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Case Report

A Clinical Analysis of a Well-differentiated Squamous Cell Carcinoma Case

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In India, cancer of the oral cavity is one of the five leading sites of cancer in either gender. More than 90% of the oral cancers occur in patients over the age of 45, with a male predilection. Squamous cell carcinoma (SCC) is the most common neoplasm of the oral cavity. The current case highlights the caution that needs to be exercised in clinical assessment and differential diagnosis of SCC from another chronic ulcer with similar features (tubercular ulcer). The treatment modalities of the two vary, thus making correct judgement and diagnosis essential.

Key words: Squamous cell carcinoma, tubercular ulcer, differential diagnosis.

INTRODUCTION

Over the past two decades, there has been a surge in the investigations conducted pertaining specifically to oral cancer. A significant variation has been noted in the incidence of oral cancer, with high rates reported in the Indian subcontinent and parts of Asia. In India, cancer of the oral cavity is one of the five leading sites of cancer in either gender. More than 90% of the oral cancers occur in patients over the age of 45, with a male predilection. The incidence increases steadily with age until 65, when the rates level off (Shafer et al., 2006).

Squamous cell carcinoma is defined as “a malignant epithelial neoplasm exhibiting squamous differentiation as characterized by the formation of keratin pearls and/ or presence of intercellular bridges” (Pindborg et al 1977). It is the most common neoplasm of the oral cavity. The main cause of oral cancer has been attributed to the use of tobacco in its various forms, especially when associated with the use of alcohol (Shafer et al., 2006).

CASE REPORT

A 60 year old female reported to the department, with the chief chief complaint of a painful non healing ulcer in the lower anterior region of the jaw since the last one year. There had been a gradual increase in the size of the ulcer over the past 1 year. The patient’s past medical history revealed that she was taking medication (homeopathic medication only, from a doctor in her locality) for arthritis since the last one year and had undergone an eye surgery one month back. The patient did not have any habits such as that of chewing and /or smoking tobacco and did not take alcohol either. Owing to multiple extractions in the past one year she was practically on a soft diet.

General physical examination revealed that the patient was moderately built and nourished. All the vital signs were within normal limits. Extraoral examination revealed a symmetrical face with a concave profile and no extraoral swelling. None of the lymphnodes (submandibular, sublingual or cervical group) were palpable. Intraoral examination revealed edentulous maxillary and mandibular ridges. There was a 3 × 3cm, oval shaped, single ulcer present on the mandibular ridge in the canine-premolar region. The ulcer had irregular margins and undermined edges. The base and borders were firm on palpation. The floor of the ulcer was erythematous, with presence of bleeding points (Figure 1). It was tender on palpation, and bleeding was present on slightest provocation.

Based on the clinical findings, a provisional diagnosis of squamous cell carcinoma was made. A differential diagnosis of inflammatory hyperplasia, necrotizing sialometaplasia, tuberculous tested positive for the Mountoux test which was done to rule out

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Figure 1. Intraoral photograph depicting ulcer with irregular margins and undermined edges. The floor of the ulcer is erythematous ,with presence of bleeding points.

tuberculous infection. Since the history did not reveal any detail on possible tubercular infection, the positivity of the test was judged to be due to vaccination or a subclinical infection, as prevalent in the Indian subcontinent. However, to rule out any current infection, an acid fast bacilli (AFB) stain ulcer and histoplasmosis was also given. Intraoral periapical radiograph of the 33 and 34 regions, haematological investigations and incisional biopsy were the investigations advised. The intraoral radiograph revealed bony erosion in the canine- premolar region. The patient was advised and the reports ruled out TB. Incisional biopsy was performed and the tissue submitted to the department of oral pathology. The tissue specimen was 10% formalin fixed, creamish white in colour, oval in shape, measuring 0.7 cm in length and 0.8 cm in width, with adequate connective tissue.

On microscopic examination, the section showed predominantly ulcerated, atrophic epithelium invading into the underlying connective tissue (Figure 2). The dysplastic epithelial cells were arranged in islands of varying size. Numerous keratin pearls (Figures 3 and 4) and few mitotic figures with cellular and nuclear pleomorphism and hyperchromatism were also seen. Minimal chronic inflammatory cells were seen in the intervening stroma between the tumor islands. Areas of necrosis were also present. The deeper margins of the tissue section were not found to be clear of dysplastic cells. A diagnosis of well-differentiated squamous cell carcinoma was given.

DISCUSSION

The case presented in a 60 years old, moderately built female showed an oval shaped, single ulcer on the mandibular ridge in the canine-premolar region, with irregular margins and undermined edges. The base and borders were firm on palpation. The floor of the ulcer was erythematous, with presence of bleeding points. It was tender on palpation, and bleeding was present on slightest provocation. Oral ulcerative lesions are common findings, although often of similar clinical appearance, their aetiologies can have a wide range such as immunological, traumatic, neoplastic or oral manifestations of systemic and dermatologic disease. Clinically, almost all the oral cancers, barring the early forms, have characteristic presentation in the form of a persistent ulcer with indurated margins (Shafer et al., 2006). Tubercular involvement of oral cavity is very rare; but when seen, can present in a variety of forms (ulcers, nodules, tuberculomas and peri-apical granulomas). These may be either primary (single, painless ulcer, with

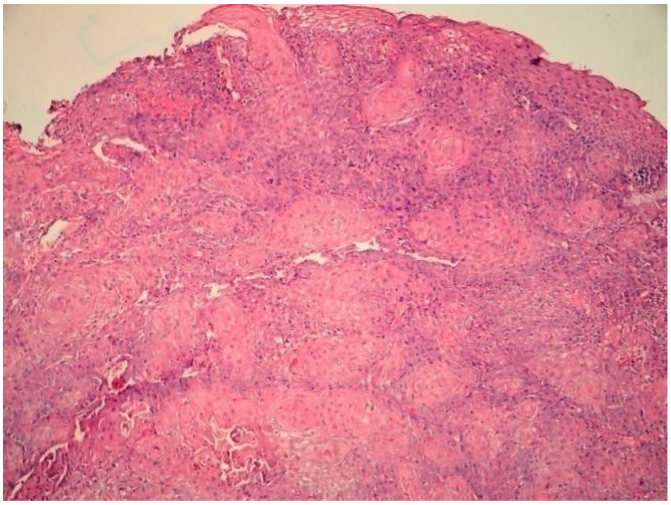

Figure 2. Photomicrograph showing ulcerated, atrophic epithelium invading into the underlying connective tissue (H&E, Scanner view).

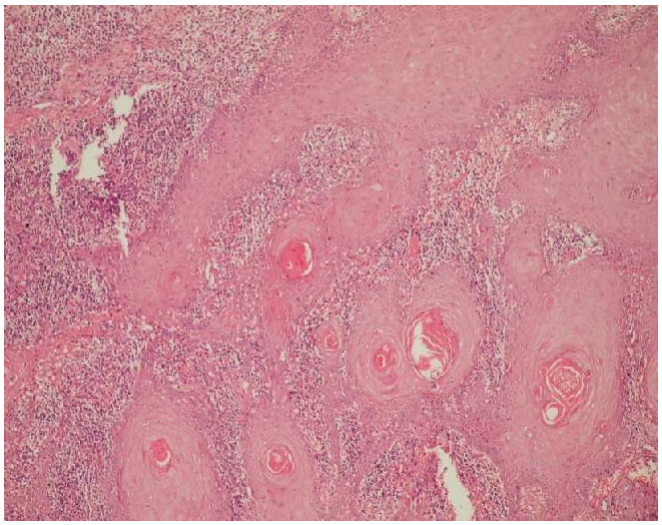

Figure 3. Photomicrograph showing tumour islands with keratin pearl formation (H&E: magnification × 10).

regional lymph node enlargement, common in younger individuals), or secondary (relatively common, associated with pulmonary disease, usually present as a single, indurated, irregular, painful ulcer covered by inflammatory exudates) in nature. They are most common in middle aged and elderly patients. Entry of the bacilli is attributed to local factors (poor oral hygiene, leukoplakia, local trauma and irritation by clove chewing etc.), self-inoculation (from infected sputum) or haematogenous or lymphatic dissemination (Dixit et al., 2008). The protective effect of saliva may explain the paucity of tuberculous oral lesions.

Oral tuberculosis is difficult to differentiate from other

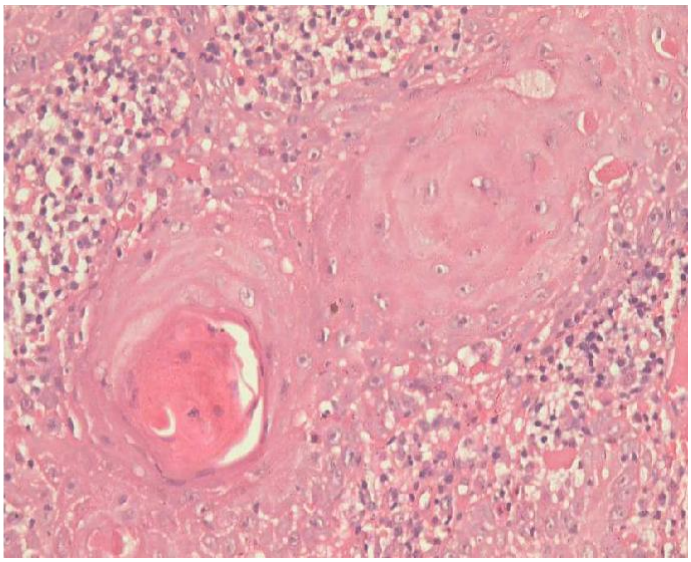

Figure 4. Photomicrograph showing keratin pearls and individual cell keratinization with surrounding fibrous stroma (H&E; magnification ×40).

conditions on the basis of clinical signs and symptoms alone. While evaluating a chronic, indurated ulcer, clinicians should consider both infectious processes such as primary syphilis and deep fungal diseases and non-infectious processes such as chronic traumatic ulcer and squamous cell carcinoma. Thus in such cases inspite of a positive Mantoux test (which may indicate previous BCG vaccination or latent infection) a biopsy for confirmatory diagnosis is mandatory (Dixit et al., 2008). The most common clinical presentation in oral squamous cell carcinoma is either an ulcer or an ulceroproliferative growth. Classically, a carcinomatous ulcer has an irregular papillary surface, elevated borders and a hard base on palpation. The lesions are almost always chronic and have indurated margins. The lateral border, the ventral surface of the tongue and the lips are the most commonly affected sites, followed by the floor of the mouth, the gingival, the alveolar mucosa and the palate (Shafer et al., 2006; Neville et al., 2008).

The epidemiology of squamous cell carcinoma of the head and neck (SCCHN) is complex due to the multi-genic nature of the disease and the number of potential environmental agents to which individuals may have been exposed. The major etiological agents that have been implicated are the use of tobacco and alcohol abuse. Other risk factors include nutritional deficiencies, occupation, viral infection and dental irritation. These risk factors do not, however, adequately explain 5 ± 10% of SCCHN cases (Johnson, 2001; Jefferies and Foulkes, 2001; Mehrotra and Yadav, 2006). They can develop from precancerous lesions, such as leukoplakia and erythroplakia, or apparently normal epithelium (Shafer et al., 2006). The histopathologic picture of tuberculous ulcer

depicts granuloma formation exhibiting foci of caseous necrosis (not seen always) surrounded by epitheloid cells, lymphocytes and occasional multinucleated giant cells (Shafer et al., 2006). The report of incisional biopsy in the current case confirmed a diagnosis of well differentiated squamous cell carcinoma, thus ruling out tuberculous ulcer.

Histopathologically, SCC is divided into 3 grades depending on the degree to which the tumor resembles the parent tissue and produces keratin. They are categorized as well-differentiated, moderately-differentiated and poorly differentiated. A well differentiated tumor is mature enough to closely resemble its tissue of origin, grows at a slightly slower pace and metastasizes later in its course. On the contrary one which shows much cellular and nuclear pleomorphism that is, immature and bears no resemblance to the tissue of origin is designated as poorly differentiated. The tumor that lies between these two extremes is labeled as moderately differentiated (Neville et al., 2008; Anneroth and Batsakis, 1987; Bryne et al., 1989). The five year survival rate studies have proven well differentiated SCC to be of a better prognosis as compared to the poorly differentiated variant (Shafer et al., 2006; Mehrotra and Yadav, 2006; Neville et al., 2008). Epidemiological surveys have revealed that, of the areas of the oral cavity the mortality rate is lowest for lip cancer (0.04 per 100,000) and highest for the tongue, particularly the base (0.7 per 100,000), in which metastases may be ipsilateral, bilateral, or contralateral owing to cross vascular and lymphatic drainage. Also, the incidence increases steadily with age until 65 years, when the rate levels off (Shafer et al., 2006; Neville et al., 2008).

Cases of persistent leukoplakia or oral submucous fibrosis, are established early predictors of possible change to SCC, with the rate of malignant transformation varying from 0.13 to 6%, and the risk increasing to 14% with dysplastic lesions (Shafer et al., 2006). Treatment of the intraoral SCC is guided by the clinical stage of the disease and consists of wide excision, radiation therapy or a combination. Usually, larger lesions require combined therapy. Those with lymph node metastases are advised a radical neck dissection and radiation therapy in amalgamation (Frazell and Lucas, 1962; Scully and Ward-Booth, 1995; Singh et al., 1996). It is clear that the necessity of early diagnosis of SCC is paramount and hence, the responsibility of a dentist considerable.

Conclusion

Squamous cell carcinoma is the most common malignancy affecting the oral cavity characterized by a chronic non healing ulcer which has a range of provisional diagnosis. SCC occurs more frequently in males, usually in the 5 to 6th decade of life. The current case presented in an elderly female and the diagnosis was based on the clinical and histopathological examination. The classical presentation, with individual cell keratinization and keratin pearl formation, confirmed its resemblance to the parent tissue which validated its grading as a well differentiated tumor.

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