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Carcinoma of the upper lip- case report and review of the literature

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ABSTRACT

Aim: Carcinoma of the upper lip is less frequent than in the lower lip. It affects both sexes in equal proportion. Histologically basal cell carcinomas are numerically preponderant and are observed in 50% of cases in the skin and adnexae in the oro-facial area.

Methods: The authors describe a major defect of the right upper lip after a wide resection for carcinoma. Immediate reconstruction was performed with rotation of a flap from the lower lip according to Estlander. The postoperative oral deformity persisted after radiotherapy and during the subsequent follow up. At a later stage, and after radiotherapy, two lipostructure procedures improved the volumetric, soft tissue texture and functional outcomes. The combination of these techniques yielded a satisfactory morpho-functional result maintaining symmetry, function and aesthetics in the orofacial and in the labial-commissure area.

Conclusion: A clinical case of right upper lip basocellular carcinoma is reported. Resection and immediate reconstruction with a flap rotation from the lower lip flap according to Estlander, were carried out. During the follow-up lipostructure procedures improved volumes, functions, morphology and soft tissue texture as well.


Keywords: upper lip carcinoma, TNM, lip resection, combined rotation and advancement flaps, upper lip reconstruction, radiotherapy, lipostructure, regenerative medicine

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Introduction

Carcinoma of the upper lip is less frequent than in the lower lip. It affects both sexes in equal proportion. From a histological point of view, basal cell carcinomas are largely prevalent and originate in 50 percent of cases in the skin and adnexae. Carcinoma of the upper lip has a faster growth than that of the lower lip and a greater tendency to be invasive. It appears in many cases as a substantial swelling that tends to spread both superficially and in depth with a usually painless progression. Cancer of the lip may result in locoregional metastases with a lower and later frequency compared to other regions of the oral cavity. It should also be noted that often in patients with epithelial cancers of the lips, there is some locoregional lymphadenitis of inflammatory nature. Indeed, the percentage of metastatic cells in swollen laterocervical lymphonodes is observed only in approximately 60% of the cases. Patients undergoing a resection of the upper lip (often after the removal of a basal cell carcinoma) generally have wide soft tissue defects. Large defects of the upper and lower lips are often reconstructed with Estlander or Abbe rotation flaps.^[1] These flaps are full thickness with involvement of skin, muscle and mucosa for the whole extension of the flap.^[2,3] The Estlander operation consists of a tumor removal involving a V shape full-thickness resection of the labial commissure and the lateral part of the upper lip. The loss of substance, which must not exceed two thirds of the lip, is reconstructed using a triangular flap with medial base, mirroring the defect to be filled, carved on the outer third of the lower lip and turned upwards. The technique is useful in the surgical treatment of lateral tumors of the upper lip and the commissure, the resection of which involves a loss of substance not exceeding 2/3 of the lip itself. The limit of the technique in cases of extensive loss of substance is the determination of a microstomia that would not be advantageous from a functional or aesthetic point of view. From a technical point of view the resection provides a

lateral full-thickness removal of the upper lip, triangular in form with apex on top, extending to the commissure. The skin incision is an inverted V with the apex toward the nasal ala. Particularly, the medial branch of the incision also involves the vermilion, while the lateral branch descends further down the cheek to include excision of the labial commissure. The incision of the intraoral mucosa should perfectly correspond to the skin to allow proceeding with a full-thickness section of the muscle layer while paying particular attention to the coronary artery of the lip. Once the excision is performed, the reconstructive phase requires the preparation of a lateral triangular flap of the lower lip with the upper base and apex at the level of the chin-labial sulcus. The flap thus obtained is pivoted up 180° to fill the loss of substance in the upper lip. The closure of the donor area is carried out by a suture in layers with direct juxtaposition of the edges of the section of the sample area of the flap. The oral deformity can be extended and remodeled at a later stage by plastic surgery and reshaping of the commissure^[4]. In this clinical case the excision of a basocellular carcinoma of the lateral third of the upper lip with involvement of the internal mucosa is described. A full-thickness resection and reconstruction with a classic Estlander flap from the lower lip became necessary. Subsequently lipostructure was used to obtain volumetric recovery of the oral-perioral commissure shape. The use of autologous grafts of adipose tissue to correct facial defects was described for the first time in the literature by Neuber in 1893.^[5] In recent years new concepts have been developed leading to the creation of an adequate technique with established indications and predictable results. Indeed, this was due to the research and experience of Dr. Sydney Coleman who in 1997 had systematized and refined the technique.^[6,7,8] Adipose tissue has the advantages to be biocompatible, easily attainable in large quantities, having a low morbidity unlike many alloplastic materials which often cause foreign body reaction.^[9,10] Today, lipostructure is indicated for the correction of localized soft

tissue atrophy, radiodermatitis, tumor and post-traumatic deformities, soft tissue remodeling in congenital craniofacial surgery, sequelae of radiation therapy, scars and burns.^[11,12,13,14] Recent studies have demonstrated that adipose tissue contains the highest percentage of stem cells compared to other tissues of the body with angiogenic and anti-apoptotic capacity.^[15,16,17]

The reconstruction is completed with a suture in multiple layers between the free margins of the flap and those of the resected portion. Fat grafting is an excellent tool in cranio maxillo

facial surgery as it allows natural and long-lasting results. Lipostructure acts not only as a filler, but it also regenerates the surrounding tissue, showing new vascularization and real structural soft tissue changes. How adipose tissue is able to cause these changes is not yet clear. More studies and research on this topic and on the role of stem cells are still necessary aiming at expansion of clinical applications. Lipostructure should be part of the armamentarium of each maxillofacial-plastic surgeon and should be included in the modern reconstructive protocols.^[18,19,20]

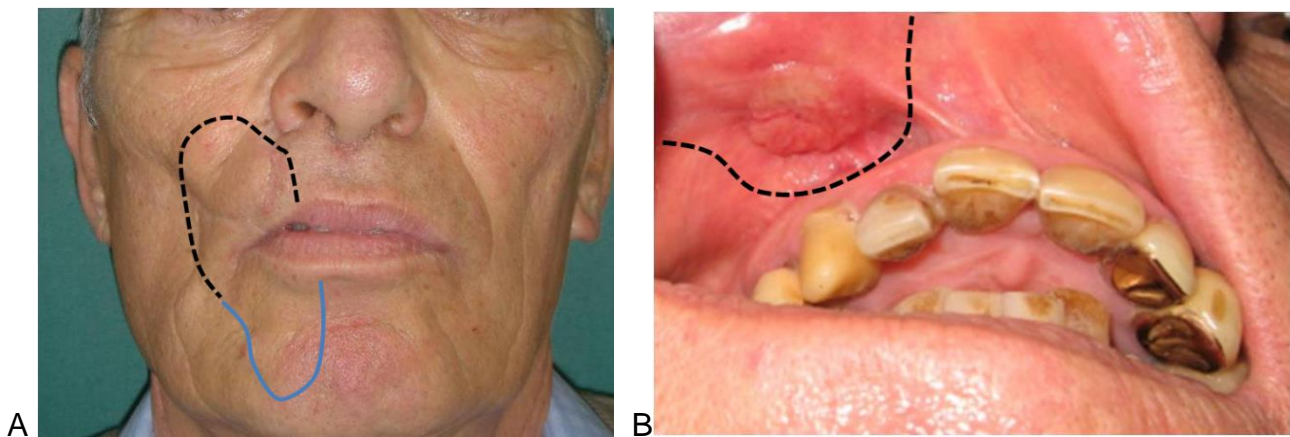


Figure 1 A, B. Carcinoma of the right upper lip. Limits of the resection :dotted line extra-intraoral (A),solid line :rotation flap from the lower lip (B)



Figure 2 Resection of the upper lip carcinoma. Drawing of the rotation flap from the lower lip-prolabium according to Estlander

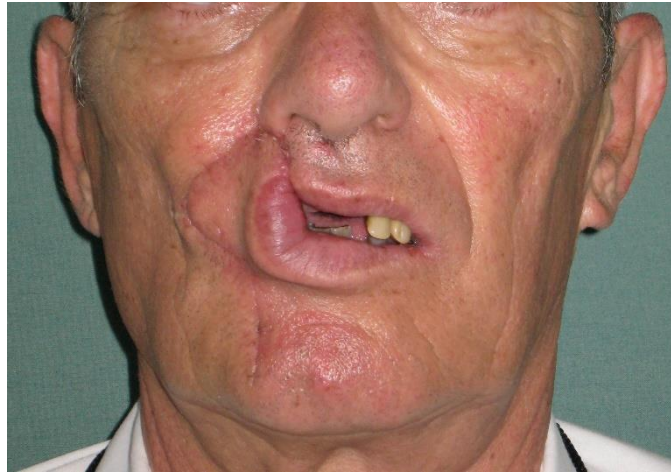


Figure 3 The patient four weeks after surgery and before surgical remodeling of the flap.

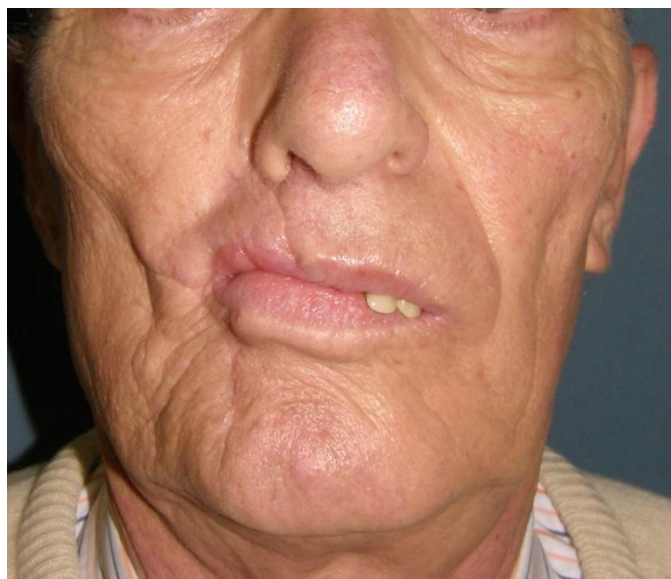


Figure 4 After radiotherapy and flap remodeling with creation of a new commissure. The deformity of the commissure and of the perioral and cheek areas are still evident



Figure 5 The patient after tumor resection, Estlander flap reconstruction, radiotherapy, remodeling and final volumetric reconstruction and regeneration with lipostructure. More touch ups are planned in the future

Materials and Methods - Case report

A 50-year-old male presented at our Unit with a lesion of the right upper lip that he had for about ten years. Over the years, the lesion had been removed several times. The histological diagnosis was basal cell carcinoma. The patient had this neoformation of the upper lip, at the site of previous surgeries, for about five years. Quick growth of the lesion was observed in recent months. Local examination showed outcomes of previous surgeries to the right part of the upper lip and a non-painful swelling of hard consistency of about 2 cm in diameter on both superficial and deep palpation. The mucosa of the upper lip corresponding to such tumor swelling appeared dystrophic (Figures 1 A, B). There was no lymphadenopathy palpable at the lymphonodes in the neck, confirmed by ultrasound assessment. Stage was: T2 N0 M0. Surgery to remove the tumor was therefore planned. A full-thickness cutaneous mucosal incision of the lateral portion of the upper right part of the lip at the level of the labial commissure with upper extension was done creating a full thickness flap including the tumor (Figure 2). Delimitation of the lower reconstruction flap was performed on the right ipsilateral lower lip, Estlander operation, rotated about 70° to repair the upper post-resection defect (Figure 3). Suture in layers of the mucosal layer, suture of the labial muscles, and suture of the cutaneous region were carried out. The postoperative course of the patient was normal. Three days after the surgery he was discharged in good clinical condition. Histological examination diagnosed "nodular basal cell carcinoma". The patient was also subsequently evaluated by the oncologist and radiotherapy was planned. The protocol included adjuvant radiotherapy on the right region of the upper lip, 50 Gy in 25 fractions. The patient continued the clinical follow-up at our Center. The opening of his nasal cavity was reduced with incompetence at the level of the right labial commissure. The mobility of the upper lip appeared satisfactory. Once the first phase of reconstruction was completed (Figure 4) and

after radiotherapy, a first lipostructure procedure was proposed to restore soft tissue trophism and to promote regeneration in the regions previously treated (Figure 5). In lipostructure the fat is usually harvested from the abdomen or flanks. After centrifugation to eliminate the oily and bloody components, the pure fat is then injected into the reconstructed areas with the use of special cannulas. In this patient in the first procedure 35 cc of adipose tissue was harvested. After centrifugation, 24 cc of concentrated adipocytes were injected. A second lipostructure procedure was planned six months later. At the last clinical evaluation, the conditions of the patient were satisfactory with no signs of local relapse. Extrinsic motility, function, and sensitivity of the upper lip were quite normal and the symmetry of the right nose-lip region compared to the left one was also quite well preserved.

Results and Discussion

The approach and management of carcinomas of the upper lip is in relation to the tumor location, histology degree of invasiveness and TNM classification. The oral and perioral region is an area of great aesthetic, morphological and functional impact. Surgery in this region can lead to severe deformities with soft tissue incompetence. In reconstruction one of the most used techniques is the Estlander flap. This type of flap results in an acceptable final result, even if sometimes can be difficult maintaining morphology and function of the commissure, with residual deformities. The authors report a clinical case in which the resection and reconstruction according to Estlander were followed by volumetric restoration with two lipostructure procedures. In this case the combination of different reconstructive strategies have allowed a satisfactory functional and morphological recovery with rehabilitation of this complex facial- and perioral area.

DECLARATIONS

Authors' Contributions: Andrea Edoardo Bianchi and Luigi Clauser designed the clinical data and research; Luigi Clauser performed

surgical treatments and samples collection; Luigi Clauser and Riccardo Luoni Orsi prepared the article.

Availability of data and materials

Not applicable

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None

Conflicts of interest

All Authors declared that there are no conflicts of interest

Ethical approval and consent to participate

Not applicable

Consent for publication

Written informed consent was obtained for all patient images.

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