International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor (2018): 7.426

Squamous Cell Carcinoma of the Palate: A Case Report

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Abstract: ***Squamous cell carcinoma (SCC) is the most common neoplastic tumor occurs in the oral cavity. SCC arising from maxillary alveolus/hard palate is rare. Anatomical structure of the palate assumed to be the cause of less incidence of SCC in the hard palate compared to other areas of the oral cavity. The diagnosis of cancer in these regions is usually ulcerative and invasive to the underlying bone in the early stages of the disease. This article aimed to report a case of squamous cell carcinoma of the palate. A 36 years old male patient presenting with a mass at his hard palate extended to anterior site of maxilla 3 months before admission. The histopathology examination revealed a well-differentiated SCC of the hard palate. The patient was treated with segmented resection of maxilla with frozen section evaluation intra-operatively continue with chemotherapy. The mucosa of the palate covered by keratinizing stratified squamous epithelium is thought to be the reason for the decreased of squamous cell carcinoma in this site. Due to the rarity of this tumor site, the evolvement of an evidence-based protocol regarding treatment is debatable. Pathological and molecular modality has shown to have a good diagnostic and therapeutic effect in treating SCC in oral cavity. SCC at hard palate is an uncommon case. Treatment for this case is mostly a combination of surgery and adjunctive therapy to increase a survival rate. Adequate surgical margins can improve the results.***

Keywords: squamous cell carcinoma, hard palate, segmented resection, frozen section evaluation

1. Introduction

Oral cavity cancer is a worldwide problem and causing significant disfigurement of the patient with severe morbidity and mortality. With over than 260 thousand cases each year, which are estimated to cause about 127,000 deaths annually. Squamous cell carcinoma is the predominant neoplastic tumor that occurs in the oral cavity.[1]In developing countries, carcinoma of oral cavity in males is the sixth most common cancer after lung, prostrate, colorectal, stomach and bladder cancer. In females, it is the tenth most common site of cancer after breast, colorectal, lung, stomach, uterus, cervix, ovary, bladder and liver.[2] SCC arising from the maxillary gingiva, hard palate and maxillary alveolus is rare, accounts for approximately 66% of cancers of the hard palate and maxillary alveolus. In these sites, SCC is usually ulcerative and invades the underlying bone in the early stage of the disease.[1]

The risk factors for OSCC are tobacco, betel quid, alcohol and recently human papilloma virus infection. The important factors related to carcinoma with a poor prognosis include large size of the tumor at the time of diagnosis, the presence of metastases in regional lymph nodes and a deep invasive front of the tumor. The incidence seems to vary in different parts of world with Asian countries reporting high number of cases.[2] When this carcinoma involves maxillary sinus, it is very difficult to treat and traditionally have been associated with a poor prognosis. One reason for these poor outcomes is the close anatomic proximity of the nasal cavity and paranasal sinuses to vital structures, such as the skull base, brain, orbit and carotid artery. This complex location makes complete surgical resection a challenging and sometimes impossible task. In addition, these tumors tend to be asymptomatic at early stages, appearing more frequently at late stages once extensive local invasion has occurred.[3]

2. Case Report

A 36 year-old male patient reported to our institution with the chief complaint of a mass on palate since 3 months before admission. History taking resumes that6 years prior to admission there was a wound on the palate of anterior region that healed if treated but can reappear any time. This symptom was thought to be caused by the impacted of left anterior upper tooth. Odontectomy was done 3 years prior to admission and since then the post operation wound never healed. About 3 months before hospital admission he developed a mass on the anterior palate, initially small in size and progressed gradually. He also gave a history of burning sensation on taking spicy food, experience nasal congestion and numb sensation over the cheek. On extraoral examination, a slight swelling appearance was seen on upper lip [Fig. 1]. There was no cervical lympnode involvement noticed.

Figure 1: Face Profile

On inspection of the intra oral, a single ulceroproliferative growth was seen on anterior slope of hard palate. It was roughly oval in shape and measured approximately 4x2x1 cm in size extends from mid palatine raphe to alveolar bone of maxilla and extends from tooth 13 region anteriorly to tooth 23 region. Edges were everted and surrounding mucosa appears normal [Fig. 2]. Margins were irregular and the lesion was tender and bleeding on palpation was also evident. The growth was sessile in relation with deeper structures.

Figure 2: Intraoral appearance

The OPG image revealed a destruction of anterior maxillary alveolus[Fig. 3].CT Scan in axial and coronal section showed a hypodense lobulated soft tissue mass of approximate size 3x2x1 cm in the right maxillary cavity causing significant surrounding bony destruction with destroyed bony maxillary walls, nasal wall, anterior maxillary alveolus, and masticator space. [Fig 4].

Figure 3: Orthopantomographic view

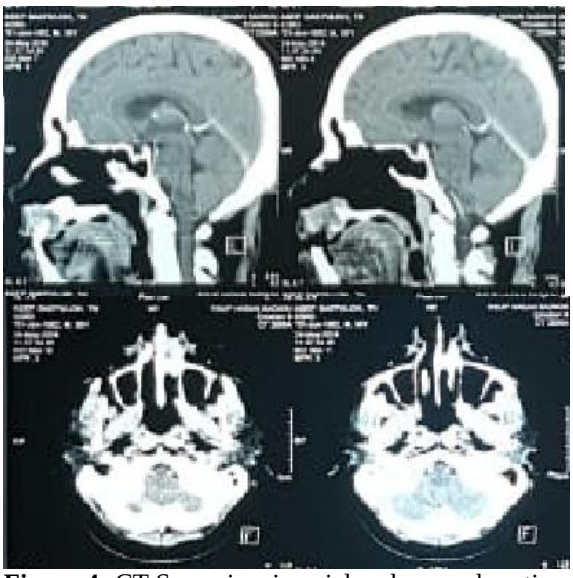

Figure 4: CT Scan view in axial and coronal section

To establish a clinical diagnosis, an incisional biopsy of the lesion was done. Microscopic examination of the biopsy specimen revealed pseudostratified epithelial cells with signs of dysplasia, invading the deeper connective tissue in the form of well differentiated squamous cell carcinoma showing numerous keratin pearls. Histopathologic result was well differentiated squamous cell carcinoma. Differential diagnoses were Squamous odontogenic tumor and calcifying ephitelialodontogenic tumor.

Segmented resection of maxilla was performed to the entire tumor mass around the edge of the lesion with a distance of approximately 2-3 mm from the edge of the lesion until it penetrates the maxillary periosteum and extends to the hard palate [Fig5a]. Durante surgery found a mass with a clear boundary, and there was an expansion of the palate bone. No perforation was found in the left maxillary sinus. Frozen section evaluation was done intraoperatively to ensure the margin border was tumor-free.[Fig5b]To restore the appearance of the jaw shape, a surgical obturator which was made before surgery is used.[Fig5c].This surgical obturator was replaced with acrylic obturator2 weeks postoperatively.[Fig. 6]. The definitive obturator is planned on 3 months after surgery.

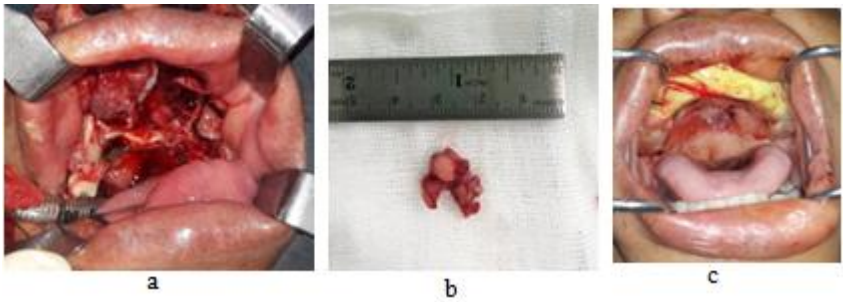

Figure 5: Intra-operative findings

Figure 6: Intra oral view on 2 weeks follow up. Acrylic obturatoris placed

On 2 weeks post operation follow up, the good vascularization was noticed. On 1 month post operation follow-up, the post surgery wound has healed well.The patient only complaint a slight pain. On 2 months post operation follow up, the pain complaint has subsided. The general condition improving and no symptoms of the recurrent lesion [Fig. 7].Patients can consume regular diets. Oral hygiene maintained by tooth brushing and using mouthwash. The facial aesthetic compromised are still bearable for the patient.

Figure 7: Intraoral view of 1 month follow up (a) and 2 months follow up (b)

3. Discussion

Oral squamous cell carcinoma (SCC) represents 90% to 95% of all malignant neoplasms of the oral cavity. It is classically regarded as an adult disease entity and has a high correlation with alcohol and tobacco consumption.[2] Oral SCC occurs in several well established intraoral sites, including the floor of mouth, tongue (most common), gingiva, lips, and buccal mucosa. It might also present in the tooth bearing segment of either the maxilla or the mandible, with bony involvement.[4]

SCC at hard palate is an uncommon case. The mucosa of the palate covered by keratinizing stratified squamous epithelium is thought to be the reason for the decreased of squamous cell carcinoma in this site. Due to the rarity of this tumor site, the evolvement of an evidence-based protocol regarding treatment is debatable. In the past, SCC confined to the maxilla was not accompanied by neck dissection due to a lower rate of occult regional disease. In recent years, the introduction and evolvement of superior imaging and pathological and molecular techniques such as frozen section tissue lessions has directed a higher occult metastases incidence. [1,2]

Oral SCC typically associated with the mandible or the maxilla will slowly invade the underlying tissues after onset. Invasive maxillary SCC will exhibit a multitude of clinical signs and symptoms, which might mimic facial pain syndromes, including Trigeminal Neuralgia. In the early stages of the disease, the patient will first complain of localized maxillary pain; later, symptoms might progress to mobility of teeth. This was noted in the discussed case. As the tumour invades the maxilla and infiltrates the maxillary sinus, the patient will experience nasal congestion due to direct-obstruction symptoms. The infraorbital nerve (branch of the maxillary division of the trigeminal nerve) will also be affected, resulting in sensory disturbances of the cheek. Our patient complained of both paresthesia and nasal obstruction. Superimposed pain due to the direct infiltrative behaviour of the tumour will also be reported.[7,8]

As the tumour progresses superiorly, the orbital floor only a few millimetres thick will be encountered and will provide minimal resistance to orbital infiltration. This will result in restriction of ocular mobility and alteration of eyeball positioning, secondary to direct infiltration of the periorbita and extraocular muscles. In later stage might involveethmoidal. [7]

According to Pindborg, OSCCs are classified into histopathologic grades as well differentiated (grade 1), moderately differentiated (grade 2) and poorly differentiated (grade 3). Well and moderately differentiated tumors can be grouped together as low grade and poorly differentiated and undifferentiated tumors as high grade. In this patient, it was a case of well-differentiated squamous cell carcinoma.[2]

The management of head and neck cancers involves accurately staging the extent of the disease (with the aid of investigations such as CT or magnetic resonance imaging), in accordance with the TNM Classification of Malignant Tumours, and determining if surgical resection is feasible. Early diagnosis is, therefore, paramount to favourable prognosis. The treatment of OSCC generally requires the services of a multidisciplinary team, the main aim of treatment is to eradicate the cancer, to prevent recurrence and finally restore the form and function of the affected parts. The management of maxillary oral SCC involves maxilla surgical resection, which might also include orbital exenteration and combined neurosurgical access procedures is the preferred first line treatment of small, accessible OSCCs followed by adjuvant radiotherapy. However, advanced-stage OSCC is usually treated by a combined treatment program of surgery, chemotherapy, and radiotherapy. [2,7,9]

The goal of surgical resection of the primary site is to remove all malignant disease. Although controversy exists as to what is considered a negative surgical margin and its true implications on prognosis, a majority of the current literature suggests the most significant histopathologic predictor of recurrence at the primary site is the ability to achieve a negative surgical margin.[5]Surgical resection of oral carcinoma with tumor free margins of less than 5 mm may be followed by local recurrence and possibly by distant metastasis, and usually necessitates the administration of post-surgery chemoradiotherapy. Twenty to thirty percent of cases of resection of OSCC with adequate, wider than 5 mm, tumor-free margins as evidenced on histopathological examination will develop local or contiguous regional "recurrence". There are two possible explanations for this highrate of recurrence. First, some carcinomatous keratinocytes may have remained in the margins of the surgical wound, but because there were so few, they were not detected by histopathological examination. Second, the large field of precancerized epithelium comprising pre-cancerous keratinocytes at different stages of transformation from which the primary carcinoma developed, was not removed at the surgical procedure. Epithelium from a field of precancerization may appear normal microscopically, or it may be dysplastic. It may also appear normal microscopically, but nevertheless may harbour keratinocytes with cytogenetic alterations including loss of heterozygosity and p53 mutations, or epigenetic changes in methylations of certain promoters of tumor- suppressor genes and DNA repair genes. Following acquisition of additional genetic alterations, either keratinocytes in the dysplastic epithelium or the genetically transformed keratinocytes may become cancerous giving rise to a new field carcinoma close to where the primary carcinoma had been excised, creating an impression of recurrence.[2-6,10]

4. Conclusion

SCC at hard palate is an uncommon case. Clinicians should be aware of clinical signs and symptoms that might lead one to suspect a malignant tumor so that an early diagnosis of the disease can be made. One should have an eagle's eye in all cases involving swellings of the head and neck. It should be mandatory to advise advanced imaging techniques, such as CT Scan and MRI when conventional radiotherapy fails to help in diagnosis at the early stage of disease. Despite advances in various treatment modalities such as chemotherapy, radiotherapy. Treatment for this case is mostly a combination of surgery and adjunctive therapy to increase a survival rate. Adequate surgical margins can improve the results.

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