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Benign spindle cell neoplasm in oral cavity a rare case report

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Abstract
Spindle cell neoplasms are described as neoplasms that consist of spindle-shaped cells in the histopathology. Spindle cell neoplasms can affect the oral cavity. In the oral cavity, the origin of the spindle cell neoplasms may be traced to epithelial, mesenchymal and odontogenic components. The name 'spindle cell' refers to the shape of the cell on cytology and histology.
Spindle cell tumours can be benign or malignant, and will arise from different cell lines. It can be difficult to differentiate between the different forms of spindle cell tumours, and distinguish between spindle cell neoplasia and fibroplastic spindle cell proliferative response. In this paper, we present a rare case of a benign spindle cell neoplasm in 9 year old female patient.

Keywords: spindle cell neoplasms, oral cavity, spindle cell carcinoma, spindle cell tumor

Introduction

Spindle cell neoplasm consist of spindle-shaped cells in the histopathology. The head and neck area is an embryologically and anatomically complex area, with a number of complex structures and organs lying in close proximity to one another. The histological diagnosis of spindle cell lesions is dificult in any site, but in this region is particularly so, due to the variety of structures from which they can arise. It accounts for less than 1% of all tumors in the oral regions.

Spindle cell neoplasms can also affect the oral cavity and it is often very challenging for the oral pathologists to differentiate it from other similar microscopic simulates [1]. In the oral cavity, the origin of the spindle cell neoplasms can be from epithelial, mesenchymal and odontogenic components. Recently, a simple classification was proposed by the author for the spindle cell neoplasms of the oral cavity [2]. It was based upon the predominance of spindle cells in the histopathology of the oral cavity lesion.

Spindle cell tumor is not a specific diagnosis. Spindle cell tumor is a descriptive diagnosis based upon the presence of elongated/spindle cells under the microscope.

Origin of Spindle Cells can be Epithelial, Fibroblastic & Myofibroblastic Origin Muscle Origin, Nerve Tissue Origin, Adipocytic Origin, Vascular Origin, Bone Origin, Odontogenic origin.

Common sites of spindle cell neoplasm are upper aero-digestive tract: larynx, oral cavity & esophagus. In Oral cavity: lower lip, lateral posterior tongue & alveolar ridges are most commonly involved areas.

Typically it appears as a pedunculated, polypoid mass; occasionally as sessile, nodular, fungating mass or as an ulcer which is evident in our case also. Pain & paresthesia are late features indicating nerve involvment. Associated with mobility of adjacent teeth and ulceration of overlying mucosa. Intra bony tumors create poorly defined radolucent lesions, some maybe well-defined or multilocular.

Case History

A 9 year old female patient visited our clinic with gingival swelling in upper right tooth region, with occasional pain and bleeding while brushing.(Fig 1 & 2) Also associated with foul smell and difficulty in eating. Patient was not able to maintain hygiene on affected side. (Fig 3)

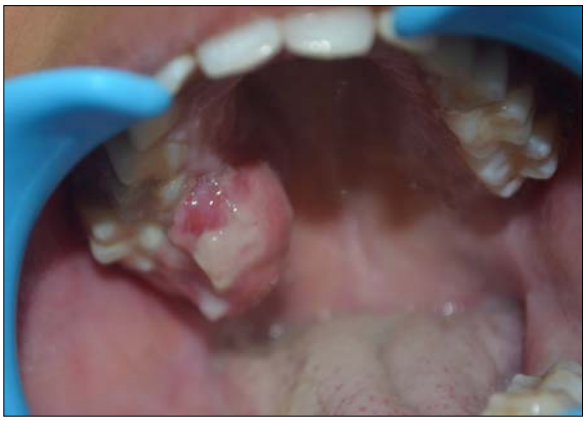

Fig 1: Gingival swelling in upper right tooth region

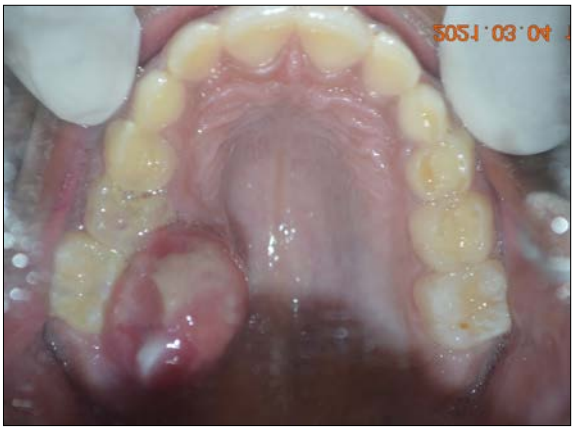

Fig 2: Non-inflammatory, fibrous and pedunclated growth

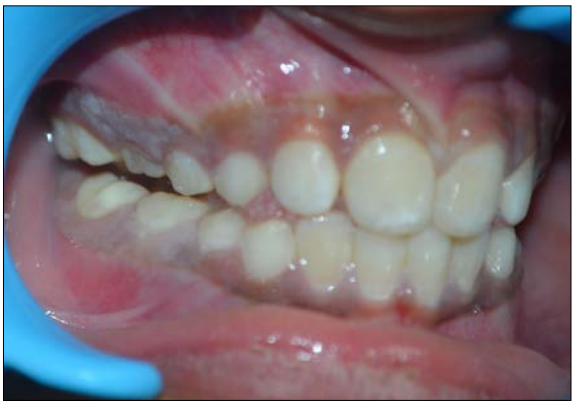

Fig 3: Lack of oral hygiene on affected side

The gingival swelling was present since the past 2 months. A careful medical history of the patient was recorded, which revealed no clinically significant diseases. On general examination, the patient was healthy with normal growth pattern and gesture. On Intraoral examination the swelling appeared non-inflammatory and fibrous, pedunclated growth, external surface was smooth with few ulceration marks.(Fig2)Size was approximately 3x2 cm. Swelling is associated with mobile deciduous teeth i.r.t 54,55.Other oral finding include class 1 cavity in 55 and plaque accumulation, lack of oral hygiene on right side due to less chewing from affected side. Patient was advised for OPG Xray which revealed normal bone pattern and normally developing permanent tooth buds i.r.t 13, 14, 15, 17. Root resorption was evident i.r.t 54, 55. (Fig4)

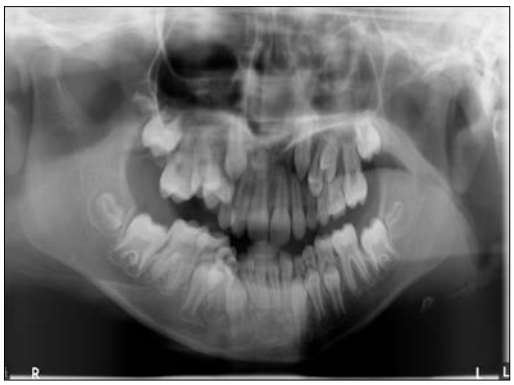

Fig 4: OPG revealed no bony involvement

Surgical excision of the enlarged gingival tissue was planned. Before surgical excision, thorough oral prophylaxis of the patient was performed. Surgical excision was performed under local anaesthesia. The excision procedure was performed with the help of scalpel no 12. (Fig 5, 6) Following surgical excision, a surgical dressing was placed. Patient was recalled after 1 week and site was healed properly (Fig 7)The excised tissue was sent for histopathological examination and patient was advised for CBCT of Maxilla to see any bony involvement or maxillary jaw pathological tooth evaluation.

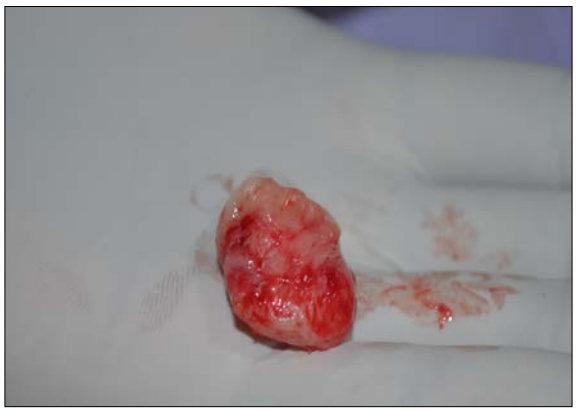

Fig 5: Excised tissue growth

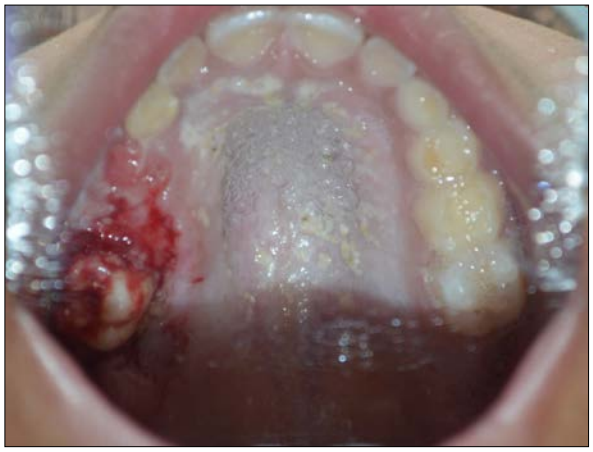

Fig 6: Affected side after surgical excision

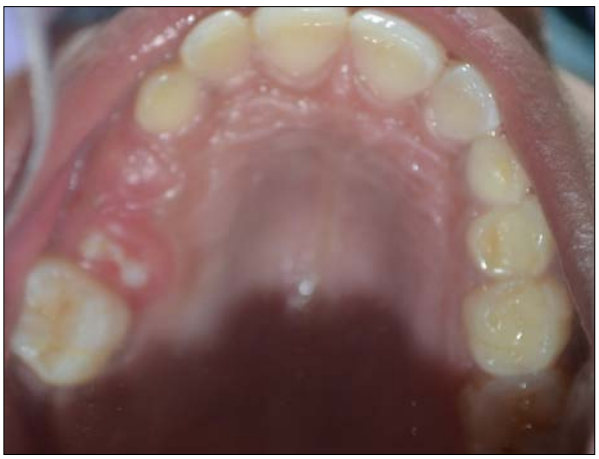

Fig 7: Follow up after 1 week

Histopathology report revealed that biopsy comprises of a benign spindle cell neoplasm covered focally by stratified squamous epithelium showing ulceration. The superficial areas show granulation tissue. Deeper tissue shows spindle cell neoplasm.
CBCT scan of SECTIONAL MAXILLA was performed using CS8100 CBCT system. Imaging was performed using CS 3D Imaging. Data were evaluated in axial, coronal, sagittal sections and reformatted panoramic image along with 3D images which revealed no bony involvment and no pathology associated with deciduous/developing permanent teeth. (Fig 8)

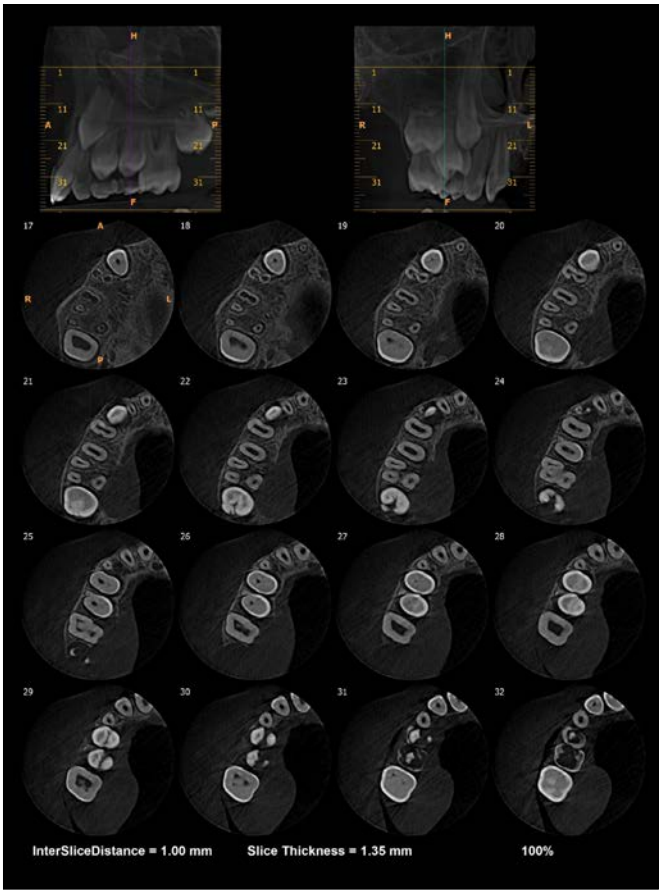

Fig 8: CBCT scan of sectional maxilla revealed no bony involvement.

Based on above mentioned findings it was diagnosed as benign spindle cell neoplasm. The differential diagnoses considered were pyogenic granuloma, Fibroma, Giant Cell tumour, Carcinoma.

Discussion

Spindle cell neoplasms are highly variable both biologically and clinically. It requires clinical, histological, and immunohistochemical sometimes electron microscopy examination to reach the confirmatory diagnosis. Predominant cells are spindle cells / altered spindle cells. Common cytological findings of benign spindle cell neoplasm are: small spindle-shaped cells, small nuclei, and minimal anisocytosis. Cells are individual rather than clinged, fusiform with indistinct cell borders. Nuclei are also fusiform and cytoplasmic tails may fade into the background. It is possible to determine the tissue of origin if there is presence of collagen, cartilage, bone, fat or myxomatous material formation by the tumour cells.
It ranges from simple reactive to malignant form. Spindle cell neoplasm arise among actively dividing connective tissue/epithelial cells.

Most common Causes are

- Genetic predisposition
- Chromosomal mutations
- Cellular genetic defects in Oncogene, tumor suppressor genes, Example NF1 in neurofibromatosis
- Exposure to radiation or certain chemicals
- Trauma, and inflammation

All above factors can stimulate the tissues to divide more rapidly than normal.

Histological patterns

- Monomorphic - Uniform spindle cells presented in Fascicles or Storiform pattern or a ‘herringbone’ pattern – Sometimes associated with a dense collagenous stroma.
- Pleomorphic - Spindle cells are variable in size and shape, usually associated with marked nuclear pleomorphism and tumour giant cells [3].

Spindle cell lesions affecting oral mucosa are absolutely diverse in nature and their diagnosis is always a challenge. While few are malignant, rest are benign or simply reactive in nature. Spindle cell carcinoma (SpCC) simulate squamous cell carcinoma (SCC) in which the spindle epithelial cell look alike a sarcoma on histological examination. Various other terminologies coined are pseudo sarcoma, carcinosarcoma, sarcomatoid squamous cell carcinoma or polypoid squamous cell carcinoma [4]. SpCC appear as polypoid, pedunculated neoplasm, protruding from the mucosal surface with ulceration. Usually affected sites in the head and neck region are oral cavity, larynx, tonsil and pharynx,with a sex predilection for males. Primarily it occurs in fifth and sixth decade of life affecting many other sites of oral cavity. The predisposing factors for the SpCC are similar to SCC like tobacco, a poor oral hygiene and radiotherapy. Oral clinician poses a difficulty in differentiating spindle cell neoplasm with SCC [5].
Spindle cells are mesenchymal in origin and spindle cell tumors are usually spindle cell variant of another common malignancy, such as squamous cell carcinoma, melanoma, or sarcomas. Spindle cell tumors are rare in the maxillofacial region and usually harbor a wide range differential diagnosis including lesions which are both benign and malignant in nature [6]. Benign forms are usually well circumscribed and can be surgically removed with an excellent prognosis like presented in our case.

Conclusion

Spindle cell neoplasms are described as neoplasms, consist of spindle-shaped cells in the histopathology. Looking at the clinical scenario, it is very difficult to diagnose these neoplasms from routine hematoxylin and eosin sections of histopathology, and prudent use of immunostains have to be carried out to conclude the correct diagnosis. Appropriate diagnosis is indispensable for formulating correct treatment plan in order to minimize post-operative morbidity and mortality. Further, it is essential that in the absence of advanced diagnostic aids, a microscopically diagnosed spindle cell lesion should be considered to be of epithelial origin and treated likewise unless proved otherwise.

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