

P

S S
 S S
 S S
 S S
 S S

Case Report

Plastic Surgery

**ABSTRACT:**

Introduction: Primary squamous cell carcinoma of the parotid gland PSSC is composed of epidermoid cells which produce keratin, it's a rare an aggressive malignancy, represents the 12 % of oral and pharyngeal cancer, and less than 1% of all salivary gland neoplasms. The various reconstructive options available for resurfacing of this region range from split thickness grafts and ultrathin flaps to local or free flaps to cover the facial region.

Case report: 79 old female with parotid squamous cell carcinoma treated with supra-neural parotidectomy and adjuvant radiotherapy, a year later presents a cutaneous recurrence of the primary tumor with a lesion who underwent reconstruction with supraclavicular four years after the surgery the patient is disease free and with excellent esthetics results.

Discussion and conclusions: The supraclavicular artery flap is easy to reproduce, relatively easy to harvest, low rate of complications and a reliably for complex defects following parotid surgery.

Key words: Supraclavicular flap, face reconstruction, wide excision, parotid squamous cell adenocarcinoma.

Introduction

Primary squamous cell carcinoma of the parotid gland PSSC is composed of epidermoid cells, which produce keratin; it's a rare an aggressive malignancy, represents the 12 % of oral and pharyngeal cancer, and less than 1% of all salivary gland neoplasms. (1) 80% of cases arise in the parotid gland, while the rest can be found in the submandibular gland, and sublingual gland is a highly unusual place of occurrence. (2) They occurred more often in men at an average annual incidence rate of 1 - 41 cases per 100,000 males than in women at 1-00, and a mean age of presentation 64 years (1). Patients typically present in an advanced stage with rapidly enlarging mass around the angle of the mandible, often accompanied by cervical lymphadenopathy and facial nerve involvement. (1) (2) Fine needle aspiration cytology is the preferred initial investigation in tumors of major salivary glands. Cytological features of PSSC are similar to squamous cell carcinoma arising anywhere in the body. However, cytology alone cannot differentiate primary from metastasis squamous cell carcinoma. Histopathologically, most tumors are moderately to well-differentiated squamous cell carcinoma with desmoplastic stroma and evidence of perineural invasion of soft tissue extension. (2) The treatment includes total parotidectomy with elective radical neck dissection, post-operative radiotherapy, and periodic follow up. Cutaneous recurrences can be

reconstructive options available for resurfacing of this region range from split thickness grafts and ultrathin flaps to local or free flaps in the facial region. (3) The supraclavicular flap is a local, perforant pedicled fasciocutaneous flap with a reliable axial pattern, based on the supraclavicular artery, with applications in head and neck reconstruction,

We present the case of a case of a 79 old female with parotid squamous cell carcinoma treated with supra-neural parotidectomy and adjuvant radiotherapy, a year later presents a cutaneous recurrence of the primary tumor with a lesion who underwent reconstruction with supraclavicular four years after the surgery the patient is disease free and with excellent aesthetics results. (4)

Case report

79 years old female, past medical history a of hypertension of 30 years of evolution, in treatment with losartan and nifedipine, diagnosed with squamous cell adenocarcinoma of the parotid, primarily treated with supra-neural parotidectomy in august 2017, and adjuvant radiotherapy 33 session with 66 greys, in May of 2018, the patient notice a depressed skin lesion with irregular bords (figure 1), in the right cheek, so biopsy was performed, histopathological reported squamous cell



Figure 1. Depressed lesion with irregular borders prior to wide resection.



Figure 2. Resection of the buccinator muscle. Trans surgical skin defect 11x7 cm.

adenocarcinoma of parotid that infiltrates pre-parotid area of the skin, for this reason, it is schedule to perform surgical exploration, trans- surgical decision was wide excision, it was necessary the resection of buccinator muscle due tumoral infiltration, the orbicular muscle was free of lesion, leaving a skin defect of 11x 7 cm (figure 2), reconstructive decision was to realize a supraclavicular artery flap, in the distal part of the shoulder a 14x 8 cm elliptical shape was drawn, the flap is raised form distal region including fascia, periosteum of the clavicle was preserved and began with carefully dissection to secure vascular pedicle, limits of the dissection was the superior border of the clavicle and the posterior border of base the sternocleidomastoid muscle and external jugular vein (figure 3), tunneling access was performed with supra platysmal dissection in the lower y lateral neck, deepithelialized the proximal region of the flap, and then rotating the flap and adjust it to the defect, (figure 4), donor site was primarily closed. Total surgical time was 03:20 hours; harvesting the flap took 46 min. The histopathological study reported a squamous cell adenocarcinoma well differentiated, with surgical limits free of lesion. The flap was evaluated every 30 min the first 2 days, then every hour the next 3 days, the evolution of the flap was favorable on day 6 (figure 5). Hospital discharge was ordered prior to evaluation by the oncology department. The follow up of the patient was every 3 months during the first year; then every 6 months in the next 2 years, with no clinical recurrence, the patient was satisfied with aesthetic results.

Discussion

Parotid surgery defects create a different set of reconstructive challenges; the aim of reconstruction is not merely filling up defects. But it includes functional and aesthetic restoration of tridimensional structures. (3) It's important to take account of the aesthetic units

and provide an appropriately thin flap to restore both form and function. Supra clavicular artery flap is a fascio-cutaneous flap based on the supraclavicular artery, a branch of the transverse cervical artery. The supraclavicular artery, is a versatile, easy to harvest, with good cosmetic and functional outcomes at both ends (recipient and donor) for reconstructing head and neck oncologic defects. (5) Told in 1923 was the first to illustrate and name the vessels arteria cervicalis superficial, which originated as a branch of the thyrocervical trunk. In 1949, Kazanjian and converse performed the first clinical application of a flap from the shoulder ("charretera" or acromial flap) (6). There are many options at the time to perform a reconstruction in the face, autologous, or alien tissues. The wide use of facial allotransplantation, it's still hindered by availability of transplants, need in life-long immunosuppressive therapy, ethical issues etc. small defects in the face can be easily repaired by using conventional techniques like skin grafting or local flaps with sufficiently good results, whereas gross disfigurements require transfer of ample number of tissues, number operations and still fall short from the ideal. The main goals of facial reconstruction include restoration of acceptable appearance to achieve positive impact on self-confidence and social interaction. Main causes of facial disfigurement include mechanical and burn trauma and defects after tumor resection. The skin in the supraclavicular area reproduces similar features including color, texture, hair distribution and thickness to those in the head and neck region (7). For a rapid and precise flap, when elevation of the flap is perform it is important to consider the arterial flow patron and origin of the supraclavicular artery, it begins at middle or lateral third of the clavicle area with an axial pattern and gradually alters into a random pattern after passing through the clavicle. (8) The skill of the surgeon allows the flap preparation and primary focus



Figure 3. Rise of the flap with preservation of the supraclavicular pedicle.

resection to be completed without changes in body position. This prevents damage to the muscles and motor nerves of the shoulder and has a minimal impact on the function of the donor site. (9)

Kevin S Emerick et al, in a retrospective review realized in the department of head and neck surgical oncology and reconstruction in Massachusetts, which includes 46 patients who underwent reconstructions with supraclavicular artery flap, found out that the resection was performed for advanced cutaneous malignant tumors in 10 patients, primary salivary gland malignant tumor in 4 patients, and chronic infection and mastoid cutaneous fistula in 2 patients. All defects were complex, involving multiple subtypes; 5 patients underwent facial nerve resection and 4 had previous radiation therapy. No complete flap loss occurred; nevertheless, only one partial flap loss occurred, and one minor distal tip loss. The average flap island size was 7.2 x 10.3 cm. No major complications occurred. Two minor reconstruction site complications and 3 donor site seromas were described. (10) Niels Kokot et al. In a case series review made in the department of otolaryngology- Head and Neck surgery in the university of southern California, includes 22 that were reconstructed with supraclavicular artery flap, for defects of the cervical skin (n=10), face (n=8) and temporal bone (n=4) were reconstructed, mean flap dimensions were 6.1 cm (range, 5-7 cm) wide and 21.8 cm (range, 16.28cm) long. Minor donor site dehiscence occurred in 3 patients; partial flap necrosis



Figure 4. Rotation, tunneling and adjustment of the flap in the defect.

occurred in 2 patients, while 1 patient had complete loss of the skin paddle. There was no statistical correlation between the flap necrosis and flap length ($P=0.3, \chi^2$) or defect location ($P=0.3, \chi^2$). (11). Nythumba in a series of reports from 349 cases of reconstruction with a supraclavicular artery flap report the complete necrosis rate as 1.4% and partial necrosis rate as 6.9%. Moreover, the supraclavicular artery flap can be directly pulled and sutured, resulting in a hidden scar. Depending on the skill of the surgeon, it can take 40 to 60 min to obtain the flap (12) (13). In this case the harvesting of the flap took 46 min. When compared to radial forearm free flap, supraclavicular artery flap provides thin skin paddle suitable for reconstruction of upper and anterior neck area (14), also exhibited favorable functional and aesthetic results in our patient, without any complain about the appearance or movement of the neck during the follow-up period.

Conclusion

The importance of the appropriate flap selection for defects located in the face depends on the size of the defect, and the neuro-muscular functions compromised by the tumor or the resection. The supraclavicular artery flap is easy to reproduce, relatively easy to harvest, and can be accomplished in less than 1 hour; and reliably for complex defects



Figure 5. 6 days post op picture. Showing adequate flap status.

following parotid surgery, the skin, thin, pliable and an excellent color match for neck and facial defects. The length of the flap is sufficient to reach many defects in different head and neck locations.

Conflicts of interest

There was no conflict of interest during the study.

Acknowledgements

We want to thank to the department of investigation in our hospital, for assisting us in this labor.

References

1. Lewis JE OKSecIBLEJRPSDe. World Health Organization classification of tumours. 2456th ed.: Pathology and genetics of head and neck tumours. Lyon: IARC Press, ; 2005.
2. Cheuk W CJ. Salivary gland tumours. In: Fletcher CDM. 2nd ed. :287–303 , editor. Philadelphia: Churchill Livingstone,; ed. Diagnostic histopathology of tumours. ; 2000.
3. Cha YH NWCIKH. Revisiting radial forearm free flap for successful venous drainage. *Maxillofac Plast Reconstr Surg.* (2017) ;(39:14).
4. Kokot N MKRLPGSU. The supraclavicular artery island flap in head and neck reconstruction: applications and limitations.. *JAMA Otolaryngol Head Neck Surg.* 2013 ; 139(11):1247-55. (doi: 10.1001/jamaoto.2013.5057. PMID: 24158458).
5. H. D. Gillies. "The tubed pedicle in plastic surgery,,". *The Journal of Laryngology and Otology.* 1983; vol. 38, (pp. 503–503).
6. V.H.KazanjanandJ.Converse. *The Surgical Treatment of Facial Injuries.* , Williams & Wilkins, Baltimore, Md., 1949..
7. Su T PFR. Versatility of supraclavicular artery island flap in head and neck reconstruction of vessel-depleted and difficult necks.. *J Oral Maxillofac Surg.* (2013) ; 71:(622–627).

8. Ross RJ BCSRLMAM. The anatomical basis for improving the reliability of the supraclavicular flap. *J Plast Reconstr Aesthet Surg.* (2014); 67:(198–204).
9. Sandu K MPPP. Supraclavicular flap in head and neck reconstruction: experience in 50 consecutive patients. *Eur Arch Otorhinolaryngol.* 2012; 269:1261–7. (<https://doi.org/10.1007/s00405-011-1754-0>).
10. Emerick KS HMLDSFDD. Supraclavicular artery island flap for reconstruction of complex parotidectomy, lateral skull base, and total auriclectomy defects. *JAMA Otolaryngol Head Neck Surg.* 2014 ; 140(9):861-6. (doi: 10.1001/jamaoto.2014.1394).
11. Kokot N MKRLPGSU. Use of the supraclavicular artery island flap for reconstruction of cervicofacial defects.. *Otolaryngol Head Neck Surg.* 2014 ; 50(2):222-8. (doi: 10.1177/0194599813514205.).
12. Kozin ED ea. Comparison of perioperative outcomes between the supraclavicular artery island flap and fasciocutaneous free flap.. *Otolaryngol Head Neck Surg.* 2016; 154:66–72. (<https://doi.org/10.1177/0194599815607345>).
13. PM. N. The supraclavicular artery flap: a versatile flap for neck and orofacial reconstruction.. *J Oral Maxillofac Surg.* 2012; 1997–2004. (<https://doi.org/10.1016/j.joms.2011.08.043>).
14. Lee Y HK. Skin thickness of Korean adults.. *Surg Radiol Anat.* (2002); 24: (183–189).

Juan Pablo Landeros Ruiz
General Surgery Department
Hospital Regional Valentín Gómez Farías
Instituto de Seguridad y Servicios Sociales
de los Trabajadores del Estado (ISSSTE)
Jalisco, Mexico
jp_landeros@hotmail.com