

La reconstitution mandibulaire après une exérèse d'un kyste par des autogreffes ostéomédullaires

Mandibular reconstruction following cyst removal by the autologous cancellous bone and marrow grafts

Abou Mayaleh H. ¹
Louis M. Y. ²
(Lisieux, Caen)

Résumé

Cet article présente la technique chirurgicale de l'utilisation des autogreffes ostéomédullaires pour la reconstitution mandibulaire après une exérèse d'un kyste, et rapporte les résultats à long terme.

Mots-clés : Mandibule, kyste, autogreffe, ostéomédullaire.

Summary

This article presents the surgical technique of using the autologous cancellous bone and marrow grafts for filling defects following cyst removal in the mandible, and reports long-term results.

Key-words: Mandible, cyst, autologous, cancellous bone, marrow grafts.

INTRODUCTION

Numerous methods have been proposed for filling the bone cavities of the lower jaw after the extirpation of cysts (1-7). This article presents the surgical technique using the autologous cancellous bone and marrow grafts for filling defects following cyst removal in the mandible, and reports long-term results.

The process of resorption and integration of the cancellous bone and marrow grafts begin by capillary invasion origination from the host bed. It seems that the resorption of the graft stimulates the osteogenesis for rebuilding of the bone (8-10).

Indication: The autologous cancellous bone and marrow grafts is indicated for reconstructing the bone cavities of the lower jaw after the extirpation of the cysts.

Contraindication: This procedure is contraindicated after malignant tumour extirpation.

Advantages: The tolerance and uptake of the graft into the bone of the host is excellent, the integration is rapid, with non evidence of rejection. The technique is rapid, the graft is not difficult to obtain and no scar is visible, and finally, the cost is low.

Disadvantages: This technique requires a special instrument for obtaining the grafts from the iliac bone.

Complications (12)

Technique's related complications: Loosening of the suture, resulting in exposure of the graft, if this occurs the graft needs to be removed; Postoperative pain in the iliac bone; Infection in the iliac bone.

Complications due to ablation of the cyst: Temporary anesthesia or hypoesthesia of the inferior alveolar nerve; A weakened jaw can result in a mandibular fracture; Postoperative mandibular pain; Bleeding; Infection in the mandible; Recurrence.

Postoperative follow-up: Hospitalization was required for 48 hours only. Patients can resume oral feeding after 48 hours only. The dental implants can be placed one year after the surgery.

CASE REPORT

A 31-year-old male patient was referred to the maxillofacial unit by his dentist for a Keratocyst of the lower jaw shown by a panoramic radiograph (fig. 1).

The teeth in contact with the cyst were displaced. Clinical examination revealed no further abnormalities; There was no evidence of a mass or an intraoral ulcer, no detectable expansion of the mandible and no pain or mental nerve paraesthesia. On general examination the patient health status was good. He had no palpable cervical lymph nodes. His past medical history revealed no significant chronic diseases.

1. CH Lisieux, Service d'ORL et de la Chirurgie Cervico-Faciale, 4 rue Roger d'Aini, 14100 Lisieux, France. E-mail: h.a.mayaleh@hotmail.fr

2. Centre François Baclesse, Service de Maxillo-Facial, Avenue du Général Harris, 14000 Caen, France. E-mail: my.louis@baclesse.fr

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Fig. 1: Preoperative panoramic radiograph showing a keratocyst of the lower jaw.



Fig. 2: The intraoral approach of the cyst.



Fig. 7: Follow up panoramic radiograph taken six months after surgery.



Fig. 8: Follow up panoramic radiograph taken one year after surgery.

Surgical technique (11, 12)

General anesthesia is maintained via nasotracheal intubation. The surgical approach to the cyst is always intraoral (fig. 2). If teeth do not have to be removed, the incision is made through the mucosa in the oral vestibule. When the patient is edentulous, the incision is best made on the alveolar crest. The teeth in contact with the cysts are always removed. Following enucleation of the cyst (fig. 3), allowing partial removal of the bony wall of the cyst with a curette or a round bur. Very mobile teeth are also extracted. On the other hand, teeth in good condition even if slightly mobile are preserved. If necessary, these teeth are treated endodontically as a separate procedure.



Fig. 3: The Keratocyst removed.

The grafts are obtained from the iliac bone with an instrument used for obtaining bone marrow biopsy (fig. 4). This instrument is the blade or osteocentesis of the handpiece. We incise the skin on the iliac bone (an incision of 2 mm only), fix the instrument on the iliac bone, withdraw the blade, and advance the handpiece for obtaining the bone marrow graft (fig. 5). Four or more grafts are required depending on the cyst's size (fig. 6).



Fig. 4: Fixation of the instrument on the iliac bone.

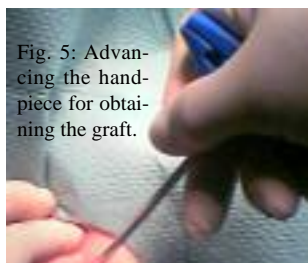


Fig. 5: Advancing the handpiece for obtaining the graft.

The autologous cancellous bone and marrow grafts are inserted in the cyst's cavity.

The most delicate part of the operation is suturing the mucosal flaps, which must create a waterproof seal. It is important to avoid contamination from the contaminated buccal area. The closure is done in one layer, with interrupted or continuous resorbed sutures. An antibiotic is prescribed for five days. The patient is instructed to rinse the mouth with chlorhexidine solution three times a day for ten days. Postoperative edema is controlled using ice packs; there is no require-

ment for administration of any steroidal or nonsteroidal anti-inflammatory drugs.

Results

No signs of recurrence, complications, or postoperative pain were found in our case. Routine histological examination of the cyst showed a benign keratocyst. The resorption and the integration of the cancellous bone and marrow grafts stimulated the osteogenesis and rebuilt the bone of the lower jaw (figs 7, 8).

CONCLUSION

The reconstruction of the bone cavities of the lower jaw after the extirpation of the cysts by the autologous cancellous bone and marrow grafts is a very good technique. The tolerance and incorporation of the autologous graft into the bone of the host is excellent, and the integration is rapid.

The graft is easy to obtain, the cost is low, with no scar visible. The graft is not indicated after malignant tumour extirpation.

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