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Technical Note

Double palatal flap for oro-nasal fistula closure

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ABSTRACT

Introduction: The management of oral fistula to the nose depends on its etiology, its size and its location. Here, we describe a simple technique, inspired by the ones initially developed by Bardach for cleft palates repair. The surgical alternatives are discussed.
Technical note: The double palatal flap is a simple technique, allowing closure in a single session of a central or centro-lateral palate fistula. The key of this technique is the dissection between nasal and palate mucous layers, providing a sufficient amount of laxity to close the defect without tension.
Discussion: The double palatal flap can cover centro-lateral palate mucosal fistulae. It provides both aesthetic and functional results in a single stage. Reliability, simplicity and quickness are its main advantages. Outcomes are usually simple; Velar insufficiency may occur, that can be corrected by speech therapy.

1. Introduction

The management of bucco-nasal communications (BNC) results over all on patient demand for the correction of BNC functional consequences:

- open rhinolalia;
- food leakage.

The most described techniques for BNC closures are those developed for the management of cleft palate. Some of these processes may be suitable to reconstruct tissular losses after tumorectomy or trauma. A BCN of tumor or traumatic origin is rarer and has its own characteristics: older patients less concerned by nasal mucosa hypoplasia, with a possibly altered scaring potential (advanced age, comorbidities, including radiotherapy sequelae).

Here, we sought to describe a simple and reliable technique, the translation of two palatal flaps. The surgical alternatives, depending on the characteristics of BNC, are discussed.

2. Technical note

The patient is supine, the head held in hyperextension. The procedure is performed under general anesthesia with nasotracheal intubation and immediate placement of a nasogastric tube. The surgical antisepsis of the face and of the buccal cavity is carried out with polyvidone iodine.

A Doyen's retractor facilitates the palatal exposure. If the BNC is more posterior, the use of a Boyle-Davis or Whitehead retractor may be useful (Fig. 1). The exact dimensions of BNC are measured (20 mm diameter for our patient). The palatal mucosa, the interdental spaces and the borders of the BNC are infiltrated by a mix of 10 mL isotonic saline solution and 1 mL of 1%. adrenaline, both to provide a hydro-dissection and to facilitate hemostasis.

The edges of the BNC are incised with a bistoury (blade No. 12 in our experience). The dissection between nasal mucosa and palatal mucosa layers is accomplished carefully with the Stevens scissors or the bistoury blade, making sure not to tear the mucosa borders, and not to wound the great palatal pedicles.

The palatal sulcular detachment from teeth 13 to 18 and teeth 23 to 28 is achieved first with a syndesmotom then with an Obwegeser rugine (Fig. 2). At this step, particular care will prevent damage to the great palatal pedicle vessels and nerves, and avoid transfixion of the mucosa. The nasal mucosa is then carefully

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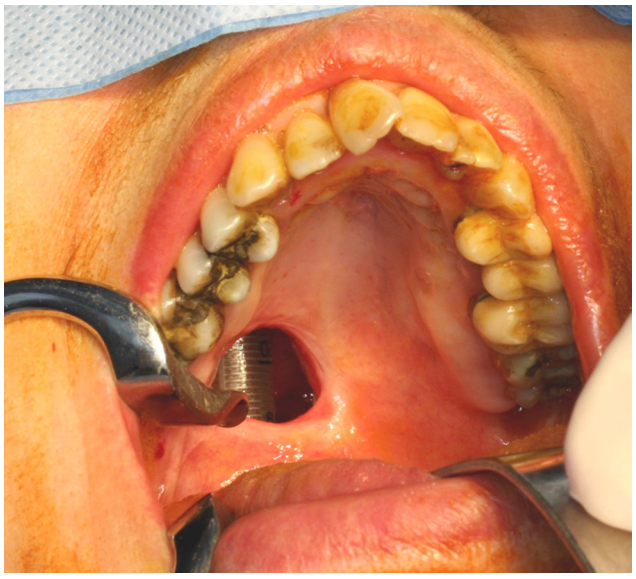

Fig. 1. Exposure of the right side CBN.

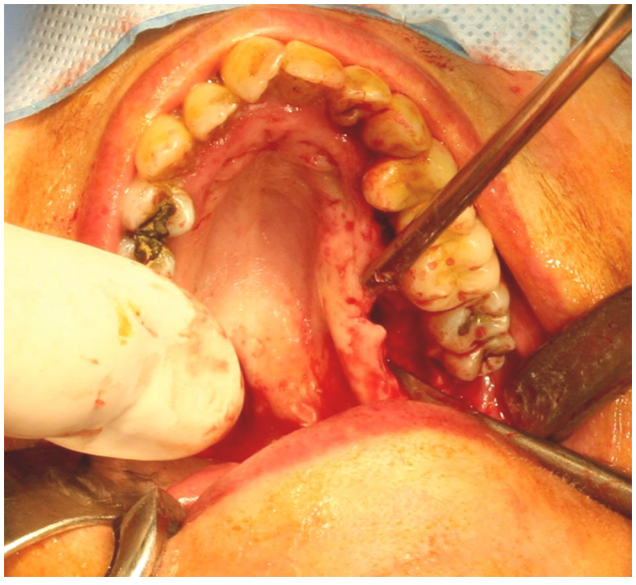

Fig. 2. Sulcular palatal detachment with Obwegeser rugine. The mucosa is previously infiltrated, the hydrodissection separating the layers. Care should be taken not to damage the posterior palatal pedicle.

released from the floor of the nasal cavity, with a smooth tool, i.e. a Freer's rugine. Sulcular and peri-BNC detachments are united in the subperiosteal layer with an Obwegeser rugine (Fig. 3). An atraumatic detachment is the key: it avoids suffering of the flaps and promotes a fastest wound healing. The laxity thus obtained allows the medial translation of the two flaps and the closure of the BNC without tension.

The nasal mucosa is closed by "U-shaped" Vicryl Plus 4/0 (polyglactin 910) sutures to ensure an optimal seal (Fig. 4). The palatal mucosa is then closed without tension on the median line by "U-shaped" Vicryl Plus 3/0 suture (Fig. 5).

In order to promote the healing of the sulcus, the palatal flaps are brought close to the dental arches by 2 transpapillary points of Vicryl Plus 3/0 around teeth 17 and 27, without excessive tension (Fig. 6). This last step reduces periodontal dead space, minimizing

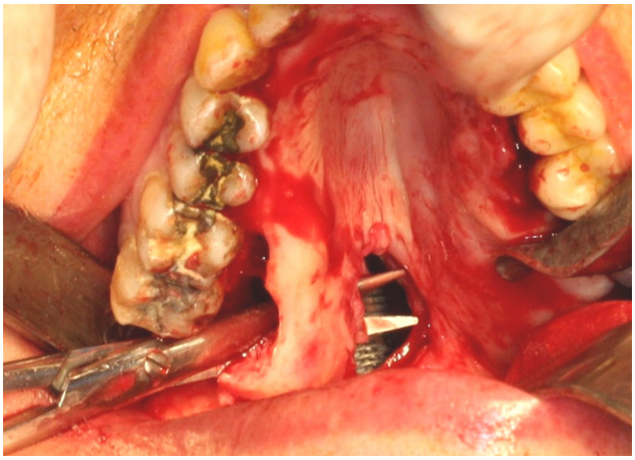

Fig. 3. Separation of the nasal and palatal mucosal layers with Steven's scissors.

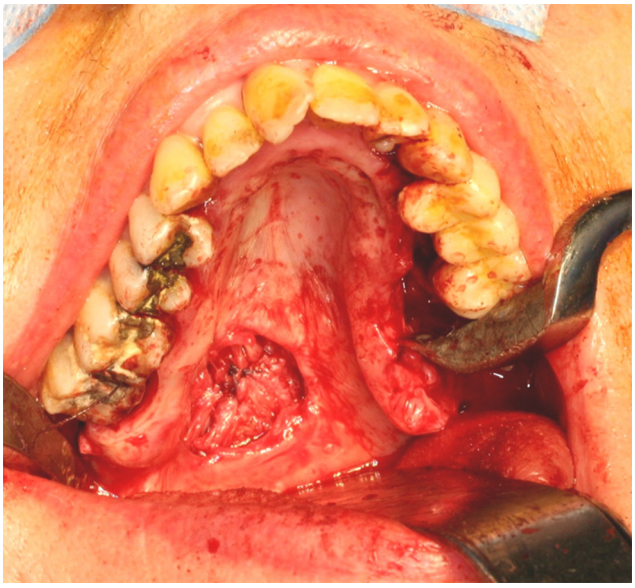

Fig. 4. Closure of the nasal layer with U-points of Vicryl Plus 4/0.

the risk of hemorrhagic or infectious complications. After hemostasis, blood clots are evacuated by polyvidone iodine diluted with physiological saline mouthwash.

A custom-made protective palatine plate was built, but finally not used because of a lack of stability. Antiseptic mouthwashes are carried out the day after the procedure. One week antibioprophylaxy with amoxicillin + clavulanic acid (Augmentin) is recommended.

Feeding is done exclusively by nasogastric tube the first 3 days. Mixed feed is then continued until complete healing of the palate (at least 15 days). Nose blowing and effort with closed glottis are discouraged for 6 weeks.

3. Discussion

The technique of BNC closure by double palatal translation flap was initially described by Bardach in 1967 for the management of clefts palate [1]. Its main advantage is to be carried out in a single operating time. Few postoperative fistulas have been described [2]. A good anatomical knowledge is an essential prerequisite: the

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