

# Primary Squamous Cell Carcinoma of Parotid Gland: Common Tumor at an Uncommon Site - A Case Report

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**Abstract:** Primary squamous cell carcinoma of the parotid gland is a rare aggressive malignancy with a reported incidence of 0.3-1.5%. We report the case of a 60-year-old man who presented with a swelling in the parotid region. On FNAC, a diagnosis of mucoepidermoid carcinoma was given. However, clinical correlation was advised to rule out squamous cell carcinoma infiltration from oral cavity. Subsequent histopathological examination confirmed that the tumour was squamous cell carcinoma (SCC). As no other primary source could be demonstrated in the patient, a final diagnosis of primary squamous cell carcinoma of parotid was offered. This case is being reported to highlight the occurrence of a rare tumour of the salivary glands about which both the treating physicians and pathologists need to be aware of.

**Keywords:** Parotid, Primary, Squamous cell carcinoma

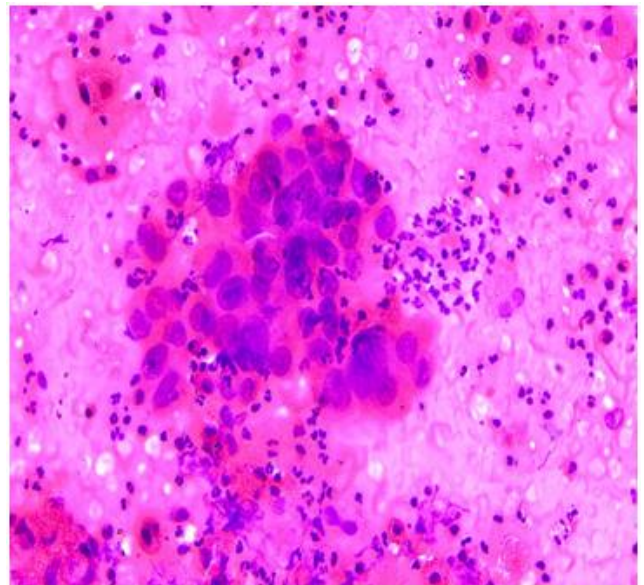
## 1. Introduction

The parotid glands are host to a diverse group of neoplasms having a wide spectrum of clinical, pathological and biological behaviour. Squamous cell carcinoma arising de novo from the parotid gland is a rare cancer. More commonly, invasion from an adjacent squamous cell carcinoma or metastasis involves this major salivary gland; as such the possibility of these should always be excluded before labeling the parotid tumour as primary. <sup>(1)</sup>

Metastatic cancer accounts for less than 10% of the malignancies found in the parotid gland. Of these metastases to the parotid lymph nodes, 40% are SCC <sup>(2)</sup>.

## 2. Case Report

60 years old male patient presented with complaints of swelling over right cheek since 3 months and pain in the swelling since 20 days. On local examination, a diffuse swelling was noted over the angle of mandible measuring 6x5cms. Skin over the swelling was normal. Oral cavity, oropharynx and indirect laryngoscopic examination were normal. CT scan of head and neck revealed heterogenous enlargement of right parotid gland with necrosis suggesting neoplasia. Fine-needle aspiration cytology (FNAC) from the lesion showed malignant epithelial cells in clusters showing prominent nucleoli. Good number of cells showed squamoid differentiation having dense eosinophilic cytoplasm, high nuclear-cytoplasmic (N:C) ratio, hyperchromatic nuclei and anisonucleosis. Background showed neutrophils and necrotic debris (Figure 1). A diagnosis of mucoepidermoid carcinoma was given and clinical correlation was advised to rule out SCC infiltration from the oral cavity.



**Figure 1:** Fine-needle aspirate showing small groups of atypical squamoid cells which are pleomorphic, having high N:C ratio, hyperchromatic nuclei, and dense eosinophilic cytoplasm. Background contains neutrophils and necrotic debris. (H&E, 40x10).

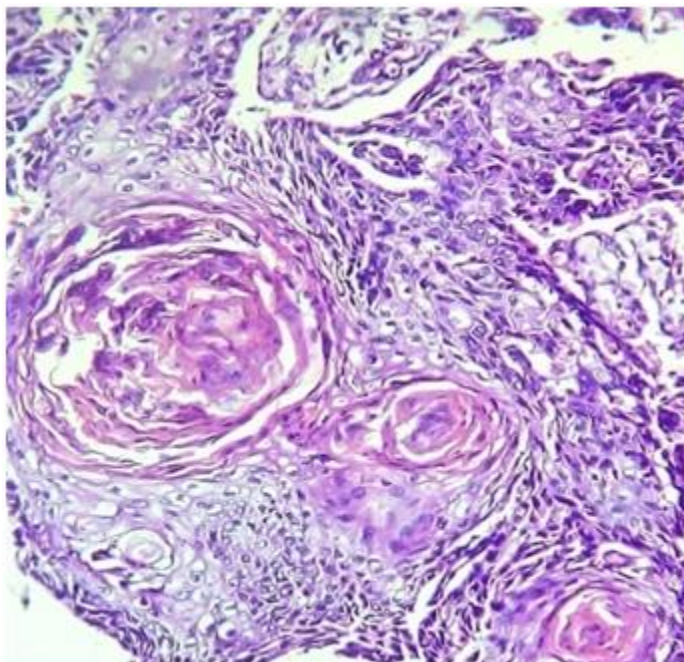
Debulking of right parotid gland was performed and sent for histopathological examination.

On gross examination, specimen consisted of three pieces of tissue. One piece was skin covered tissue which measured 4x3 cms. Other two pieces consisted of parotid gland, the largest measuring 8x5.5x3cms. Cut surface showed multiple grey-white nodules with irregular borders. (Figure 2)

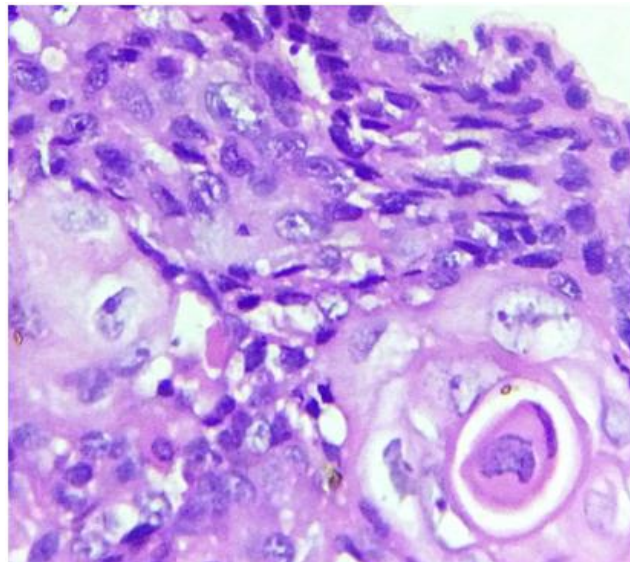


**Figure 2:** Gross photograph: cut section showing multiple grey -white nodules with irregular borders

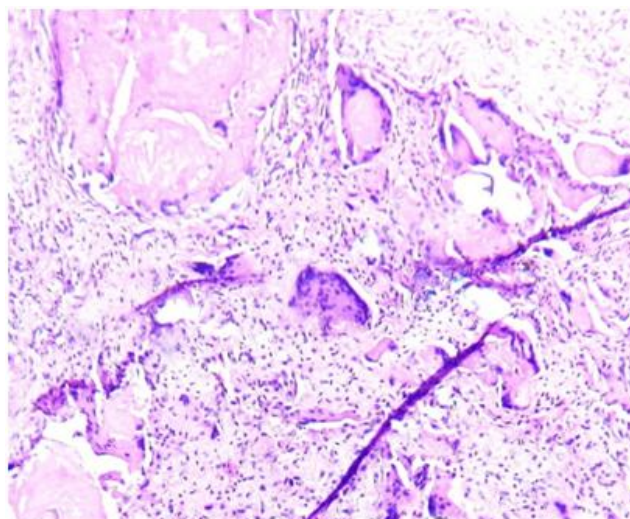
Microscopically, the tumour was composed of malignant squamous cells in nests with keratin pearl formation (Figure 3). Squamous cells showed an increase in N:C ratio, anisonucleosis, vesicular nuclei and moderate amount of eosinophilic cytoplasm (Figure 4). Also seen was granulomatous giant cell inflammatory reaction to keratin consisting of lymphocytes admixed with histiocytes and multinucleated foreign body type giant cells (Figure 5). A diagnosis of squamous cell carcinoma of parotid gland with granulomatous giant cell reaction to keratin was offered.



**Figure 3:** Microscopy showing Squamous cells arranged in nests and sheets with keratin pearl formation (H & E, 10x10)



**Figure 4:** Pleomorphic squamous cells having high N:C ratio, vesicular nuclei and eosinophilic cytoplasm(H & E ,40x10)



**Figure 5:** Microscopy showing keratin pearls and giant cell reaction to keratin.(H&E,10x10)

### 3. Discussion

Primary SCC of salivary glands has been defined by WHO as 'A primary malignant epithelial tumour composed of epidermoid cells, which produce keratin and/or demonstrate intercellular bridges by light microscopy.' Around 80% of the cases arise in the parotid gland while the rest are found in submandibular gland; sublingual gland is a highly unusual place of occurrence of this lesion.<sup>(1)</sup> It is imperative to restrict the diagnosis of primary SCC to major salivary glands only because in squamous cell carcinoma of minor salivary glands, it is not possible to distinguish whether the tumour is arising from the glands themselves or from the adjacent mucosa.<sup>(1, 3)</sup>

Primary SCC of parotid is an aggressive tumour of the elderly with a mean age of presentation at 64 years. The male-to-female ratio is approximately 2:1. Prior radiation therapy has been implicated as a predisposing factor. Patients typically present in an advanced stage with rapidly

enlarging mass around the angle of mandible often accompanied by cervical lymphadenopathy and facial nerve involvement.<sup>(1,3)</sup>

Fine-needle aspiration cytology is the preferred initial investigation in tumours of major salivary glands. However, it is imperative not to offer a diagnosis of primary SCC on FNAC specimens because cytology alone cannot differentiate primary from metastatic squamous cell carcinoma. Distinction from poorly differentiated mucoepidermoid carcinoma may be difficult.<sup>(4)</sup> Herein lie the importance of histopathological examination and clinical correlation in the diagnosis of primary SCC.<sup>(2)</sup>

Apart from primary squamous cell carcinoma, the differential diagnosis of any tumour with squamous differentiation in the parotid region should include high-grade mucoepidermoid carcinoma, metastatic squamous cell carcinoma from a distant primary or a direct extension from an adjacent primary skin carcinoma as the incidence of parotid involvement by these tumours is greater than that of true primary SCC.<sup>(1,3,5)</sup>

Mucoepidermoid carcinomas have predilection for women (male:female=2:3) and occur at a younger age as compared with primary SCC and has additional cell population in the form of mucin producing, basaloid and intermediate cells.<sup>(1,5)</sup> In case of metastatic squamous cell carcinoma, the primary sites are frequently located in the upper aerodigestive tract and skin of the head and neck region.<sup>(5,6)</sup> Other rare salivary gland lesions that can be confused with primary SCC are Warthin's tumour, oncocytoma with prominent squamous metaplasia, keratocystoma and necrotising sialometaplasia.<sup>(4,3)</sup> From this discussion, it is quite imperative that the diagnosis of primary SCC of salivary glands should always be offered only as a diagnosis of exclusion<sup>(2)</sup>.

The treatment includes total parotidectomy with elective radical neck dissection, postoperative radiotherapy and periodic follow-up. In spite of adequate therapy, 5-year survival rate remains approximately at 25–30%.<sup>(1,7)</sup>

#### **4. Conclusion**

When SCC of the parotid is diagnosed, efforts must be made to identify the primary site. When no primary lesion exists, it seems logical to consider it as a primary SCC of the parotid.<sup>(8)</sup>

Primary squamous cell carcinoma must be a differential diagnosis of any tumor with squamous differentiation in the parotid and its diagnosis should only be offered after its commoner mimics have been excluded.<sup>(9)</sup>

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