

The Reconstruction of the Mandibular Continuity Defect by Nonvascularized Rib Graft : About two Cases

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Abstract: We often come across mandibular continuity defect in corrent practice. They are the result of traumatical, infectious, tumoral and abnormalcy pathologies. The treatment of such a case is nowadays well codified requiring bony drafts, endoprothesis and osteogeonic distraction.

We describe our experience of two clinic cases of continuity defect of mandibular reconstruction by nonvascularized ribgraft. In the two cases withsome respectives retreat of twelve and twenty-three months, the results were satisfactory by taking into account the functional and esthetical aspect.

Keywords: Reconstruction – mandibular – traumatism – tumor – graft

1. INTRODUCTION

The anatomical reconstruction of mandibular continuity defectis not an easy task for the surgeon to cope with because of the complexity in the working of the mandibular and the specificity related to the treatment of lesions which affect the neck and face segment [1, 2]. These defects bring about some aesthetical, functional (chewing, swallowing, speech, phonation, respiratory) and so social consequences.

In developed countries with the advent of microanatomosistissular transfert technics (or free laps) in the neck and face area started in 1970s. The management of these defects is well structured[1,2,3,4]. That is not the case in our medically underserved countries where those mandibular continuity defects represent serious problems of reconstruction affecting considerably sick men socio professional reinsertion.

We report our experience on two cases of mandibular continuity defect reconstruction by non-vascularized ribgraft.

2. OUR OBSERVATIONS

First Case

A 30years patient (woman) who has been consulted suffering from avoluminous mandibular tumor which has started developing

since ten years. The sympathology would have been started by a left angulomandibular oncosis which increased gradually. Everything combined in a painless context with mobilities, migration and spontaneousloss of teeth. The patient had previously started using a traditional medication based on plant decoction application and sudstance meant to be inhaled on vapour and over and steel didn't recover from her pain. The clinical analysis of the inside omouth reveals a volumous left mandibular tume faction exceeding the median line by giving "double head" aspect, covered by aglossy skin, painless of heterogenous consistency with an hypothesis in the area of ipsilateralmandibular nerve and a lack of neck and face adenopathy(figure 1&2).



Fig1. Patient full face with "double head aspect"



Fig2. Patient from the side with " double head aspect"
 Inside the mouth analysis we noticed an open mouth by the tumor which was covered by an anetoderma made of nmerousvenous maze carryingantagonist teeth print. Dental check-up brought to light some migration and some dental mobilities from thirty-five to forty-six with lack of left inferior group of back teeth. In paraclinicsphere, the CT brought to light an osseous fenestrum of polygeodic images occupying all the left semi mandibular other passing the median line and extending till forty-six, and in 3D ...reconstruction we noticed some images in "beenest" (figure 3&4).



Fig3. CT in asseous fenestrum multigeode aspect

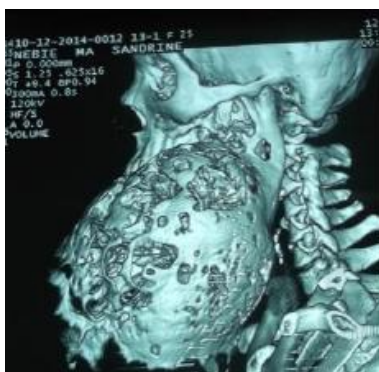


Fig4. 3D CT, bees aspect

In doing so we suspected a benign tumor and a surgery instruction had been given. A continuity resection had been realized for this patient at the right angular level with dissarticulation at left, realizing a defect of "T" type followed by an

immediate metallic endoprosthesis reconstruction (figure 5, 6 et 7).



Fig5. During the surgery after moving the tumor



Fig6. Operative piece



Fig7. Patient full face after endoprosthesis reconstruction

After the surgery an ameloblastoma was found. Ten months later we have seenour patient for a metallic endoprosthesis and non-vascularized two free osseous ribgraft reconstruction taking at the fifth and sixth rib level and conform according to the form of defect to be reconstruct (figure 8).



Fig8. Rib graft after the fifth and sixth rib modeling

The patient had been regularly treated, at eleven months we observed a good osseous graft and we proceeded to a prosthetic rehabilitation by an amovable prosthesis, allowing the restoration of the facial balance (figure 9,10,11).



Fig9. Full face picture after rib graft reconstruction



Fig10. Thirteen months, postsurgery control with a successful of osseous graft



Fig11. Thirteen months after prosthetic restoration by a removable prosthesis

Second Case

A 32 years patient (man), victim of ballistic traumatism which causes a mandibular continuity defect in a type of "La". He was taken into charge initially by ametallic endoprosthesis reconstruction with feeble parts repair. The patient consulted us for a bonegraft reconstruction. The outside mouth clinic analysis revealed a left lower cheek depression and a left lip and chin anaesthesia. Inside the mouth analysis we noticed a limitation of 30mm while opening the mouth and alack of tooth from 31 to 37. The CT realized showed a

mandibular defect from the median line to the left preangular area, reconstructed by ametallic endoprosthesis (figure12).



Fig12. 3D CT, bony continuity defect reconstruction by metallic endoprosthesis

For this patient we have made a reconstruction of mandibular by a ribosseous free graft with the fifth right rib. The evolution was satisfied with a retreat of twenty-three months(figure13&14)



Fig13. 3D CT with a good grip of bony graft



Fig14. Twenty three months post operative patient with a good facial aesthetic restoration

3. DISCUSSION

The aims of the construction are morphologic, also functional with the ability to open and close the mouth. The primary reconstruction is always desirable in order to obtain best results. It exists different procedures :

- Prosthetic tools : It consists in replacing the mandibular defect by a big block or splint in titanium or its alloys like temporary space or definitive.
- Osteogenic distraction : It is based on the concept of bone elongation thanks to a distractor put inside the mouth. The progressive traction practising with in the osseous fragment send an osteogenic in the interfracture under the periosteum activity. The osteogenic distraction is able to treat at the same time the associated integument retraction that allows prosthetic dental implant rehabilitation.
- The osseous auto grafts that can be either free nonvascularized or free vascularized [5, 6, 7].

Cariou [8] distinguish five types of mandibular defect according to their past or lateral situation which determine the priority of osseous reconstruction.

- Type A with subdivision in :
 - o "Aa" Defect limited to the symphysis area.
 - o "Ab" Defect spread to the whole mandibular arch from angle to angle.
- Type L with subdivision in :
 - o "La" Defect limited to the horizontal branch.
 - o "Lb" Defect increase to a semi-mandibular with or without the mandibular condyle.
- Type T : Mandibular continuity defect beyond a semi-mandibular and causing bone length problem to bring.

In the two cases showed we noticed a defect of type T and another of type "La". The continuity defect of mandibular care is well codified in developed countries call on micro anastomosis. At ours because of the lack of resources we are always obliged to use nonvascularized graft. Before doing this reconstruction we must do a deep pre surgery check-up which is composed of :

- Local factors :
 - o Bones which permit to determine exactly the volume and the morphology of the defect to be reconstructed.
 - o local factors around bones are covering tissue which will help to isolate the reconstruction of septic place inside the mouth and of the dental outside place.

- o an accurate dental check-up shall be done.
- Intercurrent factors : They modify the local conditions of the reconstruction (X-ray therapy, dental local infectious focus, active or quiescent osseous or growing site activity and the pediatric periosteum must be respected).
- General factors (age, sex, mental condition and cooperation that we should expect from the patient, nutritional condition, metabolic condition, cardio respiratory condition, lifestyle and exercise adjuvant treatment.
- Aetiology factors (benign or malign tumoral pathology, traumatic pathology, osteoradionecrosis and osteitic pathology). According to literature all continuity defect superior to 8 cm need a reconstruction by microanastomosis lap for both patients. The continuity defect extended beyond 8 cm and the reconstruction had been done by non-vascularized ribgraft. After the different surgeries the results have been satisfied with good grafts on respective retreat of 13 and 23 months. For the partisan of such grafts, the interest is in its test facility and its weak morbidity [9,10].

4. CONCLUSION

Continuity defect of mandibular represents a complex decisional process for the surgical team. It always deals with particular case to which we must take into account the interest of the patient. We must continually take into consideration the satisfaction of the surgeon when he reconstructs mandibular and the happiness of the patient.

If in medically served countries the reconstruction through micro anastomosis grafts well appropriate, the use of nonvascularized free grafts always constitute a credible alternative in our skies.

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Citation: Ouattara B, Koffi KM, Harding MB, Bissa HC, Kone R, Garba I, et al. *The Reconstruction of the Mandibular Continuity Defect by Nonvascularized Rib Graft : About two Cases.* *ARC Journal of Dental science.* 2017; 2(3): 14-18. doi:dx.doi.org/10.20431/2456-0030.0203004.

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