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An Uncommon Cancer of Parotid: Squamous Cell Histology

Janki Choudhary[1], Diptajit Paul[2],Geetanand Rao[1], Ashok Chauhan[3],Vivek Kaushal[4]
Junior Resident
Senior Resident
Senior Professor and Unit Head
Senior Professor and Head of Department
Department of Radiation Oncology, Pt. B. D. Sharma PGIMS, Rohtak

Abstract:- Primary squamous cell carcinoma (SCC) of the parotid glandis a rare malignancy with less than 1% of all salivary gland neoplasm. This case reports described a 75-year-old male presented with painless swelling in front of right ear for 6-month duration which revealed as a parotid mass in imaging. Superficial parotidectomy with ipsilatera lMRND was done. Histopathology report confirmed the mass as SCC of parotid gland. Post-operative external beam radiation was given to prevent recurrence. Patient is doing well and on regular follow-up for last 24-months. Our case showed the high chance of recurrence in SCC of parotid can be prevented by post-operative radiation. More research is needed to conclude a universal guideline of management for this rare malignancy and also the role of chemotherapy if any in SCC of parotid gland.

Keywords:- Squamous cell carcinoma; parotid gland cancer, superficial parotidectomy, external beam radiation.

I. INTRODUCTION

Squamous cell carcinoma (SCC) of parotid gland is a rare malignancy. Incidence is reported to be less than 1% of all salivary gland neoplasm.[1] It usually presents in the sixth or seventh decades of life with a male dominance pattern. It is aggressive and rapidly advancing tumor having a high morbidity and mortality. However, early diagnosis and prompt treatment can achieve complete remission in very few cases. We are reporting an uncommon case of SCC of parotid gland and probing the literature.

II. CASE SUMMARY

A 75-year-old non-diabetic, non-hypertensive male presented with a 6-month old history of painless swelling in front of right ear, which was insidious in onset and gradually progressive in size. Patient was a chronic smoker and alcoholic with a history of significant sun exposure throughout his life. He had a history of right upper eyelid Meibomian gland tumor 2-year back and underwent excision for the same. There was no history of difficulty in swallowing, hoarseness of voice, cough and hemoptysis. General physical and systemic examination was normal. On local examination, patient had right pre-auricular swelling measuring 2.0 × 2.0 cm, firm in consistency, mobile, non-tender along with enlarged right level II cervical lymph node of size 3.0 × 2.0 cm, was firm in consistency, mobile and non-tender. Color Doppler of face and neck revealed hypoechoic lesion measuring 2.1 × 1.3 cm with maximal flow in right parotid gland and suspected it to be pleomorphic adenoma. Contrast enhanced computed tomography (CECT) of neck was done which revealed a well-defined heterogeneously enhancing lesion measuring 1.9 × 1.5 cm, noted in right parotid region (Figure 1) and bilateral lymph nodes seen at level 1a, Ib, II and V (largest measuring 0.2 × 0.9 cm). The patient underwent right superficial parotidectomy with ipsilateral modified radical neck dissection (MRND) type-3. Histopathology report revealed moderately differentiated squamous cell carcinoma of parotid gland with lympho-vascular invasion [Figure 2 (A, B & C)]. All dissected lymph nodes (total 26 in number) were free from tumor invasion.

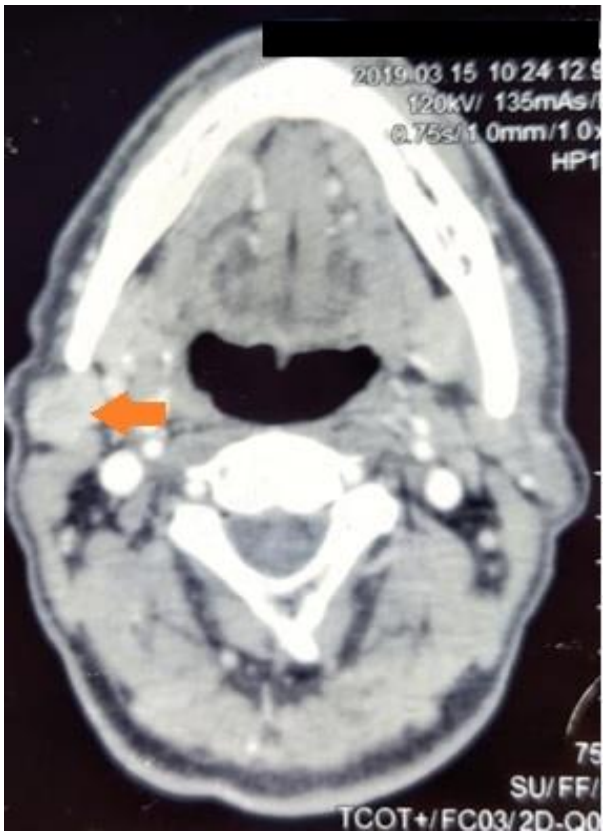

Fig. 1: Pre-operative CECT of face and neck showing heterogeneously enhancing growth of size 1.9 × 1.5 cm, noted in right parotid region (orange arrow).

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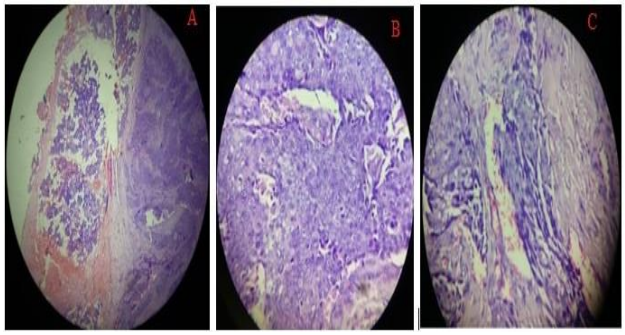

Fig. 2: Photomicrographs Haematoxylin-Eosin (H&E) stain, (A): magnification X 10: depicting squamous cell carcinoma parotid; (B): magnification X 40: displaying malignant cells with high nucleus-cytoplasmic (N:C) ratio, condensed nuclear chromatin and scant cytoplasm; (C): magnification X 40: depicting malignant cells invading vascular space.

To prevent recurrence, patient was given post-operative external beam radiotherapy (EBRT) 60 Gray (Gy) in 30 fractions over 6-weeks to local site. Currently, the patient is doing well without any signs of recurrence. He ison regular follow-up after 24 months of therapy [Figure 3 (A & B)].

III. DISCUSSION

Primary SCC of the salivary gland is believed to arise from metaplastic changes of ductal epithelium., mostly secondary to chronic inflammation. It progresses to invasive squamous cell carcinoma in maximum cases.[2]Point of origin is often not identifiable due to infiltrations of the tumor to local structures. Batsakis et al, has reported that primary SCCs of the parotid gland is rarely poorly differentiated as they show all the classic histological characteristics such as intracellular keratinization, intracellular bridges, keratin pearl formation, and lack of mucin production.[3]

Fig. 3. (A) Post-operative (pre-radiation) clinical photograph showing deviation of angle of mouth towards left;(B) Post-adjuvant radiotherapy clinical photograph showing Grade-I skin reaction.

High-grade muco-epidermoid carcinoma, metastatic squamous cell carcinoma from a distant primary or a direct extension from an adjacent primary skin carcinoma must be kept in mind as possible differential diagnosis. The incidence of parotid involvement by these tumors is greater than the true primary squamous cell carcinoma (PSCC).

Muco-epidermoid carcinomas (MEC) occur at a relatively younger age (mean age 45 years) withafemale predilection. High-grade MEC with predominant squamous component can be differentiated from primary SCC on the basis of the presence of mucin producing cells, detectable basaloid and intermediate cells and absence of prominent keratinisation. Squamous cell carcinomas metastatic to parotid region can occur as direct extensions from tumors in external ear or peri-auricular skin or as metastasis to the intra-parotid and peri-parotid lymph nodes. In case of doubt for metastasis, thorough work-up should be done to identify the primary site. Ying et al, found that 62% carcinomas of squamous cell histology involving the parotid gland were metastatic tumors with known primary elsewhere in the body; whereas, in 24% cases, parotid was presumed to be the primary site as no other source was demonstrable, while in 14% cases, the origin remained undetermined.[4] Other rare salivary gland lesions that mimic SCC are Warthin's tumor or oncocytoma with prominent squamous metaplasia, keratocystoma and necrotising sialometaplasia.[1]

Treatment of primary SCC of the parotid gland has changed in past 20 years. Currently, it is believed that sacrifice of the uninvolved facial nerve does not improve outcome and results in a negative quality of life by causing facial deformity. Regional lymph node metastasis has been reported in 50-70% of patients.[5]Hence, neck must be addressed in treatment protocol. Mostly, SCC of parotid is metastasized to the intra-parotid and peri-parotid lymph nodes; but involvement of cervical neck nodes also occurs. Among patients with primary SCC of parotid gland, skin of the auricle is reported as most common site of reoccurrence. Neck and lungs are common sites for regional and distant metastasis. Preoperative facial nerve involvement is a poor prognostic factor, with a 5-year survival rate ranging from 10-25%.[6] But, the survival depends mostly on the staging of the cancer (size of tumor as well as nodal involvement), the invasiveness to surrounding structures including perineural tissue& the nature of differentiation grade of the tumor. Therefore, the intent of treatment should be decided accordingly.

The success of treatment as well as quality of life depends on the initial surgical approach. Superficial parotidectomy with only dissection of facial nerve rather than removal, is the recommended modality for primary level of resection for parotid gland malignancy. However, sacrifice of the involved facial nerve is necessary in selected cases with extensive parotid excision, where more aggressive treatment improves the overall outcome.[7] If neck dissection is not planned, it is recommended to excise the upper jugular nodes and should be sent for histopathological examination. If biopsy confirmed metastasis evidence, supraomohyoid neck dissection should be considered.

Post-operative adjuvant radiotherapy is indicated in following scenarios such as positive/close margins, T3/T4 tumor, pathologically nodal positivity, high-grade histology, extraglandular extension, bone invasion, lympho-vascular

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space invasion, perineural invasion to control microscopic residual or subclinical disease at local excision site and in the neck. Dose of 60 to 66 Gy is given depending on margin status. Clinical target volume should be individualized based on disease extent and surgery. Parapharyngeal space and infratemporal fossa should be covered in the field. In tumors with perineural invasion, cranial nerve VII should be covered in field i.e. from base of skull to stylomastoid foramen. Postoperative radiotherapy is also recommended as it improves local disease control and allow preservation of a clinically uninvolved facial nerve.[8]Qiu et al, reported that postoperative radiotherapy significantly improved overall survival (OS) compared with surgery alone, with a 5-year OS of 47.7 vs. 35.9% .[9]

Use of adjuvant chemotherapy alone or with radiation in the treatment of salivary gland tumor is a matter of research. Till date, most of the studies concluded no or very little survival benefit in adjuvant chemotherapy. Amini et al, studied the role of adjuvant chemo-radiation vs radiation alone in post-operative salivary gland cancer (SGC). Majority of the cases were in the parotid gland (1852 [83.8%]). On multivariate analysis, survival was less in adjuvant chemoradiationgroup.[10]Tanvetyanon et al, compared adjuvant chemoradiation with adjuvant radiotherapy among the older patients with salivary gland tumors and they reported higher toxicity and increased mortality among chemoradiation group.[11]

In our case, patient first underwent radical surgery with negative margin i.e. R0 resection. Then, he received post-operative external beam radical radiotherapy 60 Gray (Gy) in 30 fractions over 6-weeks to local site (right face and neck).

IV. CONCLUSION

In primary SCC of the parotid, near total excision of the gland with major cranial nerve preservation is the surgery of choice. Neck dissection is also justified in curable cases due to high incidence of nodal metastas is in such cases. Radiation therapy is advisable to prevent recurrence. The best approach of controlling this disease involves a combination of radical surgery, including elective neck dissection with postoperative radiation therapy. The average median time of loco-regional recurrences has been reported as 7-months.[2]Chances of distant metastas is compared to neck node involvement is low in primary SCC of the parotid, still possibility cannot be ignored especially in well survived (more than 5-years) patients. Recurrence rates reported in the literature, range from 8-55% for similarly treated patients with primary parotid cancer other than squamous cell histology.[1] Thus long time follow up is mandatory to find any rare occurrence of distant site involvement. Role of chemotherapy with special emphasis to newly discovered targeted therapy is also an area of study in squamous cell carcinoma of parotid.

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