Repair of Loss of Substances of Mandibular Ramus by a Microanastomosis of Fibula Flap: About A Case

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Authors’ contributions

This work was carried out in collaboration among all authors. Authors HH, NM, AG and HL designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors YB, MY, AC and WB managed the analyses of the study. Authors HB, LG and MYA managed the literature searches. All authors read and approved the final manuscript.

ABSTRACT

Tumors of the cervico-facial region are frequent and their diagnosis is often made at a late stage. Their wide surgical excision leaves often a loss of substances with functional and aesthetic repercussions, difficult to repair by local or pedicle flaps. The use of micro-anastomosed flaps that meet functional and aesthetic imperatives is recommended. In the current study, we report a case of a benign tumor of the Mandibular Ramus in a young patient. The radio-clinical examination was in favor of a benign tumor of the ascending branch of the mandible with invasion of the cortices in places. Histological observation confirmed the nature of this tumor (Keratocyst). The surgical excision required an interruptive resection of the mandibular ramus. Functional (ATM dysfunction and lateral mandibular deviation), and esthetic consequences (left genic depression) were marked. Hence, the use of a micro-anastomosed flap of the fibula (fibula) for the repair of this bone defect should be made.

Keywords: Tumor; mandibular ramus; microanastomosed flap; loss of substances; repair; fibula.
1. INTRODUCTION

Cancer of the oral cavity most commonly affects the lateral border of the tongue and the floor of the mouth. These structures are vital to mastication and are often subject to displacement, gross resection, or modification during surgical management. This has significant consequences relating to the function and aesthetic properties of the mouth, and impaired masticatory function has previously been reported in approximately 40% of patients treated for head and neck cancer [1].

Tumors of the cervico-facial region are frequent and their diagnosis is often made at a late stage. Their surgical excision requires sometimes an interrupting resection of bone continuity [1,2,3]. This tumor resection sometimes leaves a significant facial deformation with functional (masticatory and oral) and esthetic alterations, as well as psychological repercussions.

The reconstruction of such defects with autogenous bone grafts or revascularized free flaps has become a valuable means for the rehabilitation of these patients. Micro-anastomosed flaps meet functional and esthetic requirements [4-7].

2. CLINICAL CASE

Patient with 28 years old, without any particular pathological antecedent, consulted for a painless upper left mental swelling that had been evolving for about 5 months.

The radio-clinical comparison was in favor of a benign tumor of the ascending branch of the mandible with invasion of the cortices in places, from which an interrupting bone resection involving the ascending branch of the mandible carrying the tumor, whose histological label came back in favor of a Keratocyst (benign tumor).

The post-operative consequences were marked by a facial deformation with functional and esthetic repercussions, even psychological problems. Hence, the bone reconstruction using the micro-anastomosis of the Fibula should be made.
Figure 1. Illustration of the clinical case

A 1, A 2, A 3: Front view, three quarters and profile of the left mental depression
B 1, B 2: CT scan of the lower limbs.
C 1: skin trace of the fibula sample
C 2, C 3: Dissection and visualization of the vascular pedicle and preparation of the graft
D 1, D 2: Placement and osteosynthesis of the fibula at the recipient site
E: verification of the vitality of the graft (vascular perfusion)
F 1, F 2: Postoperative aspect (Correction of the deformity)
G: Postoperative donor site.
H: Rx control (Panoramic radio)
Operability checkup: Echodoppler + Angio-scanner of the lower limbs.

Preoperative checkup

Reconstruction in 3 times:

- Preparation of the recipient site by highlighting of the vascular pedicle (Facial Art and Vein)
- Removal of the free flap of the fibula with its pedicle
- End-to-end anastomosis of the two pedicles

Post-operative suites were straightforward.

3. DISCUSSION

Odontogenic keratocysts represent 4-10% of all odontogenic cysts [1]. The diagnosis is often suspected intraoperatively by the discovery of "keratic" material within the cystic pocket. Mandibular predilection is significant: The posterior mandibular region and more specifically, the region of the third molar and ramus is most often affected [2].

The treatment is surgical, bone invasion, coronary invasion and / or soft tissue invasion, the treatment will be radical and will consist of an interrupting ostectomy (mandibulectomy or maxillectomy) [8].

Free flaps are essential in the management of facial tissue loss, whether or not they result from carcinological resection [9]. The free vascularized fibula flap is particularly essential in the management of mandibular loss of substance, since the mobile nature of this bone, the proximity of the highly septic oral cavity and the need for radiotherapy in the therapeutic sequence make any attempt illusory prosthetic reconstruction [10]. The main advantages of such a procedure generally include low morbidity of the donor site and a significant length of the bone graft. In addition, vascularized grafts provide a good volume of bone in which to place the implants and a satisfactory contour [10,11].

4. CONCLUSION

Keratocyst is a benign, very aggressive tumor, with a remarkable potential for recurrence, difficult to diagnose, often evoked intraoperatively and proven histologically by the pathological study of the entire operative specimen. Surgery is the treatment of choice, the radical gesture is necessary in the face of an invasion of the cortices and / or coronary damage resulting in an interrupting resection of bone continuity leaving a loss of substance with significant functional and esthetic and sometimes psychological repercussions. The rehabilitation of patients with deformities of the mandible after tumor resection remains very difficult. The use of micro-anastomosed free flaps has become essential in the management of material loss from the facial mass, whether or not secondary to oncological resection, because this reconstruction allows better socio-professional rehabilitation of these patients.

ETHICAL APPROVAL AND CONSENT

All the experiments were carried out according to the guidelines of the Department of Oral and maxillofacial Surgery, Central hospital of the Army, Kouba, Algiers, Algeria and with the consent of the patients.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES


