

The use of sternocleidomastoid flap in tonsil neoplasms

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ABSTRACT

Introduction: The palatine tonsil is one of the most common locations of oropharyngeal cancer. In the early stages T1, T2 and selected cases T3 the transoral surgical approach is preferred.

Case presentation: We present the case of a 42 years old patient, who underwent the surgical removal of malignant tumor located at the level of the right tonsil extended to the soft palate, retromolar trigone and hypopharynx, through combined approach followed by modified radical neck dissection. The postablative defect was reconstructed using a rotated musculo-cutaneous flap from the sternocleidomastoid muscle located on the same side as the lesion.

Results: Postoperative controls performed at 1.2 and 3 months did not reveal signs of local recurrence, and demonstrated the viability of the used flap.

Conclusions: Although contested in the literature, the SCM musculocutaneous flap is a viable and easy method for the reconstruction of the medium-sized pharyngeal defects.

Key words: sternocleidomastoid, flap, pharynx, reconstruction

BACKGROUND

One of the most common locations of oropharyngeal cancer is the palatine tonsil (1). The most common signs and symptoms are: pharyngeal discomfort, dysphagia, sore throat, isolated otalgia, dysphagia associated with unilateral otalgia, cervical lymphadenopathy (originally with preserved mobility, then it becomes fixed) (2).

As in the other cancers of the head and neck there are three treatment options available: surgery of the primary tumour and neck dissection, surgery combined with radiation or radiochemotherapy or primary radiochemotherapy.

In T1, T2 and selected T3 stages transoral surgery can be performed. In most of the cases no reconstructive procedures must be done because healing occurs by granulation that is followed by epithelisation (1). Other ways of surgically approaching tonsil neoplasms are through mandibulotomy or segmental

mandibulectomy (if the mandible is invaded by the tumour).

Although transoral surgery usually needs no reconstruction of the post-ablative defect in some cases the oropharynx must be reconstructed with autologous material. The reconstruction can be made with skin flaps or musculocutaneous flaps, enabling patients to achieve appropriate restoration of oral function (3).

The aim of this paper is to present a reconstructive procedure of the oral defect by using a pediculated, myocutaneous sternocleidomastoid flap harvested from the same side as the lesion. In the preparation of this surgery we took into account that the sternocleidomastoid muscle is irrigated by multiple arterial sources in each part as it follows: the superior one by the occipital artery, the middle by branches of the superior thyroid artery, external carotid artery or both of them and the inferior one by branches of the suprascapular artery, the transverse cervical artery, the thyrocervical trunk or the superficial cervical artery (4, 5, 6).

CASE REPORT

We present the case of a 42 years old male, smoker for 10 years, withdrawal for 3 years, occasional alcohol consumer, who presented to the Institute of Phonoaudiology and Functional ENT Surgery "Prof. Dr. Dorin Hociotă" for an enlarged, level II, lymph node on the right side of the neck. The lymph node had increased progressively over a period of three months, and was the only complaint reported by the patient.

Palpation of the neck revealed multiple enlarged lymph nodes located at levels Ia, Ib, II and III. The nasopharyngo-laryngeal endoscopic examination performed at admission, highlighted an exofitic tumor at the level of the right tonsil extended to the soft palate, retromolar trigone, to the inferior limit of the right torus tubarius, and right hypopharynx, a mild septal deviation and inferior turbinates hypertrophy.

A biopsy was performed at the level of the right tonsil; two weeks later the result was: invasive squamous keratinized epidermoid carcinoma.

The MRI scan showed a large tumor 45/48/55 mm at the level of the right tonsillar fossa, with the superior level located immediately under the right torus tubarius, the inferior margin at the level of the retromolar trigone, extending over the anterior border of the glosopalatine arch and to the soft palate. The in depth view revealed that the tumor was tangent to the internal pterygoid muscle without infiltrating it and was located at a distance of several millimetres from the common carotid artery.

Also an enlarged lymph node, of 32/22 mm, was compressing the internal jugular vein, completely stopping the blood flow through this vessel. The parotid and submandibular glands on this side were apparently disease free.

With patient's informed consent, a combined approach, endoscopically assisted transoral and external, was used in order to remove the tumor and its extensions. The resection, centered on the tumor located in the right tonsillar fossa, was extended to the right half of the soft palate, to the posterior part of the torus tubarius, to the retromolar trigone and to the right part of the hypopharynx. The internal jugular vein was ligated and resected. This procedure was completed with a modified radical neck dissection on the right side. As a result of this resection, a large muco-muscular defect was present.

In order to close the defect, a musculo-cutaneous flap was needed. Looking back at our experience in closing a hypopharyngeal defect with the use of a musculo-cutaneous flap from the sternocleidomastoid muscle located on the same side with the lesion a similar flap was created (6). The skin was incised on the posterior border of the sternocleidomastoid muscle, and a rhomboid skin flap was created on the inferior part of the muscle (*figure 1*). Then the muscle was resected from its inferior border, subcutaneously dissected for the remaining part and rotated with the overlying skin facing the pharyngeal lumen (*figure 2, 3*). The superior and middle vascular pedicles were kept, in order to maintain the flap blood supply. The skin was sutured to the adjacent mucosa forming a watertight pharyngeal lumen (*figure 4*).

An active drainage tube was placed in the right laterocervical space. A nasogastric tube was also inserted.



Figure 1

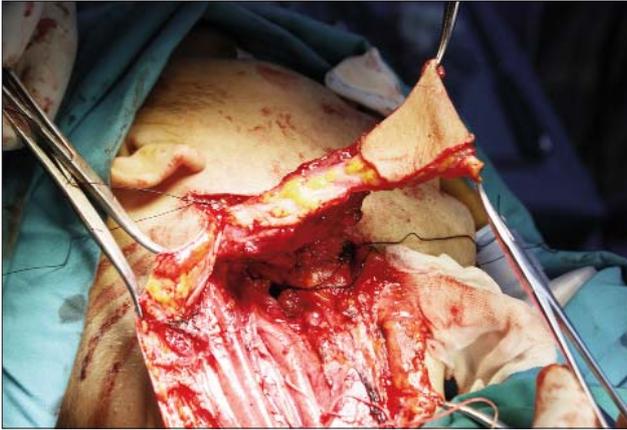


Figure 2



Figure 3



Figure 4

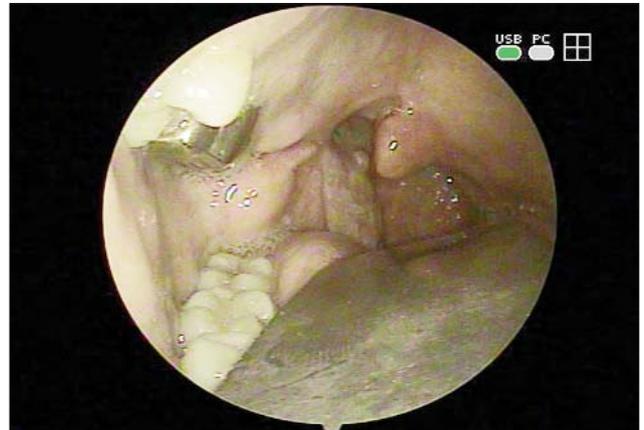


Figure 5

RESULTS

The drainage tube was removed 5 days after surgery, and the nasogastric feeding tube 14 days after surgery. Six weeks after surgery the patient started radiotherapy. The follow up exams, performed at one, two and three months after surgery showed no sign of tumoral recurrence and confirmed the viability of the sternocleidomastoid flap (Fig. 5, 6).

CONCLUSIONS

Although the myocutaneous sternocleidomastoid flap is contested in the literature for its low viability, we consider that by following a simple rule, that of maintaining the middle and superior pedicle when creating the flap, will provide a simple and efficient way of reconstructing the lateral wall of the pharynx.

In our own experience, this flap can be used to reconstruct not only the oropharynx but also the

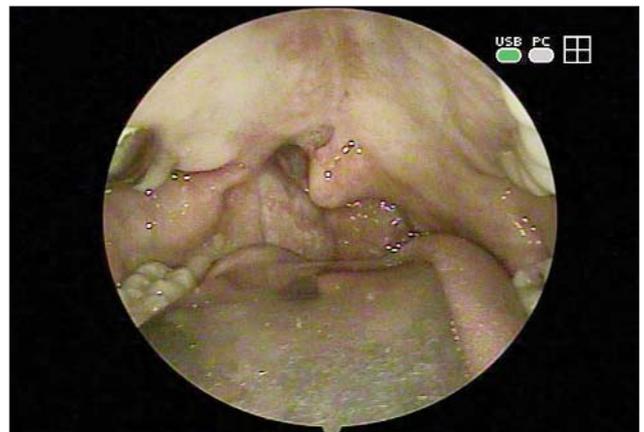


Figure 6

hypopharynx, its main limitation being the small size obtained after maintaining both pedicles (middle and superior).

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