



## RESEARCH ARTICLE

### IMMEDIAT PROSTHESIS WITH DOUBLE CORRIDOR

\*Rimaoui, S. and Bellemkhannate, S.

Department of Removable Prosthodontics, Faculty of Dentistry, University Hassan II Casablanca Morocco

#### ARTICLE INFO

##### Article History:

Received 17<sup>th</sup> December, 2018  
Received in revised form  
20<sup>th</sup> January, 2019  
Accepted 14<sup>th</sup> February, 2019  
Published online 30<sup>th</sup> March, 2019

##### Keywords:

Immediate Prosthesis,  
Tumor,  
Laterodeviation,  
Aesthetics,  
Function.

#### ABSTRACT

Treatment of mandibular tumors by surgical procedures often leads to important functional, aesthetic and psychological damages. The role of the dentist is essential in the rehabilitation of the oral cavity after surgery. The removal of tumors in the mandibular zone often generates disorders of the orofacial system and important occlusal-functional alterations. The complexity of prosthetic rehabilitation in these patients lies in the management of all these post-surgical reorganizations of anatomical -biological reorganizations. Because the rules of the conventional prosthesis are insufficient. It is therefore, necessary to develop clever techniques to overcome the clinical difficulties of prosthetic rehabilitation. The aim of this work is to show our own therapeutic approach for the prosthetic management of a patient after surgical resection of her mandibular ramus.

\*Corresponding author: Rimaoui, S.

Copyright © 2019, Rimaoui and Bellemkhannate. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

#### INTRODUCTION

Prosthetic management after the procedure is delicate, especially in patients who do not benefit from a mandibular reconstruction or after failure of the previous surgery (Grellet and Ferrand, 1973). Surgical excision in the mandible leading to major loss of substance, causes significant general impairment of dental occlusion and deformation of the entire mandibular arch which modifies the face contours (Millet, 2015; Rouget, 2014). Indeed, the loss of lateral mandibular substances cause a deviation on the side of the loss of substance, in of the healthy hemi mandibular arch. This laterodeviation causes facial asymmetry and an offset chin on the operated side with significant occlusal disturbances (Schrag *et al.*, 2016; Samrat *et al.*, 2012). Moreover, the patient interprets his illness as a physical decline, accentuated by the achievement of his oral functions such as nutrition and language (Candelle, 2013); it is important then for the dentist to not neglect the psychological aspect in order to obtain the cooperation of the patient.

**Clinical case:** The patient, a 40-year-old woman, comes to the consultation in the department of removable denture, at the Casablanca Dental Consultation and Treatment Center for a global prosthetic rehabilitation of her maxillary and mandibular partial edentulousness. The anamnesis reports a history of mandibular ameloblastoma diagnosed and operated in 2015 by a partial resection of its left mandibular ramus with removal of the left condyle while the coronoid process was kept, the surgery was followed by chemotherapy. The patient was very concerned about the esthetic damage caused by the vestibulo-

version of the incisivo-canine sector and the mandibular laterodeviation caused by the surgical excision of its ascending branch. Extraoral examination reveals an asymmetric face, right jaw depression, left mandibular lateralization, the distal chin on the left resected side and deformity of the facial contour (Fig. 1). The muscular and articular examination reveals the lack of articular noise and a mouth opening deviated from the left side (Fig 2). At rest, we noticed a vestibuloversion of the anterosuperior teeth associated with anterior overbite. The endobuccal examination shows the anterosuperior teeth are projected in fan confirms the anterior overbite; Moreover the strong egression of the 33, 34, 35 and the 26. the anterior mandibular teeth are projected in the middle of the palate. (Fig. 3,4,5,6). Radiological examination Confirms the clinical examination and shows that the left ascending branch is missing too. In addition we found radicular resorption on the 42, 41, 31 and 32 (Fig 7).

**Assessment and therapeutic decision: (Fig 8,9,10):** In order to refurbish a sufficient prosthetic space and build a correct and stable functional occlusal plane.; We decided to first extract the 34, 35 and 26 then, the mandibular incisors and canines. To satisfy the strong aesthetic motivation of the patient and to spare her the experience of tooth loss, we opted for an immediate total prosthesis associated with osteoplasty. Faced with the problem of strong lateral deviation of the mandible, we implemented a double prosthetic corridor on the opposite side to the surgical resection to restore the support jugal. prosthetic achievement sequences: Alginate impressions were taken in the maxilla and mandible. A standard impression tray has been made of maxillary resin. Maxillary secondary impression:



Fig 1. Front view



Fig. 2. View showing the deviation during mouth opening



Intra-oral view Fig 3,4,5,6



Fig. 7. Panoramic X-ray

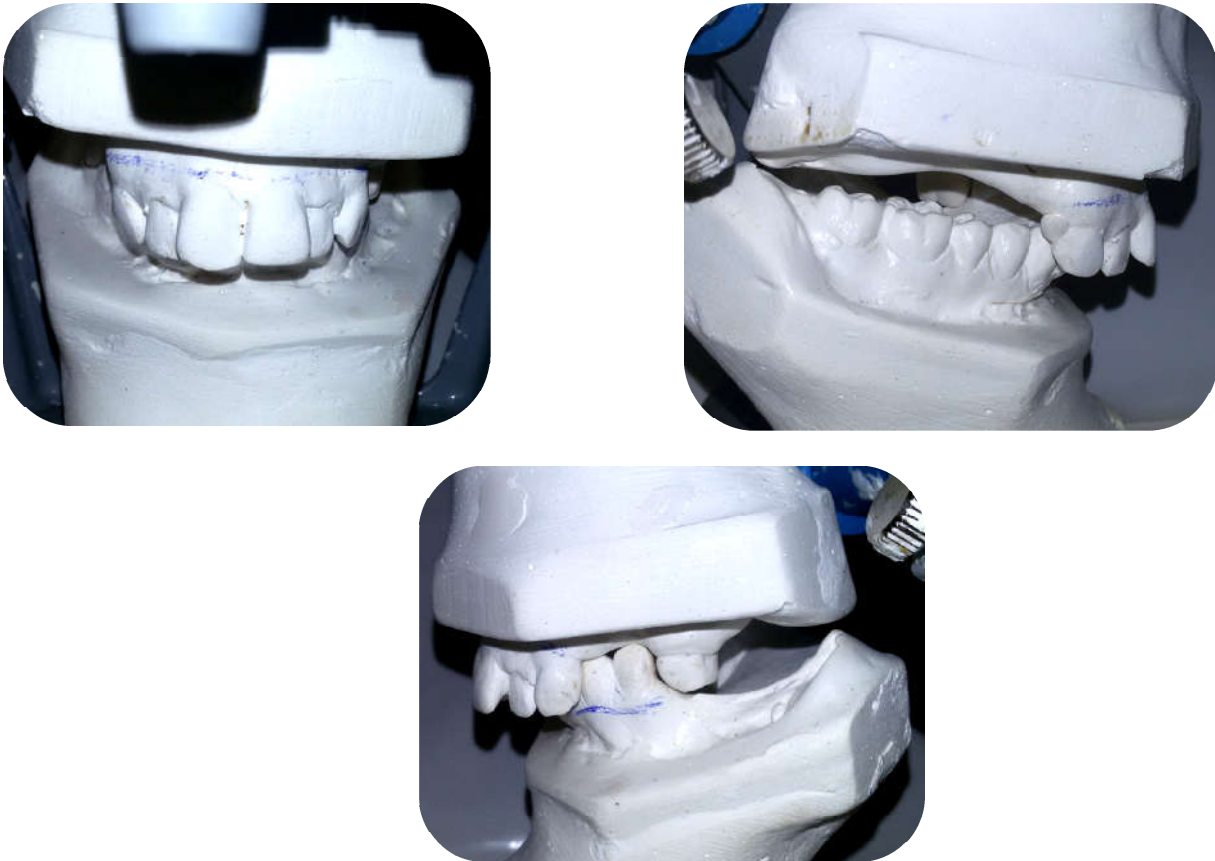


Fig 8,9,10. Study casts transferred on articulator

The individual impression tray has been adjusted and adjusted in the mouth by eliminating any interference then the joints at the posterior level as well as at the level of the edentulous lateral sectors have been recorded using Kerr® thermoplastic paste respecting the rules of a classical complete prosthesis (Fig 11) In the past, a flexible seal has been made using an Impregum® type polyether. (Fig11) The central impression was made with a medium viscosity polysulphide (Permlasticregular®) (Fig 12). Transfer of maxillae on articulator (Fig 13, 14) (Rignon-Bret *et al.*, 2002). The impressions are processed, boxed and cast. Occlusion bases are realized. the maxillary occlusion model is clinically adjusted so as to orient the beads parallel to the Camper plane and the bi-pupillary line thanks to the Fox plan. After we proceeded to the reduction of the anterior teeth on the working model resulting from the anatomo-functional impression. The reduced part is deduced from the ideal clinical estimate of the occlusal plane, we then prolonged the reduction on the posterior segments respecting parallelism. The maxillary model is positioned on the transfer table of a semi-adaptable articulator: the interincisal point of the model t is placed in front of the center of thecross, because we planned to correct the labio-version of the anterior-superior teeth. As a result, the final model is transferred to the articulator, keeping the incisal stem at 0. As one can follow the technique of Rignontbret where it determines a plane of transfer lower than its exact position since the teeth are extruded. the difference is compensated by a temporary "rise" of the articulator rod, returned to its normal position once the secondary model is fixed.

**The maxillo-mandibular relation: (Fig 15, 16, 17):** Because of the very important lateral and anteroposterior displacement of the bone bases, it is obvious that we cannot obtain a normality of the inter-arcade ratio.

The mandible is thus guided in closure in an inter-maxillary position of reiterative convenience the most centered possible. Mounting of maxillary and mandibular teeth: (Fig 18, 19). To solve the problem of the displacement of the bone bases we found it opportune to place a second row of teeth in the palatal position to obtain an occlusion.

- Teeth placed on the toothless maxillary crest will have an aesthetic role (support of the upper lip and smile).
- The row of teeth located at the level of the bony palate in the axis of the mandibular alveolar ridge will ensure the occlusion

#### Final prosthesis: (Fig 20, 21)

- **model preparation:**

#### The surgery is simulated on the plaster model:

- Removing the remaining anterior teeth of the model.
- Correction of the anterior crest by removing vestibular alveolar undercuts
- achieve a rounded finish.
- Make the surgical guide on the modified model.

#### Installation of the anterior teeth:

- The mounting of the anterior teeth is done by correcting the interincisal point.
- the teeth we chose are smaller and lighter by drawing more or less natural teeth of the patient.
- polymerization of the definitive prosthesis.

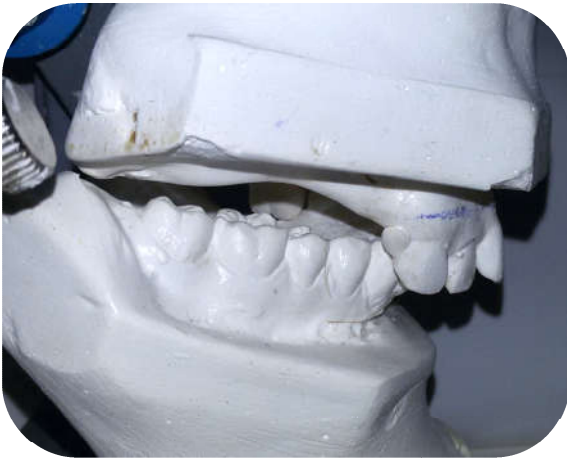


Fig 11. Soft relin with Impregum® and posterior relin with Kerr paste®



Fig 12. Central maxillary impression



Fig 13. Fixing occlusal plane



Fig 14. Distal vertical distance between the ideal intericisal point and Fox plan

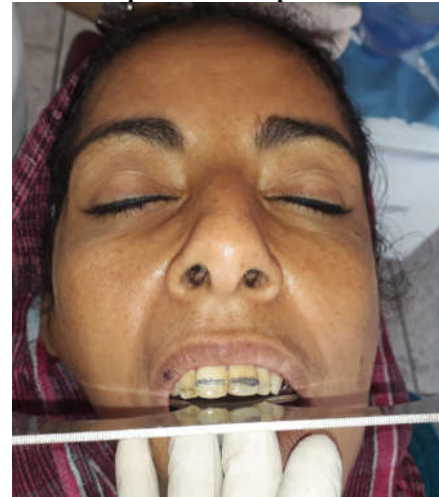


Fig 15,16,17. Inter-maxillary relation



Fig 18,19. Mounting of maxillary and mandibular teeth



Fig 20. Surgical guide



Fig 21. Prosthesis with double corridor

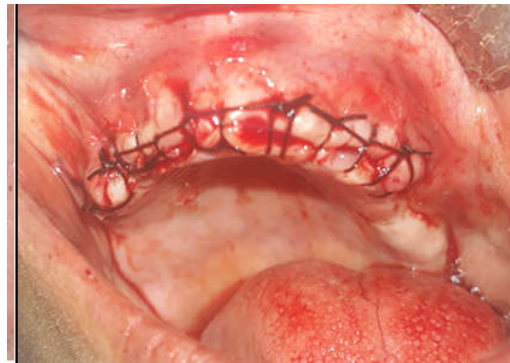
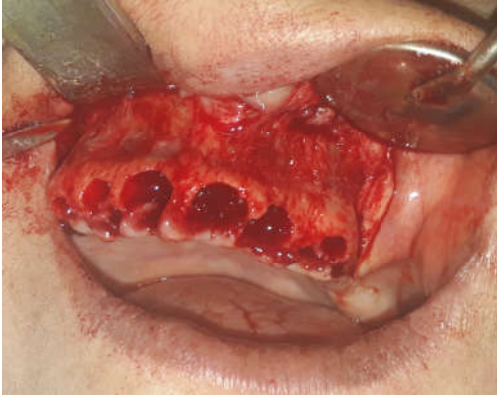


Fig 22,23,24,25. Anterior teeth extractions and bone plasty



Fig 26. Insertion of the presthesis

Fig 27. Occlusal equilibration



Fig 28. Smile of the patiente

**Surgical phase (Fig, 22, 23, 24, 25):** Extraction of maxillary anterosuperior teeth with osteoplasty was performed under local anesthesia and guided by the surgical guide. Immediately after the surgery, the complete removable prosthesis is placed in the mouth, it compresses and guides healing. An ice pack is applied to limit postoperative edema. Postoperative phase: (Fig 26, 27, 28) the patient is forbidden to remove the immediate prosthesis during the first 48 hours. After 48 hours we saw our patient, removed and cleaned the prosthesis and performed a wound debridement we periodically reviewed the patient until a perfect integration of herremovablndentures.

## DISCUSSION

The prosthetic rehabilitation of a patient who has undergone lateral mandibular resection is delicate, the anatomy after the surgery is not always prosperous (Benoist, 1978). After resection surgery, the practitioner is confronted to a disturbed occlusion that is difficult to obtain and a complex laterodeviation to control (Healy and Neagle, 2009). The management then is intricate requiring a strong motivation from the patient. the best solution in order to restore the patients' function, aesthetics and good quality of life is the reconstruction of the loss of substance. There are different types of reconstructions either with autologous bone or with synthetic material (Zakaria-Chuiton, 1996; Hundal, 2014; Samrat *et al.*, 2012). Regarding the case presented in this article, the patient did not benefit from a reconstruction as a result several functions were disrupted: The quality of the chewing is very altered, the very consequent later deviation and the considerable modified inter-dental relations. When our patient came to the dental consultation and treatment center, we immediately thought that her main request was to improve his masticatory efficiency. But her motive was primarily aesthetic. He wished to have a more aesthetic smile and mitigate her open bite. We responded to our patient's request by focusing on aesthetics. The patient initially very satisfied with the result and she adapted perfectly to her prostheses.

## Conclusion

Treatment of traumatic or tumor-induced loss of substance by mandibular lateral resection results in significant morphological and functional changes (Vigarios *et al.*, 2008). Latero deviation is one of the most restrictive modifications. the goal of the dentist is to rehabilitate the patient both functionally and aesthetically. However made prostheses are generally different compared to the conventional ones. The practitioner must also establish an atmosphere of trust and good communication with his patient in order to obtain his full cooperation

## REFERENCES

- Benoist M. 1978. Réhabilitation et prothèse maxillo-faciales. Paris : J. Prélat.
- Candelle C. 2013. Approche bio-psycho-sociale du patient en prothèse maxillo-faciale. Thèse d'exercice : Chirurgie dentaire : Toulouse III.
- Grellet M., Ferrand D. 1973. Séquelles fonctionnelles et esthétiques des hémi-réséquels mandibulaires sans reconstitution. Essai d'appareillage immédiat. *Revue Française de Prothèse Maxillo-Faciale.*, 2(3):169 – 72.
- Healy S.M, Neagle J. 2009. Mandibular Fractures. Division of Oral and Maxillofacial surgery.University of Texas Medical Branch. 30 avril.
- Hundal M. 2014. Interdisciplinary approach toward prosthodontic rehabilitation of a mandibulectomy patient. *Journal of Interdisciplinary Dentistry.*, 4(1):50-4.
- Kori S.S. 2011. Prosthodontic Rehabilitation of a Completely Edentulous Hemimandibulectomised Patient – A Clinical Report. *International Journal of Prosthetic Dentistry.* 2(2):16-8.
- Mankar S., Pakhan A., Thombare R., Godbole S. Twin Occlusion: A. 2012. Prosthetic Management of Hemimandibulectomy Patient—À Case Report. *National Journal of Medical and Dental Research*, 1(1) :19-23.
- Millet C, Ducret M, Ferhat D, Venet L, Vincent, B, Bodard AG. 2015. Perte osseuse mandibulaire interruptrice et prothèse amovible implanto-retendue. *Stratégie prothétique.* 15(2):97-104
- Rignon-Bret C., Rignon-Bret J. 2002 Prothèse amovible complète-Prothèse immédiate- Prothèses supraradiculaire et implantaire décembre
- Rouget M.2014 Mandibulectomies d'origine tumorale : apport de l'odontologiste. Thèse d'exercice : Chirurgie dentaire : Nancy-Metz.
- Samrat M, Ashok P, Ram T, Surekha G. Twin Occlusion: A Prosthetic Management of Hemimandibulectomy Patient - A Case Report. *National Journal of Medical and Dental Research.* 2012; 1(1):19-23.
- Sarazin G, Margainaud J-P, Kolb F. Apport des conformateurs dans les réhabilitations prothétiques après chirurgie carcinologique. *Revue d'Odonto-Stomatologie.* 2009; 38:83-98.
- Schrag C, Chang Y-M, Tsai C-Y, Wei F-C. Complete Rehabilitation of the Mandible Following Segmental Resection. *Journal of Surgical Oncology.* 2006; 94:538–45.
- Vigarios E, Pradines M, Fusaro S, Toulouse E, Pomar P. 2008. Réhabilitation prothétique des pertes de substance mandibulaires d'origine carcinologique. In :Encyclopédie Médico-Chirurgicale, stomatologie [article 28-555, V-10]
- Vigarios E, Pradines M, Fusaro S, Toulouse E, Pomar P. Réhabilitation prothétiques des pertes de substance mandibulaire d'origine carcinologique. *EMC Médecine buccale* 2008 [Article 28-555-V-10].
- Virendra A, Sareen D, Dipti S, Kalpesh V, Shilpa B. Prosthetic Rehabilitation of Edentulous Mandibulectomy Patient: A Case Report. *Journal of Advanced Dental Research.* 2014; 3(1)1:95-9.22. 23. 46.
- Zakaria-Chuiton R. Chirurgie interruptrice latérale mandibulaire : réhabilitation fonctionnelle odontologique. Thèse d'exercice : Chirurgie dentaire : Nantes ; 2010.8. Collège Français de Chirurgie Dermatologique. 17e Séminaire des 11 et 12 Mai 1996.Paris.