Use of a Simple Handmade Retractor to Protect the Descending Palatine Artery During Removal of Posterior Osseous Interferences for Maxillary Impaction in Le Fort I Osteotomy

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Abstract: For accurate superior or posterior repositioning of the maxilla in Le Fort I osteotomy, bone removal around the descending palatine artery (DPA) and maxillary tuberosity is required. Because the most common site of hemorrhage in the Le Fort I osteotomy is the posterior maxilla, this bone removal provides surgeons surgical frustration of DPA injury. When the DPA is injured during the bone removal and the ligation is performed, aseptic necrosis of the maxilla may occur. Therefore, we report the use of a simple handmade retractor to protect the DPA in Le Fort I osteotomy.

Key Words: Le Fort I osteotomy, descending palatine artery, hemorrhage, complication, handmade retractor

For accurate superior or posterior repositioning of the maxilla in Le Fort I osteotomy, bone removal around the descending palatine artery (DPA) and maxillary tuberosity is required.1,2 Because the most common site of hemorrhage in the Le Fort I osteotomy is the posterior maxilla,3 this bone removal provides surgeons surgical frustration of DPA injury. When the DPA is injured during the bone removal and the ligation is performed, aseptic necrosis of the maxilla may occur.4 Therefore, we report the use of a simple handmade retractor to protect the DPA in Le Fort I osteotomy.

A retractor consists of orthodontic stainless steel round wire with a diameter of 0.8 or 1.2 mm. The wire is folded in half and the tip of the double wire is bended to J-shape (Fig. 1). After

FIGURE 1. A handmade retractor. Orthodontic stainless steel round wire with a diameter of 0.8 or 1.2 mm is folded in half and the tip of the double wire is bended to J-shape.

FIGURE 2. The descending palatine artery (arrow) is hooked and protected by the retractor during the bone removal around the artery with a rotary round burr.
downfracture in Le Fort I osteotomy, the maxilla can be mobilized by a traction wire. The handmade retractor is inserted to the space between the bones after the DPA can be visualized by inferior traction of the mobilized maxilla. Then, the DPA is hooked and protected by the retractor during the bone removal around the DPA (Fig. 2). The bony interference for the maxillary repositioning can be removed safely under good visualization with a rotary round burr and ultrasonic bone curette which can decrease potential risk of the DPA injury. This retractor is routinely used during Le Fort I osteotomy in our department. Although more than 130 dentofacial deformity patients underwent Le Fort I osteotomy using the retractor, there was no injury or mechanical bony obstruction of the DPA and postoperative hemorrhage in any patients.

Generally, surgeons use some materials to protect the DPA in Le Fort I osteotomy, such as a malleable retractor. When a narrow malleable retractor is inserted into the space between the bones to protect the DPA, malleable retractor provides poor visualization of the DPA during bone removal and posterior bony interference of the DPA is difficult for limitation of the bending. On the contrary, bony interference around the DPA can be removed simply and safely under good visualization of the DPA by our handmade retractor because our retractor enables traction of the DPA. Furthermore, an appropriate retractor can be made by changing the diameter of the wire, and the top of the retractor can be bent more freely than malleable retractor.

REFERENCES