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Life-Threatening Epistaxis Complicating Extended Maxillotomy for Chordoma

ABSTRACT—Postoperative hemorrhagic complications of the “open-door” maxillotomy approach to the skull base and clivus are uncommon. We report a case of maxillary artery pseudoaneurysm and discuss the management of this condition.

Once considered relatively inaccessible, nestling amid cranial nerves, the clivus has become a reasonable target for the surgeon with the advent of new midline ventral approaches. Since Kanaval¹ described the transoral removal of a bullet from the clivus in 1909, technique and instrumentation have advanced such that transoral surgery² and maxillotomy³ provide practical access to the extradural clivus with excellent cosmetic results and few complications.

CASE REPORT

A previously fit 54-year-old man was admitted to the National Hospital for Neurology and Neurosurgery for removal of a craniocervical chordoma. This lesion occupied the lower 1.5 cm of the clivus, extending around the occipital condyle on the right, and to a much lesser extent on the left. Some tumor extended behind the odontoid peg; the peg itself and the arch of the first cervical vertebra, however, were intact.

An “open-door” maxillotomy using a transverse osteotomy at the Le Fort 1 level combined with a midline split of hard and soft palates was the surgical strat-

egy chosen. Preoperatively a percutaneous gastrostomy was fashioned to permit immediate postoperative feeding. A tracheostomy was inserted at operation. Good exposure of this clivus was obtained by this approach, and radical tumor clearance was effected. The vertebral arteries and their muscular branches were identified and preserved. Closure was meticulous, with fibrin glue and surgical cellulose applied to the tumor defect. The posterior palate was compression wired and the maxilla fixed with mini-plates. The mucoperiosteum was closed and hydrocortisone ointment applied to the wound.

The patient made an excellent postoperative recovery. Within 5 days, he was taking a light diet orally and was completely self-caring. On the fifth postoperative day, he suffered a massive epistaxis that resulted in this becoming shocked. He initially responded to aggressive fluid resuscitation, and his nasopharynx was packed. Later he described the sensation of a “jet of blood, high up . . . in my nose.” The epistaxis recurred and over the next 36 hours this man would require 6 units of blood transfusion. His clotting profiles and liver function were within normal ranges throughout. Pernasal exploration under anesthesia failed to identify the site of his bleeding.

An angiogram was performed that demonstrated a large false aneurysm, supplied by the distal branches of the right internal maxillary artery (Fig. 1). The vertebral arteries were of normal appearance.

The patient was taken back to operating theater, the maxillotomy taken down, and the bleeding point ligated. Thereafter, he made a rapid and uneventful recovery.

DISCUSSION

Le Fort I transverse osteotomy dates back to Langenbeck⁵ in 1859. The "open-door" maxillotomy provides maximal exposure to the midline skull base and craniocervical junction and has up to now been reported as having a low morbidity.⁶⁻⁸

As experience accumulates with this procedure, it is likely that more episodes such as described in our case report will be encountered. The hemorrhage from a false aneurysm of the internal maxillary artery can be insidious. It will lead rapidly to hypovolemic shock unless a high index of clinical suspicion is maintained by those involved in the immediate postoperative care of patients undergoing this type of surgery.

Arteriographic localization of bleeding points is well described.⁹⁻¹² With recent advances in interven-

tional radiology, therapeutic embolization exists as an alternative to arterial ligation. It has the advantage that control of hemorrhage may be obtained as close as possible to the bleeding point. It does, however, require considerable radiologic expertise and is not without complications of its own.¹³ Ligation of the internal maxillary system is to be preferred to external carotid ligation but does require familiarity with the variable anatomy of this region.¹⁴

CONCLUSION

We present a rare life-threatening complication of "open-door" maxillotomy. We recommend that due attention be given to postoperative epistaxis and suggests that patients undergo early angiography when it in severe cases, permitting initiation of definitive treatment.

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Figure 1. False aneurysm of right anterior maxillary artery.