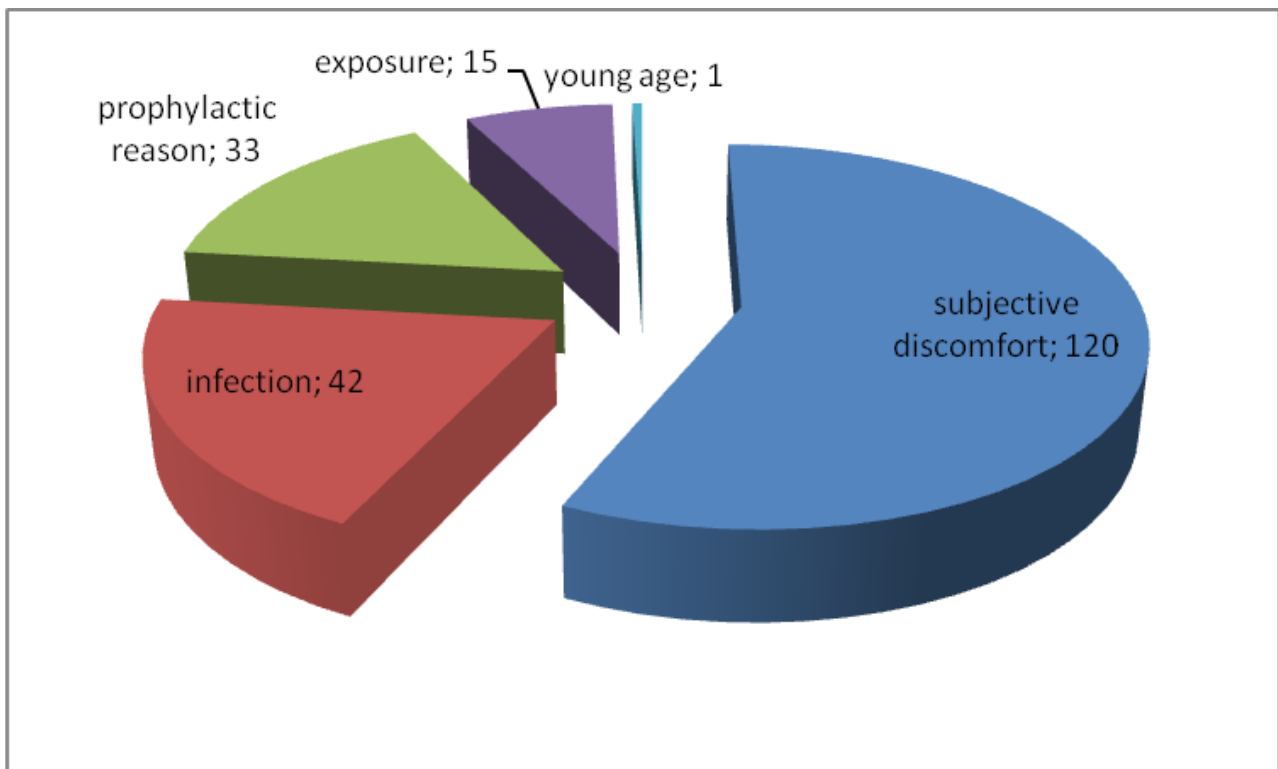


Figure 1. Indications for plate removal.

The most frequently involved sites were mandibular angle and maxillomalar buttress (with 49 removed plates each). (Figure 2)

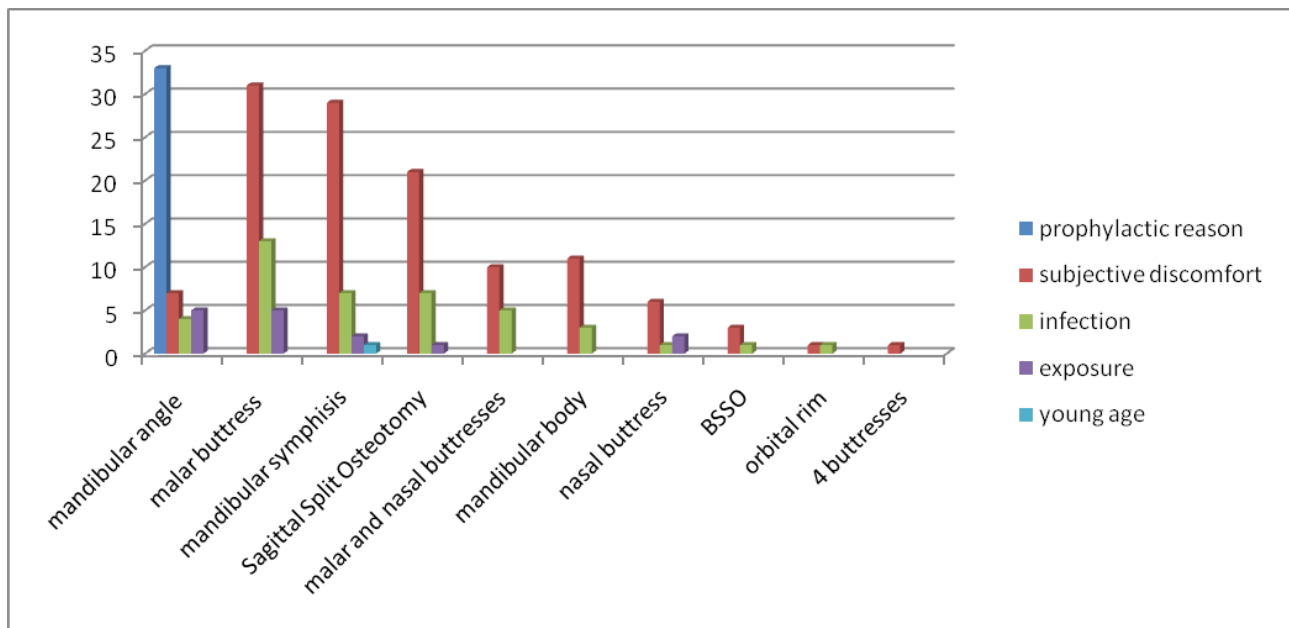


Figure 2. Involved sites and corresponding indications to plate removal.

Mean time between insertion and removal was 27.4 months. Statistical analysis using Fisher exact test found a significant association between trauma patients and timing of plate removal within 24 months after surgery (relative risk, 4.6; 95% confidence interval, 2.35 to 9.01; $P < .000005$), and between trauma patients and infection (+ prophylactic reason) as indication for plate removal (relative risk, 2.4; 95% confidence interval, 1.19 to 5.01; $P < .05$)

Conclusions. Routine removal of titanium plates is not clinically indicated. Plate-related problems leading to removal occur more frequently within the first 2/3 years after insertion. The most common indication for plate removal was subjective discomfort. Special attention should be given to fractures of the mandibular angle with involvement of third molars in fracture line. Long-term follow-up after facial bone osteosynthesis is indicated.