“A REVIEW OF 9 PALATAL SWELLINGS”

Santosh Patil¹
Suneet Khandelwal²
BharatiDoni³
Farzan Rahman⁴

Palatal swellings can at times be a challenging task for a clinician to diagnose. A mass or swelling of the palate can result from developmental, inflammatory, reactive or a neoplastic process. In differential diagnosis, swellings of odontogenic origin (cyst or tumor) must be considered because they are very common. This article reviews various common palatal swellings, their clinical presentation, differential diagnosis and management aspects.

KEYWORDS: Differential diagnosis, hard palate, swelling, inflammatory, cystic, neoplastic.


INTRODUCTION

Palatal swellings may result from a variety of etiological factors, and can originate from the structures within the palate or beyond it.¹ They may be painful when infected or painless as in the case of benign swellings. They may be congenital or acquired in origin. Swellings of congenital origin are associated with unerupted teeth and torus palatinus while acquired conditions resulting in palatal swellings include dental abscess, salivary gland neoplasms, fibro-osseous lesions, fibrous lumps, epithelial and connective tissue neoplasms such as papilloma, squamous cell carcinoma of palate or antrum, brown tumor etc. These swellings can be best examined by inspection and palpation similar with most oral lesions. Radiographs can aid in ruling out pathologies such as abscesses and periapical inflammatory conditions. Routine panoramic radiography can help to discover bony masses arising from the maxilla. As with any lesion, the final diagnosis is achieved after the histological examination; a biopsy must be performed which either will be excisional for a small lesion not thought to be malignant or incisional for a possible malignant lesion or a large lesion. We hereby present a review of the various palatal swellings.

Palatal abscess represents a palatally draining infection
of pulpal or periodontal origin. It is observed as a fluctuant swelling in the premolar and molar region, lateral to midline (Figure 1).\textsuperscript{3} Palatal abscess may mimic minor salivary gland tumor or radicular cyst and can pose a difficulty in diagnosis. History and clinical examination along with radiographs will aid in diagnosing this condition. The fate of the infection depends on the numbers and virulence of the bacteria, host resistance, and associated and/or related anatomic structures.

Histopathology reveals exudate, necrotic debris, infiltration of the neutrophils and histiocytes. Treatment includes either extraction or a pulpectomy of involved tooth and/or drainage with antibiotic coverage.\textsuperscript{3} However, in rare cases palatal abscess can be localized adjacent to the midline and can pose a difficult diagnostic dilemma for the clinician. The taking of the history and intraoral examination are valuable diagnostic tools in conjunction with radiographic examination for the evaluation of palatal abscess.

**Pyogenic granuloma (PG)** is an inflammatory hyperplasia which is not uncommon in the oral cavity.\textsuperscript{4} Hartzell in 1904 introduced the term pyogenic granuloma.\textsuperscript{5} Although PG may be seen at any age, the peak incidence is seen in 2nd decade with increased predilection towards the female sex.\textsuperscript{6} Anterior gingiva is more commonly affected. Apart from gingiva, buccal mucosa, palate and lips and tongue are the other sites which are frequently affected by pyogenic granuloma. PG presents as a solitary smooth or lobulated mass, majority being pedunculated and some sessile (Figure 2). The surface of the lesion is usually ulcerated, friable and covered with white necrotic material resembling pus, because of which the clinicians may have called this lesion as PG. The colour vary according to the age of the lesion, the younger lesions usually appear highly vascular when compared to older ones which appear pink. The diameter of pyogenic granulomas varies from few millimetres to few centimetres. Histopathological examination of PG reveals a highly vascular proliferation which resembles a granulation tissue. These lesions consist of proliferating endothelial tissue, which is canalised into a rich vascular network with minimal collagen support, presence of polymorphs and chronic inflammatory cells can be appreciated in the edematous stroma along with microabscess formation.

**Radicular cyst (RC)** is the most common odontogenic cyst which arises from the epithelial cell rests of Malassez in response to inflammation. These cysts can occur in the periapical area of any teeth, at any age but are seldom seen in association with primary teeth. They are most commonly found at the apices of the involved teeth, but sometimes may be seen at the lateral aspects of the roots in relation to lateral accessory root canals.
Clinically the cyst appears as a well defined swelling with consistency ranging from hard to soft (Figure 3). RC is usually located in the anterior part of the upper jaw where traumatic injuries are common.\textsuperscript{7} The cyst is usually painless and may become painful when secondarily infected. Radiographically most of these cysts presents as a pear-shaped or round unilocular radiolucent lesions in the periapical region of the involved tooth. Occasionally these cysts may displace and cause mild resorption of the roots of adjacent teeth. Radiographically, it is difficult to distinguish between a granuloma and a cyst. Aspiration of the swelling helps in differentiating between a cystic and solid lesion.

Radicular cyst should be differentiated from other similar palatal swellings by locating associated discolored and nonvital tooth. The treatment involves extraction of the affected tooth or root canal treatment if the tooth can be preserved.\textsuperscript{8}

**Nasopalatine cyst (NPC) or Nasopalatine canal cyst** or Median anterior maxillary cyst occurs in 1\% of population, usually seen from 4\textsuperscript{th} to 6\textsuperscript{th} decades with 3:1, male to female ratio and shows predilection for Caucasian individuals.\textsuperscript{9} It was believed to arise from remnants of nasopalatine duct, an embryologic structure connecting the oral and nasal cavities in the area of incisive canal.

The common location of nasopalatine cyst is the midline of anterior maxilla near the incisive foramen (Figure 4). The cyst is often asymptomatic unless they are infected. Sometimes minor tolerable symptoms such as swelling, burning sensation, numbness over palatal mucosa and discharge may be present. A combination of swelling, discharge and pain may be seen. Discharge may be mucoid, in which case the patients feel a salty taste, or it may be purulent during which the patients may complain of a foul taste. Cysts which occur near the surface will be fluctuant and blue and the deeper cysts are covered with normal overlying mucosa which may be ulcerated due to trauma. Larger cysts penetrate labial plate to produce swelling below maxillary labial frenum unilaterally. Displacement of teeth is seen very rarely. Occasionally the cyst may also bulge in nasal cavity and distort the nasal septum. This cyst is usually treated with surgical enucleation.\textsuperscript{10}

Pleomorphic adenoma (PA) is a common benign salivary gland neoplasm regardless of site. It is characterised by neoplastic proliferation of parenchymatous glandular cells along with myoepithelial components, having a malignant potentiality. This tumor presents as a slow growing, firm painless mass, with a slight female predilection (Figure 5). Its most common intraoral site is posteriolateral part of the palate followed by lip, buccal mucosa, floor of the mouth, tongue tonsil, pharynx and retromolar area.\textsuperscript{11} MRI is an essential tool for the imaging of soft palate tumors as it aids in determining the extent and nature of the lesion, local spread and also the neoplastic status. The tumors involving the soft palate and the adjoining areas especially the parapharyngeal spaces are also known to arise as an extension from the deep lobe of the parotid gland. Such tumors have to be distinguished from those arising de novo. This can be differentiated by a distinct fine lucent line representing the compressed layer of fibro adipose tissue between the tumor and the deep lobe of parotid when seen on a MRI scan. Histopathologically, a mixture of neoplastic glandular epithelium and myoepithelial cells are seen in this tumor. Along with this a variety of patterns may also be seen. Excision of the tumor and the adjacent tissue is the treatment of choice. In the hard palate there may be fusion of the capsule with the periosteum, so
subperiosteal dissection along with excision may be considered.\textsuperscript{12}

PA should be differentiated from palatal abscess by absence of pain and failure to locate an infectious source. Malignant minor salivary gland tumors may sometimes mimic pleomorphic adenoma but they are associated with pain and ulceration of the overlying mucosa.

**Papillomas** are benign tumors that are composed of benign epithelium and a small amount of supporting connective tissue. The etiology of papillomas still remains unclear. Viral origin has always been suspected but studies did not arrive at a conclusion. In a small number of cases antigens of the human papilloma virus (HPV) have been noted. It is not clear till date that all intraoral squamous papillomas are etiologically related to cutaneous verruca vulgaris. Intraoral papillomas appear as an asymptomatic, well-circumscribed, pedunculated or sessile growths with numerous, small finger-like projections (Figure 6). They are generally less than 1 cm in diameter, average size is usually 3 to 4 mm and are most often solitary. No sexual predilection is noted. Papillomas may be found anywhere in the oral cavity, but they have a predilection for the hard and soft palate, the uvula, lips and the tongue.\textsuperscript{13}

Generally, the clinical appearance of oral papillomas is hardly distinguishable from that of common warts (verrucae vulgaris). For an accurate differential diagnosis, it is necessary that any HPV that is normally found in skin lesions also be identified in the intraoral lesion. The papilloma viruses present in skin lesions that have been associated to intraoral common warts are HPV-2 and 57.\textsuperscript{14} A logical association for clinical diagnosis would be to establish a connection between the presence of common warts in the child’s hands and fingers, habits such as thumbor finger-sucking and onychophagia, and the oral papilloma lesion.\textsuperscript{15} The histological examination of these lesions reveals the proliferation of the spinous layer cells, following a digitiform pattern with a delicate core of fibrous connective tissue constituting the supporting stroma. Variable degrees of inflammatory reaction can be observed in this stroma, depending on the existence of epithelial ulcerations. The treatment of choice is surgical excision, which should include the base of the mucosa into which the pedicle or stalk inserts. The specimen should be sent for histopathologic examination to confirm the clinical diagnosis of papilloma and to assure that the surgical intervention and treatment management of the pathology were adequately performed. With proper excision, papillomas rarely recur, except in cases involving the larynx.\textsuperscript{13}

**Fibroma** also referred to as irritation fibroma, is by far the most common of the oral fibrous tumorlike growths. While the terminology implies a benign neoplasm, most if not all fibromas represent reactive focal fibrous hyperplasia due to trauma or local irritation. Although the term focal fibrous hyperplasia more accurately describes the clinical appearance and pathogenesis of this entity, it is not commonly used.

A fibroma may occur at any oral site, but it is seen most often on the buccal mucosa along the plane of occlusion of the maxillary and mandibular teeth as depicted below. It is a round to ovoid, asymptomatic, smooth-surfaced, and firm sessile or pedunculated mass (Figure 7). The diameter may vary from 1 mm to 2 cm. The surface may be hyperkeratotic or ulcerated, owing to repeated trauma.

Fibromas are most often observed in adults, but they may occur in individuals of any age and either sex. Histologically, a fibroma is an unencapsulated, solid,
nodular mass of dense and sometimes hyalinized fibrous connective tissue that is often arranged in haphazard fascicles. A mild chronic inflammatory infiltrate may be present. The surface epithelium may be hyperkeratotic, either hyperplastic or atrophic, and it may be ulcerated. The clinical differential diagnosis of a fibroma includes giant cell fibroma, neurofibroma, peripheral giant cell granuloma, mucocele, and benign and malignant salivary gland tumors. Conservative excisional biopsy is curative, and its findings are diagnostic. Recurrence is possible, however, if the offending irritant persists.16,17

Adenoid cystic carcinoma (ACC) or Cylindroma first described by Theodore Bilroth in 1856, is the commonest minor salivary gland tumor and accounts for 10% of all salivary gland tumors.18 This tumor is seen in patients beyond 50 years of age with male predilection.19 It appears as slow progressing, slightly painful, indurated swelling lateral to the midline. The overlying mucosa may show telangiectasias or ulceration (Figure 8). Progression of this tumor is usually slow and metastasis is seen in late stages leading to poor prognosis. Microscopic features show lack of encapsulation and invasion into adjacent hard and soft tissues. Tumor cells characteristically invade perineural lymphatics, the classic pattern show hyperchromatic, monomorphic cuboidal cells arranged in islands forming multicystic cribriform patterns resembling Swiss cheese.

Cylindroma may resemble other benign and malignant salivary gland tumors, sarcomas or carcinoma of maxillary sinus with palatal invasion. Its classical presenting features help to differentiate it from the above said conditions.20

Clinical differential diagnosis included a benign or a low grade malignant neoplasm of minor salivary glands, reactive/inflammatory condition of minor salivary glands, a malignant growth of the maxillary sinus, benign mesenchymal neoplasm and much less likely a slow-growing malignant mesenchymal neoplasm.

Squamous cell carcinoma (SCC) is seen commonly in older men and it is the most common malignant tumor of the oral cavity representing about 90% of all oral malignancies.21 SCC is an important cause of morbidity and mortality worldwide with an incidence rate that varies widely. The etiology appears to be multifactorial and strongly related to lifestyle, mostly habits and diet (particularly tobacco alone or in betel, and alcohol use), although other factors, such as infective agents, also are implicated. Immune defects, defects of carcinogen metabolism, or defects in DNA-repair enzymes underlie some cases. Clinically, SCC appears as painless, slow growing swelling; as the lesion enlarges it may become an exophytic mass with a fungating or papillary surface (Figure 9). Carcinoma of the maxillary alveolar ridge may extend to involve palate and it may mimic a pyogenic granuloma when located adjacent to a tooth. The diagnosis will be confirmed after histopathologic examination, which will reveal dysplastic features and invasion. Depending upon the size and location of the tumor it is treated by surgical excision or radiation therapy.22

CONCLUSION

It is well understood that the palatal mass can pose a difficult diagnostic dilemma for the clinician. The swelling may present with the common characteristics and may be indistinguishable clinically. Emphasis is placed on the importance of obtaining a thorough and comprehensive history and collecting relevant laboratory information. Finally, a biopsy of the palatal mass may be necessary to arrive at definitive diagnosis and determine the optimal management of the patient.
REFERENCES