

Supraclavicular Flap Reconstruction for Skin Defect after Huge Parotid Region Lesion - Case Report

Dr. Muhammad Saleem Iqbal¹; Dr. Zafar Ali Choudry² (Professor); Dr. Mussarat Haider³; Dr. Faisal Bilal Lodhi⁴ (Professor)

Dr. Sadia Riaz⁵; Dr. Arsalan⁶; Dr. Asghar⁷; Dr. Isha Nasar⁸

¹Senior Registrar Department of Surgery, Allied Hospital Faisalabad, Pakistan

²Vice Chancellor, Faisalabad Medical University Faisalabad, Pakistan

³Senior Women Medical Officer, Allied Hospital Faisalabad, Pakistan

⁴Head of Surgery Department & Principal Punjab Medical College Faisalabad, Pakistan

⁵Postgraduate Surgery Resident, Allied Hospital Faisalabad, Pakistan

Abstract:- Parotid carcinoma is not an uncommon pathology. Sometimes delays in patient presentation may lead to challenges for surgical options. Because of the location of the parotid and its close relationship with the facial nerve, a limited number of options are available for managing large tumors. We operated on a case with a huge ulcerative lesion on the left side of the face and the facial defect was covered with a supraclavicular flap. Postoperative results were very convincing.

➤ Key Points

- **Immediate reconstruction of facial defect after excising a large parotid tumor improved patient satisfaction**
- **For volume restoration after huge parotid tumor excision, supraclavicular artery island flap is good option.**

Keywords:- Parotid Tumour ,Supra-Clavicular Flap, Reconstruction.

I. INTRODUCTION

Parotid gland is common site of benign and malignant tumors. Parotid gland has 2 parts superficial lobe and deep lobe. Both parts are separated by facial nerve. Approximately 90 % of tumors arises in superficial lobe of parotid gland. Because of its location surgery on parotid gland poses a challenge especially when patient presents with huge swelling. Excision with immediate reconstruction have good outcome and improves patient satisfaction as compared to delayed reconstruction. Regional flaps are available for this purpose.

Once tumor is removed, remaining defect must be analyzed. For large benign tumors sternocleidomastoid muscle flap can be used. For small defects or defect located anterior-superiorly, superficial muscular aponeurotic system or temporoparietal flaps can be utilized. If excision of tumor leaves a large defect which require tissue bulk for coverage axial flap such as supraclavicular artery island flap are used. If after radical surgery, mandibulectomy is also performed, anterolateral thigh flap is commonly used option.

II. CASE PRESENTATION

➤ History :

A 55-year-old man presented with a 20-year history of swelling in left parotid region. Patient was in usual state of health 20 years back, he noticed a swelling in left lower cheek which was painless. Initially it was of the size of pea and was painless. It progressively increased in size with no history of facial nerve involvement. From 06 months swelling increased rapidly in size, and from 2 months it is ulcerated and started bleeding to touch. There was no history of voice change, painful swallowing, difficulty in swallowing, or constitutional symptoms. There was no history of any associated aural/ nasal symptoms and any neoadjuvant therapy/surgical intervention. Patient visited multiple time in different setups for this growth. No history of is there. **Local Examination:** About 8x8 cm ulcerated mass involving lower half of left cheek extending to left submandibular region. Margins everted, and bleeding to touch. Mass appeared to fixed with underlying muscles and overlying skin. It was non pulsatile. Facial nerve intact. No submental, submandibular or cervical lymph nodes palpable bilaterally (**Fig:1**). **Pre-operative Histopathology:** Ulcer Edge biopsy revealed it to be poorly differentiated adenocarcinoma (**Fig:2**). **MRI face & neck with contrast:** Findings were ill defined lobulated heterogenous mass involving left cheek in buccal space causing large superficial soft tissue mass extending from left infra parotid region till upper part of neck at level of glottis. Mass shows heterogenous soft tissue intensity area anteriorly and cystic area in posterior part of lesion. Mass involving left posterior part of mandible and extending in floor of mouth. It is extending posteriorly in left parapharyngeal space. Carotid vessels displaced medially by mass. Likely differential includes SSC (**Fig:3**). **Surgical technique:** After proper optimization of patient surgery was performed under general anesthesia with the patients in supine position and head tilted to the opposite side. Left total parotidectomy with facial nerve preservation and closure with supraclavicular island flap was carried out successfully. Supraclavicular flap was taken and rotated anteriorly to be sutured by 3-0 Vicryl interrupted sutures to the remnants of the parotid fascia. Suction drain was placed deep to flap. Defect site of flap was covered with a split skin graft. The postoperative period was uneventful. The drain was removed on the 3rd postoperative day and patient was discharged from hospital after three days

inpatient stay. The facial nerve was intact upon subsequent follow-up visit with no evidence of recurrence seen to date. Postoperative recovery was uneventful. Postoperative

histopathology was carcinoma Ex Pleomorphic adenoma - widely invasive salivary duct adenocarcinoma. Patient was referred to oncology center for further treatment.



Fig 1 Pre-Operative Views Large Ulcerative Growth in Left Parotid Area

VIEW: 10-Oct-2022 09:49:25		Histopathology Report		Page 1
Dept Ref# :	001HIS22071172	Ordered by		
MRNO :	001-80004346814	In-house Consultant		
Name :	M ISLAM	Report Destination	Collection Centre - 68	
Age/Sex :	52 Year(s)/Male	Requested	30-SEP-2022 12:23:12	
Phone :	92 0300 7983880	Specimen Received	20-SEP-2022 19:24:51	
		Reported	09-OCT-2022 21:29:34	
Specimen Nature: EDGE BIOPSY				
Specimen Site: NOT STATED				
History: Non-healing ulcer from last 7 months, ulcer edge biopsy taken.				
Gross: Specimen container is labeled with the patient's name and medical record number. Received in formalin is a single skin with subcutaneous tissue. The overlying skin measures 16 x 15 mm. Skin shows ulceration measures 15 x 14 mm. The subcutaneous tissue measures 16 x 15 x 3 mm. Slicing reveals a gray white firm lesion measures 16 x 14 x 3 mm. Distance from the peripheral resection margin is 1 mm and from nearest deep resection margin is 1 mm. The entire specimen is submitted as follows:- A) Ulcerated skin; B) Lesion with peripheral resection margin, ink red and deep resection margin, ink black. (Gross assisted by: Nazia Nawaz)				
Micro: Sections reveal tissue fragment lined by ulcerated keratinized squamous epithelium. Subepithelial tissue shows a malignant tumor arranged in nests. Tumor cells exhibit enlarged nuclei, prominent nucleoli and eosinophilic cytoplasm. Brsk mitosis also noted.				
IMMUNO/HISTOCHEMICAL STAIN(S):				
CK7:	Positive			
Gata3:	Positive			
p63:	Negative			
Mammaglobin:	Negative			
Mucicarmine:	Negative			
Adipophilin:	Negative			
AR:	Negative			
Diagnosis: SITE NOT STATED, EDGE BIOPSY: Poorly differentiated adenocarcinoma most likely skin appendiceal origin, edge biopsy (see note). Tumor involves resection margin.				

Fig 2 Ulcer Edge Biopsy

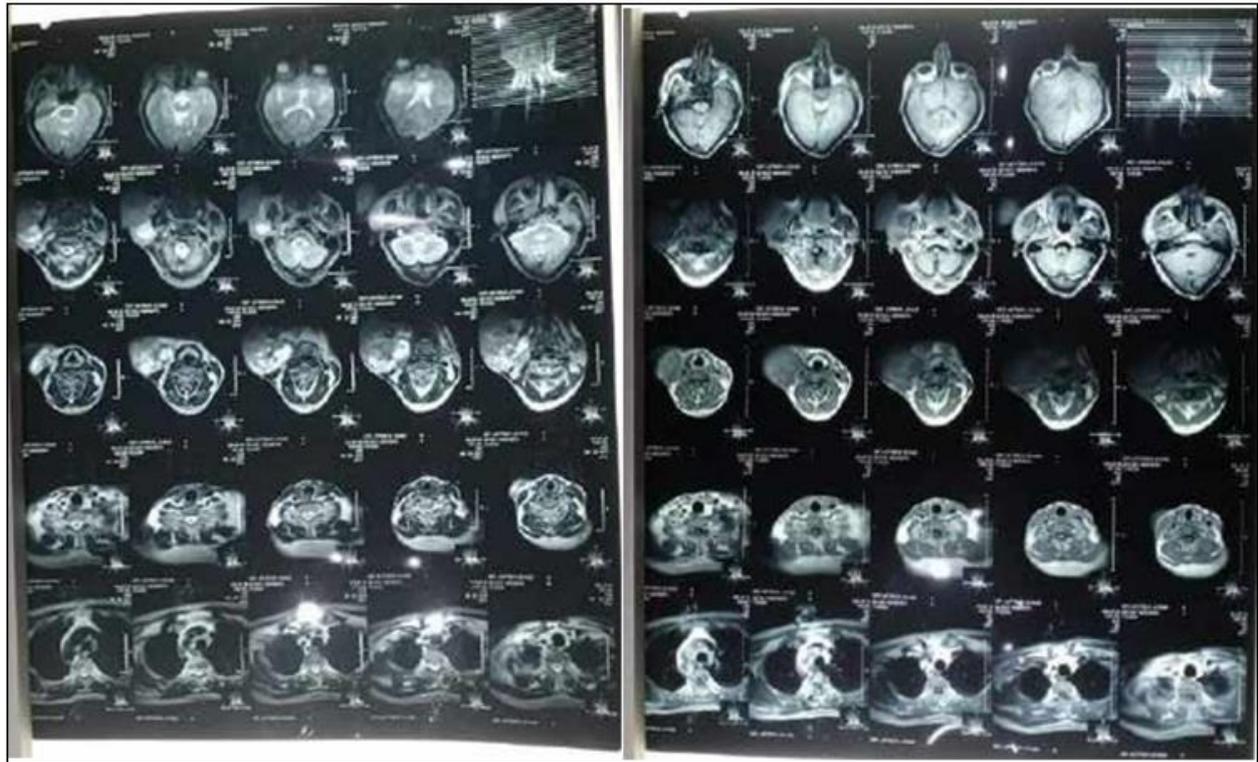


Fig 3 MRI Face & Neck with Contrast



Fig 4 Pre-Operative Marking



Fig 5 Intraoperative View Excision with Flap Closure and Grafting



Fig 6 Postoperative Recovery Room Views

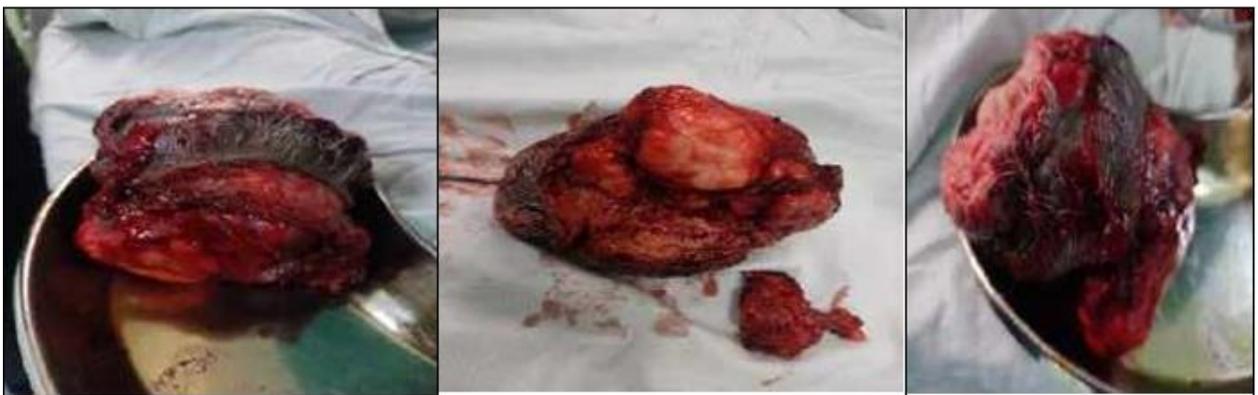


Fig 7 Excised Specimen Different Views



Fig 8 5th Postoperative Day Views



Fig 9 Postoperative 3rd Week Views



Fig 10 Final Comparison of Preoperative & Postoperative Outcome

Shaukat Khanum Memorial Cancer Hospital & Research Centre
 Jinnah Town, Lahore, Pakistan - Phone: +92-42-35905000, 311-355-555, Fax: 042-35945109
 Email: info@skh.com.pk Website: www.shaukatkhanum.org.pk

Department of Pathology

Page 1

Histopathology Report

Specimen Nature: **LEFT PAROTIDECTOMY**
 Specimen Site: **LEFT SIDE OF PAROTID**

History: Left sided ulcerated parotid, small sample is from the base of lesion involving masseter muscle.

Gross: Specimen container is labeled with the patient's name and medical record number. Received in formalin is an unoriented mass measuring 110 x 120 x 90 mm. Overlying skin measuring 20 x 100 mm. Skin shows extensive tumor ulceration. Serial slicing reveals a tan white myxoid lobulated tumor measuring 120 x 100 x 80 mm present within 1 mm of peripheral margin. There is separately present tissue piece measuring 50 x 40 x 30 mm. Serial slicing reveals soft to firm tan white multilobulated tumor within 1 mm of peripheral margin. Representative sections are taken and submitted as follows:-
 A) Representative section from largest nearest deep margin, inked black; B) Section from nearest peripheral margin, inked green; C-E) Representative section from tumor; F) Section from separately present tissue piece with nearest inked resection margin, inked black; G) Representative section from 2nd tissue piece.
 (Gross, assisted by: Sehrish Kamran).

Micro: Procedure: Total parotidectomy
 Tumor Site: Parotid
 Tumor Laterality: Left
 Tumor Focality: Unifocal
 Specimen Size: 120 x 110 x 90 mm
 Histologic Type: Carcinoma ex-pleomorphic adenoma, widely invasive salivary duct carcinoma

Tumor Extension: Tumor invades skin
 Margins: See note
 Lymphovascular Invasion: Absent
 Perineural Invasion: Absent
 Regional Lymph Nodes: Not applicable

Pathologic Stage Classification (pTNM, AJCC 8th Edition):
 TNM Descriptors:

KNAWAJA SAJID NUSHTAQ DR.
 Consultant Pathologist

ANUM SHAHID DR.

Electronically verified by no signature(s) required.

Dr. Asif Iqbal MBS, DAB (C) and Cytopathology (FAC)	Dr. Sajid Mushtaq MBS, FRCPS, FRCPath	Dr. Muhammad Tariq Zahid MBS, DAB (AFIP and Hematopathology)	Dr. Mudassar Hussain MBS, FRCPS (Hematopathology)	Dr. Usman Hassan MBS, FRCPS, FRCPath
Dr. Asad Hyyat Ahmad MBS, DAB (CP) and Hematopathology	Dr. Maryam Hameed MBS, FRCPath	Dr. Umar Nisar Sheikh MBS, DAB (AFIP, CP, Cytopathology)		

Fig 11 Histopathology Report

III. DISCUSSION

Salivary gland neoplasms may be benign or malignant tumors. Pleomorphic adenoma is the most common benign tumor of the parotid gland, which usually manifests as a slow-growing, painless swelling. It manifests between 3rd and 5th decade of life usually in female.^{1,2} It is treated by surgical excision. Over the decades, unoperated Pleomorphic adenoma may transform into Carcinoma.

Approximately 6.2% of Pleomorphic adenoma (benign mixed tumors) harbor malignancy and are known as malignant mixed tumors. Factors contributing to malignant transformation among others include gigantic tumor size, advancing age, long duration of mass, and history of previous radiation. Patients are mostly diagnosed in the sixth or seventh decade of life.^{3,4}

Carcinoma arising from a primary or recurrent benign pleomorphic adenoma often poses a diagnostic challenge to clinicians and pathologists. Pathologists need to report the malignant tumortype, differentiation, and degree of invasion as it impacts prognosis and therapy.

Surgery is the mainstay of treatment for Parotid tumors. Type of surgery depends upon tumour extent, its aggressiveness, and its relation to facial nerve involvement. Removing of larger tumors needs special attention as far as defect closure is considered.

After tumor resection, the defect is measured. Most of reconstructions can be performed with an SCM muscle flap with or without freeze-dried acellular human dermis. Local fascia flaps including the superficial muscular aponeurotic system (SMAS) and the temporoparietal fascia (TPF) flap are used in small contour abnormalities or anterior or superior defects that cannot be reached with the SCM muscle flap. Larger defects requiring significant tissue bulk, as after radical parotidectomy, are best reconstructed with axial flaps, such as the supraclavicular artery island (SAI) flap. The anterolateral thigh (ALT) free flap is the most commonly used free tissue flap and is generally reserved for radical defects involving mandibulectomy^{3,5}. In our case, incision had to be modified from the usual modified Blair incision because of the extent of tumors. Because defect was quite large so reconstruction was carried out by using supraclavicular artery island flap.

IV. CONCLUSION

Immediate reconstruction of facial defect after excising a large parotid tumor improves patient satisfaction. For volume restoration after huge parotid tumor excision, supraclavicular artery island flap is good option.

➤ *Conflict of Interest:*

No conflicts of interest.

➤ *Ethics Statement:*

Ethical review and approval were not required for the study on human participants in accordance with the local

legislation and institutional requirements. The patient provided written informed consent to participate in this study & for use of their medical history and radiological images in this paper.

REFERENCES

- [1]. Bailey BJ, Johnson JT. Bailey's head and neck surgery-otolaryngology. 5th ed. In: Rosen CA, Johnson JT, editors. Wolters Kluwer Health/Lippincott Williams & Wilkins; 2014. p.692-694.
- [2]. Xie S, Yang H, Bredell M, Shen S, Yang H, Jin L, Zhang S. Salivary duct carcinoma of the parotid gland: A case report and review of the literature. *Oncol Lett.* 2015 Jan;9(1):371- 374. doi: 10.3892/ol.2014.2655. Epub 2014 Oct 31. PMID: 25435994; PMCID: PMC4246609.
- [3]. Luna MA. Salivary glands. In: Pilch BZ, editor. Head and neck surgical pathology. Philadelphia: Lippincott Williams & Wilkins; 2001. pp. 284–349.
- [4]. Horn-Ross PL, Ljung BM, Morrow M. Environmental factors and the risk of salivary gland cancer. *Epidemiology.* (1997) 8:414–9. doi: 10.1097/00001648-199707000-00011
- [5]. Aremu, S. (2018) Adenoid Cystic Carcinoma of Parotid Salivary Gland—A Case Study. *Case Reports in Clinical Medicine,* 7, 576-581. doi: 10.4236/crcm.2018.711052.
- [6]. Dhanasekar, K., Kapadia, H., Neilaj, S. et al. Melon-sized Parotid Pleomorphic Adenoma—A Case Report. *Indian J Otolaryngol Head Neck Surg* 74 (Suppl 3), 5391–5394 (2022). <https://doi.org/10.1007/s12070-021-02660-3>
- [7]. Lüers J-C, Wittekindt C, Streppel M, Guntinas-Lichius O (2009) Carcinoma ex pleomorphic adenoma of the parotid gland study and implications for diagnostics and therapy. *Acta Oncologica,* 48(1): 132–136
- [8]. *Head and Neck Cancer"* , Springer Nature, 2016 Publication
- [9]. Jain, S, S Hasan, N Vyas, N Shah, and S Dalal. "Pleomorphic adenoma of the parotid gland: Report of a case with review of literature" , *Ethiopian Journal of Health Sciences,* 2015. Publication
- [10]. "Salivary Gland Pathology" , Wiley, 2015 Publication
- [11]. Leslie E. Irvine, Babak Larian, Babak Azizzadeh. "Locoregional Parotid Reconstruction" , *Otolaryngologic Clinics of North America,* 2016 Publication
- [12]. Tilakaratne, W.M.. "Epithelial salivary tumors in Sri Lanka: A retrospective study of 713 cases" , *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontology,* 200907