



# Correction of a Latero Nasal Cancrum Oris Defect Using the Webster Advancement Flap Technique; a Hypothesis

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## Abstract

**Background:** The destructive facial effects of cancrum oris remain a major problem for surgeons and the patients themselves. Although known since antiquity, the epidemiology, pathophysiology, and etiology of the disease remain a subject of debate. Further research is needed to identify more exactly the causative agents. Only in the twentieth century were effective drugs (sulfonamides and penicillin) against noma developed, as well as adequate surgical treatment for the sequelae of noma. These modes of treatment remain inaccessible for the many present-day victims of noma because of their extreme poverty. The only truly effective approach to the problem of noma throughout the world is prevention, namely, combating the extreme poverty with measures that lead to economic progress. Here, we explore the potential use of a flap technique as a solution to the extensive facial tissue destruction that occurs in Noma.

**Objective:** To propose the Webster advancement flap technique as a possible solution to latero nasal NOMA management.

**Results:** The potential benefits and results of using a flap technique could be the little chances of graft rejection, the good blood supply associated with flaps and the esthetically conserved nature of the procedure. Thus, it could become an alternative to the often radical and inesthetic solution of skin grafts.

**Conclusion:** Surgeons often have to make tough choices in the selection of an appropriate technique when faced with the management of NOMA. Thus, we propose a conservative and esthetic method of going around this problem.

**Keywords:** Noma; Webster Flap

## Introduction

Necrotising ulcerative stomatitis is an orofacial gangrene that mainly occurs in young children [1]. Untreated, it is generally lethal within a few weeks. Patients who survive noma frequently suffer severe sequelae such as facial disfigurement, trismus, oral incontinence and speech problems [2]. It is caused by a combination of malnutrition, debilitation by diseases like measles, and intraoral infections [2]. The global incidence of noma is 140 000 cases, as estimated by the WHO, of which the majority lives in the savannas directly South from the Sahara Desert [2]. There are various classifications based on the location and the severity. The WHO classification based on the severity is as follows [3]:

- A. STAGE I: Acute necrotizing gingivitis stage
- B. STAGE II: Oedema stage
- C. STAGE III: Gangrenous stage
- D. STAGE IV: Scarring stage

E. STAGE V: Sequelae stage

And based on localization: [4]

### Simple clinical forms

- a) Cheek perforations
- b) Commissural destruction
- c) Superior commissurolabial mutilation
- d) Inferior commissurolabial mutilation
- e) Superomedian labial amputation
- f) Inferomedian labial amputation

### More extensive forms

- a. Jugomasseteric mutilation
- b. Labiomental amputation

- c. Labionasal mutilation
- d. Labiomaxilloseptocolumellar amputation.

**Complex forms**

- a. Lateral hemifacial lesion
- b. Labiopalatal amputation
- c. Labiogeniomandibular mutilation

These classifications are the most widely used for both the diagnosis and the prognosis of NOMA cases.

**Background**

The destructive effects of cancrum oris or NOMA remain debilitating and can be psychologically damaging for the individuals

affected. We go by the hypothesis that various techniques can be used for the reconstructive surgery of these patients. Surgical rehabilitation of noma sequelae is directed at the functional and cosmetic improvement of the face. The basic principle is to release the trismus or ankylosis and to replace lost tissue by transferring local tissue flaps and, when the loss is substantial, from other parts of the body [5]. One of the flap techniques is the Webster advancement flap technique which uses the adjacent jaw tissues for the recovery of lost tissue. Here, we discuss a case of NOMA and propose the Webster advancement flap technique as a solution.

**Objective**

To propose the Webster advancement flap technique as a possible solution to latero nasal NOMA management (Figures 1 & 2).

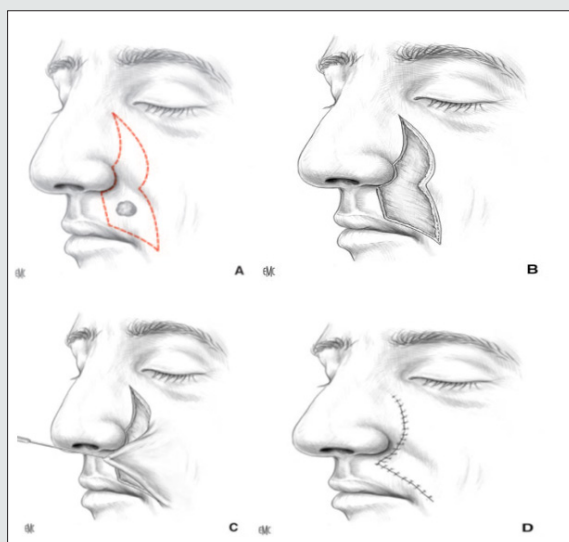


Figure 1: A, B, C, D Webster advancement flap.

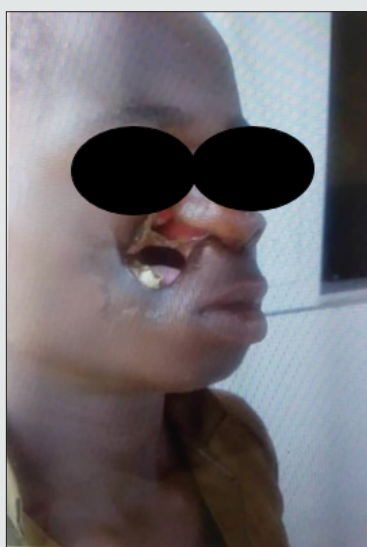


Figure 2: Latero nasal NOMA.

## Discussion

The treatment plan of NOMA depends on the severity of the facial destruction and include multiple surgical techniques such as tissue grafts, facial flaps and esthetic artificial prosthesis [3]. The social impact of surgical rehabilitation is rewarding with better chances for education, employment and marriage after surgery [1]. Tissue grafts remain the most extensively used reconstruction techniques due to the ease and availability of tissue from other parts of the body [3]. These result in good functional recuperations of the

patients [3]. However, the esthetics aspect of these techniques is often very unsatisfactory as tissues taken from other parts of the body are not always similar to those of the facial region [6] (Figure 3) where massive defect of the palate, lips, cheek, and nose in a 10-year-old boy with mandibular constriction was reconstructed with a latissimus dorsi musculocutaneous free flap vascularized by the facial artery. Part of the flap was used to line the oral cavity. This can have psychologically damaging effects for the self-esteem of the concerned children and thus compromise their quality of life.



**Figure 3:** (Left) Massive defect of the palate, lips, cheek, and nose in a 10-year-old boy with mandibular constriction. (Right) Postoperative result after latissimus dorsi musculocutaneous free flap vascularized by the facial artery. Part of the flap was used to line the oral cavity [4].

With the advancement in esthetic surgery techniques and medicine in general, better post-surgical renditions are expected from surgeons by patients with an emphasis on the esthetic aspect of the surgeries [7]. We therefore propose the Webster advancement flap which is a conservative surgical procedure which relies on the use of adjacent jaw tissues to repair the loss of tissue. This method is based on the principle that the best form of reconstruction comes from tissue that most closely resembles the tissue being replaced-in this case, the cheek [4]. Because of the lack of excess skin in the areas between the lip and nose, many reconstructions for this area use medial jaw advancement [4]. To correct the maxillary bone defect, a scapula transplant can be used as it proves to be resourceful in the restoration of the maxilla [8]. The nasolabial fold provides color- and texture-matched tissue to the upper and lower lips. An excellent blood supply based on the facial arteries and a natural-appearing scar at the donor site reinforces this flap as a useful adjunct [4]. Webster advancement flap is a useful technique for defects of the upper lip that require musculocutaneous advancement from adjacent cheek tissue. Simple advancement would cause bunching at the perialar folds. This excision is essentially an elliptical excision with the upper part shifted laterally to avoid the nostril. The perialar skin may be preserved as a caudally based flap to reconstruct columellar or nostril floor defects [4].

## Conflict Of Interest

All the authors do not have any possible conflicts of interest.

## Conclusion

There are many difficulties faced by surgeons for the reconstruction of NOMA tissue defects and this is reflected in the complexity of the decision-making on what therapies to use for the tissue reconstruction. The decision-making must also take into account the esthetics of the facial region as many patients lay much emphasis on this aspect of the surgery. We thus propose a more efficient and esthetic reconstruction procedure which can greatly help provide better outcomes.

## References

1. Srour ML, Marck K, Baratti Mayer D (2017) Noma: Overview of a Neglected Disease and Human Rights Violation. *Am J Trop Med Hyg* 96(2): 268-274.
2. Marck KW (2003) Cancrum oris and noma: some etymological and historical remarks. *Br J Plast Surg* 56(6): 524-529.
3. (2017) World Health Organization. Regional Office for Africa. Poster for early detection and management of noma. Brazzaville: WHO, Regional Office for Africa.
4. Montandon D, Lehmann C, Chami N (1991) The Surgical Treatment of Noma. *Plast Reconstr Surg* 87(1): 76-86.

5. Farley ES, Amirtharajah M, Winters RD, Taiwo AO, Oyemakinde MJ, Fotso A, et al (2020) Outcomes at 18 mo of 37 noma (cancrum oris) cases surgically treated at the Noma Children's Hospital, Sokoto, Nigeria. *Trans R Soc Trop Med Hyg* 114(11): 812-819.
6. Adeniyi S, Taiwo A, Ibikunle A, Braimah R, Gbotolorun O, Ogbeide M, et al. (2017) Pattern of tissue destruction among patients diagnosed with cancrum oris (Noma) at a Northwestern Nigerian Hospital, Sokoto. *Saudi J Oral Sci* 4(2): 101-105.
7. Agbara R, Fometeb B, Omejec KU, Obiadazieb AC, Ajikeb SO (2018) Treatment of complications following orofacial gangrenous infection in a resource limited setting: Experiences and a proposed classification. *Egypt J Ear Nose Throat Allied Sci* 19(2): 58-63.
8. Vinzenz K, Holle J, Würinger E (2008) Reconstruction of the Maxilla with Prefabricated Scapular Flaps in Noma Patients. *Plast Reconstr Surg* 121(6): 1964-1973.

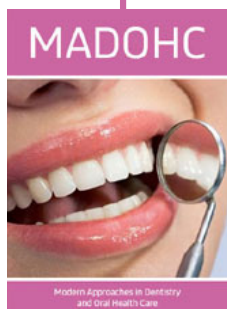


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