

## Cervicofacial Defect Reconstruction Using Deltopectoral Flap

Hicham Sabani<sup>1\*</sup>, Keith M'FA<sup>2</sup>, Asmaa Moujahid<sup>2</sup>, Hugues Buckat<sup>2</sup>, Ayoub Bakhil<sup>2</sup>, Nawfal EL Hafidi<sup>2</sup>, Lahcen Khalfi<sup>2</sup>, Jalal Hamama<sup>2</sup> and Karim EL Khatib<sup>2</sup>

<sup>1</sup>Department of Plastic and Maxillofacial Surgery, Mohammed V Military Hospital, Hassan II University, Casablanca, Morocco

<sup>2</sup>Department of Plastic and Maxillofacial Surgery, Mohammed V Military Hospital, Mohammed V University, Rabat, Morocco

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\*Corresponding author: Hicham Sabani

### Abstract

### Case Report

The management of face and neck defects has always been a difficult challenge, which tests the maxillofacial surgeons' ability to decide which therapeutic option is suitable for *each individual patient*, and which tools are to be used to guarantee an optimum management of the patient. We report the case of a patient with recurrent basal cell carcinoma of the chin area. Reconstruction of the large defect after tumor resection was successfully performed by a deltopectoral flap. We believe that this old flap can be a contemporary and effective answer, to difficult question of reconstruction of large defects of face and neck, especially in patients who may be exposed to certain risks relating to long-lasting anesthesia.

**Keywords:** Deltopectoral flap, pedicled flaps, head and neck defects, reconstruction.

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## INTRODUCTION

Reconstruction of defects in the face and neck has always been an extremely demanding challenge due to their anatomical complexity, with many vital structures located superficially.

Several methods for face and neck reconstruction are available. Ideal selection of reconstructive options is based on several factors, which are related to individual patients, surgical defect, their anatomy, surgeon expertise, and reconstructive goals [1].

We report a clinical case of a massive tissue defect of lower face and anterior neck, successfully treated with a deltopectoral (DP) flap. This case clearly illustrates the usefulness of the DP flap in select clinical situations encountered by today's maxillofacial surgeon.

## CASE REPORT

We describe a 65-years-old man, previous smoker suffering from chronic obstructive pulmonary disease, and with a history of basal cell carcinoma of chin resected in 2017. Five months ago, he developed a tumor recurrence.

Extraoral examination revealed an ulcerated lesion in the chin, with involvement of the underlying tissues. The CT scan did not show any bony invasion of

the mandible. Biopsy confirmed the diagnosis of recurrent basal cell carcinoma.

Treatment plan devised was excision of involved tissues with 1 cm margins along, with segmental mandibulectomy, and reconstruction of tissues defect with deltopectoral flap. Patient was consented and surgery was performed.



**Fig-1: Operative view conventional design based on a Deltopectoral flap.**



**Fig-2: Large defect of the lower face and anterior neck, after tumor resection, measuring approx. 15 cm × 13 cm**



**Fig-5: Inset of the flap into the lower face and anterior neck defects**

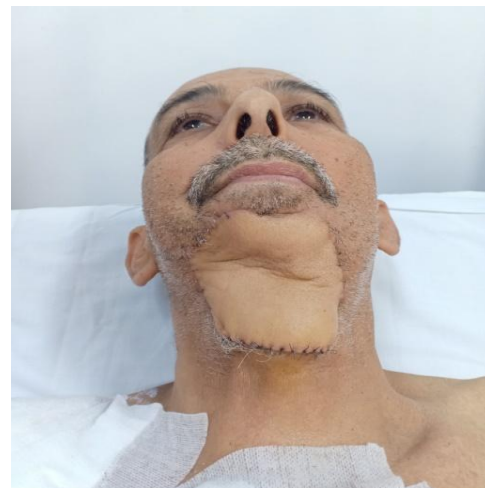


**Fig-3: Deltopectoral flap was elevated from distal to proximal.**



**Fig-4: The fascia overlying the deltoid and pectoral major muscle was included in the flap, and the second perforating branches of the internal mammary artery was identified**

The DP flap was then detached from the chest after a period of three weeks. He did not develop any post-operative complications such as necrosis of the flap. Acceptable functional and aesthetic results were achieved. Postoperative histopathology report showed no malignancy in any of the surgical margins.



**Fig-6: Satisfactory reconstruction was achieved after takedown of the flap (two weeks postoperatively).**

## DISCUSSION

Reconstruction of face and neck defects after tumor excision is an extremely vast and complicated subject. Although microvascular free flaps are a popular choice for head and neck reconstruction, some pedicled flaps, such as the deltopectoral flap, have proven to be a useful and effective option even in the era of microsurgery [2].

In 1965 Bakamjian [3] first described a two-stage DP flap, based on perforators of the internal mammary artery, for pharyngoesophageal reconstruction. Since that date, several modifications to the original technique, including a vertical split, tangential split, and deepithelialization of portion of flap for tunneling have been described [4].

In fact, The DP flap is an axial fasciocutaneous flap of the deltoid and pectoral regions, based on the perforating branches of the internal mammary artery, mainly on the second, but also on the first and eventually on the third intercostal spaces [5].

The operative technique for raising the DP flap did not change since Bakamjian's description in 1965. A superior incision is made below the clavicle, and an inferior incision is made at the level of the fourth intercostal space [6]. Elevation of the flap is performed from distal to proximal and should end at least 2 cm lateral to the sternal margin in order to protect vessels and blood supply to the skin paddle [7]. The fascia overlying the deltoid and pectoral major muscle should be included in the flap. An important donor area can be closed mainly with no esthetic deformity and minimal morbidity, after mobilisation of the surrounding tissues, and the remaining area can be skin grafted.

For this patient we had the possibility of reconstructing the defect of the lower face and the anterior area of the neck, after removal of the tumor, by a microvascular flap given that the local conditions were good (This patient has never been irradiated before), but he was suffering from chronic obstructive pulmonary disease, and he could not support a long-lasting anesthesia. For this reason, we opted for a DP flap which have allowed us to successfully reconstruct the defect, during a significantly reduced surgical time, and therefore to avoid complications related to long-lasting anesthesia.

The DP flap has proved to be a very useful flap for reconstruction of the face and neck defects in difficult conditions, especially in patients who are not ideal candidates for free flap reconstruction. The DP flap is thin, pliant, very reliable and provides an excellent color and texture match with the face and neck. On the other hand, It 's technically easier and much faster to harvest, and does not require microvascular experience. Its only disadvantage seems to be the need to process the pedicle three weeks after the primary surgery [8, 9]. Skin grafting to the donor site is not always necessary.

## CONCLUSION

Although the spectacular development of free flaps has radically changed the reconstruction of the face and neck, the deltopectoral flap still maintains a

privileged place among the reconstructive tools for this region, especially in difficult situations.

This is mainly due to its technical simplicity, high reliability, thinness, pliability, large size and time-saving. This case highlights the role of deltopectoral flap as an alternate to free flaps in face and neck reconstructions.

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