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7.6 Complications and pitfalls

Several publications dealing with complications and pitfalls show that orthognathic surgery is generally safe and predictable, but associated with risks for typical complications. With the exception of damage to the inferior alveolar nerve in sagittal split osteotomies of the mandible, which is described to be as high as 28%, the statistical risk for other complications stays well below 10%. Since these procedures are elective, a major concern must be to prevent and minimize complications and pitfalls and to inform patients about potential risks.

The prevention of complications starts with a careful patient selection. It is of paramount importance to understand the patient's motivation. The surgeon needs to get an impression of his patient's personality. This is not possible with a single short appointment which is focussed on planning and technical aspects only. If there are doubts on the patient's or on the surgeon's side about the treatment indication, or if there is a suspicion for any psychological condition of the patient with tendency to dysmorphophobia, it is advisable to clarify the situation first and not to operate.

Complications and pitfalls can happen preoperatively (patient selection, diagnosis, surgical preparations), intraoperatively, and postoperatively. Several retrospective studies have evaluated the incidence of potential complications. Because of the great variety of possible complications and different recording protocols in various centers, the results can only serve as an orientation. In addition, a large number of case reports demonstrate rare and unusual complications. This chapter focuses on intraoperative and postoperative complications.

1 Intraoperative complications

Bleeding

Especially maxillary osteotomies can be accompanied by severe bleeding, usually from branches of the maxillary artery or the pterygopalatine venous plexus, which may even create a need for transfusion. Severe bleedings may require intraoperative compression with packs, vessel ligation such as the maxillary artery, or arteriographic embolization procedures. As part of the preoperative preparation acute normovolemic hemodilution (ANH) or the provision of self-donated or crossmatched blood may be considered.

Airway obstruction

In almost all procedures, the airway is manipulated and a potential for airway obstruction produced by swelling or hematoma formation is possible. Before extubation, the airway conditions must be checked and, depending on the type and severity of the operation, the airway needs to be monitored postoperatively. The discussion about immediate extubation after surgery or prolonged postoperative intubation is controversial and influenced by medical, legal, and economic aspects. In 2-jaw surgery, it is common practice to leave the patient intubated until the swelling has reached its maximum during the first 4–12 hours postoperatively and to then decide, whether extubation can be performed.

Nerve damage

Due to its location in the mandibular bone and the specific technique of the sagittal split osteotomy, injuries of the inferior alveolar nerve occur with a high incidence, in some series up to 28%. The majority of neurosensory deficits is temporary, but permanent damage may occur. The infraorbital nerve and in very rare cases the lingual and facial nerves may be injured as well.

Nerve injuries (neurapraxy, axonotmesis, neurotmesis) can occur as a result of direct trauma by instruments used for dissection, osteotomy, and soft-tissue retraction, as a consequence of placement of osteosynthesis or intermaxillary fixation (IMF) screws, or as a result of interfragmentary compression. If neurotmesis becomes clinically evident, microsurgical nerve exploration and, if needed, repair may be considered.