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REVIEW ARTICLE

ORAL VERRUCOPAPILLARY LESIONS- A BRIEF REVIEW

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ABSTRACT

Oral Verrucopapillary lesions are a group of growths in the oral mucosa which exhibit verruciform and/or papillary surface projections. These lesions can be caused by several factors like infections, inflammatory reactions, neoplastic growths or idiopathic causes. Clinically these lesions bear close resemblance to each other and are thus often quite confusing. Proper diagnostic approach guided by thorough clinical examination, accurate histopathological evaluation and at times special investigations are necessary to identify the lesion and establish the treatment plan and prognosis. The common Verrucopapillary lesions have been discussed here with a view to explore their clinical and histological features in a concise pattern.

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INTRODUCTION

The word Verrucopapillary is derived from two words- verrucous (means wart or wart like) and papillary (means relating to or resembling papilla) (American Heritage, 2011). The first reported case of Verrucopapillary lesion (VPL) was by Fridell and Rosenthal in 1941. They described a case of Well differentiated Oral Squamous Cell Carcinoma as 'Papillary Verrucoid Carcinoma'. (Thomas George Kallarakkal, 2013). Ever since, various cases of VPL of the oral cavity have been reported. Oral VPLs include a wide array of lesions varying considerable in their etiological factors, clinical features and histological characteristics. Based on the nature of the lesion these are grouped into the following types (Regezi, 2012).

Reactive/Infectious Lesions

- Squamous Papilloma/OralWart
- Papillary Hyperplasia
- Condyloma Latum
- Condyloma Acuminatum
- Focal Epithelial Hyperplasia

Neoplasms

- Keratoacanthoma
- Verrucous Carcinoma

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Idiopathic Lesions

- Pyostomatitis Vegetans
- Verruciform Xanthoma

Several of these lesions may show minimal or high degrees of dysplasia or malignant features. A study of 150 lesions amongst 137 patients was conducted by Whitefield S et al. over a period of 10 years (2007-2016). 60 % showed presence of various subtypes of Human Papilloma Virus, 19% showed hyperplasia, 11 % showed hyperplastic candidiasis while 7% of the cases had dysplastic/malignant features and 3% were of benign or unknown etiology (Sara, 2018).

Squamous papilloma/ Oral Wart (SP): Squamous papilloma is fourth most common mass of the oral mucosa (Singh, 2016). The principal etiologic agent responsible for papilloma is a non enveloped icosahedral DNA virus named Human Papilloma Virus (HPV). Papillary oral lesions are associated commonly with HPV subtypes 6,11, 13 and 32 (Varnai, 2009). These lesions are mostly benign in nature and are affected by smoking, presence of co-existent infections, dietary deficiencies and hormonal changes (Carneiro, 2009). Isolated solitary lesion is most commonly found in the adult oral cavity while multiple recurrent ones are commonly found in laryngotracheobronchial complex of children (Jaju, 2010).

Clinical Features: Oral SP is commonly seen in middle aged adults of 30-50 years and is sometimes seen in children less than 10 years. The oral sites commonly affected are the tongue and the soft palate and less commonly lesions are present in the uvula and lip vermillion (Kumar, 2013). Though various

other oral sites may also be involved in some cases. The lesion is usually asymptomatic and presents as exophytic, pinkish white masses with surface granularity and cauliflower like projections measuring less than 1 cm (Regezi, 2012).

Histopathological features: Histopathological evaluation of sections of SP is reveal presence of hyperkeratotic, squamous epithelium with multiple finger like projections showing normal pattern of maturation. The most striking feature is the presence of cells in the spinous layer showing presence of perinuclear cytoplasmic vacuolation which present as a clear halo around the nucleus called koilocytes. Pyknosis and basilar hyperplasia could be noted in some cases (Oliviera, 2005).

Papillary Hyperplasia (PH): Papillary Hyperplasia (PH) is seen in hard palate of removable denture users and presence of papillomatosis of palatal mucosa in the denture bearing area. Fungal infection along with chronic low grade trauma from ill fitting or loose dentures is important predisposing factors for PH (Regezi, 2012). Though cases have also been reported from patients who do not use prosthesis (Thwaites, 1990). Study performed by Ettinger showed the prevalence rate of PH among upper denture wearers to be 14% (Ettinger, 1975).

Clinical Features: PH presents as benign, nodular, asymptomatic, pink to red, solitary or multiple growths of less than 2 mm in size usually involving the hard palate (Thwaites, 1990). Rare cases have also been reported in the mandible (Tucker, 1976).

Histopathological features: Microscopically PH shows stratified squamous epithelium with papillary projections. The epithelium may show features of pseudoepitheliomatous hyperplasia but no evidence of dysplasia is noted. Hyperplastic, well vascularised core of connective tissue with chronic inflammatory cell infiltrate support the epithelium (Regezi, 2012).

Condyloma Latum (CL): Condyloma Latum is a manifestation of secondary syphilis. Cutaneous lesions appear in the perianal and genital areas. CL shows presence of Treponema Pallidum and hence is infectious in nature.

Clinical features: Oral lesions of CL appear as soft, exophytic, papillary or polypoid masses with smooth or lobular surface.

Histological features: Tissue sections of CL demonstrate presence of marked acanthosis with significant intra and intercellular oedema in the epithelium with presence of neutrophils. Underlying connective tissue shows perivascular plasma cell infiltrate without true vasculitis (Regezi, 2012).

Condyloma Acuminatum (CA): Condyloma acuminatum is a human papillomavirus (HPV)-induced sexually transmitted disease which is characterised by epithelial proliferation in the genital region, perianal region, oral cavity and larynx. More than 100 subtypes of HPV have been identified out of which subtypes 6 and 11 are commonly associated with the disease though HPV 2, 53 and 54 have also been detected in some cases. Rarely, the high-risk subtypes of HPV 16 and 18 may be isolated especially from anogenital lesions (Neville, 2009).

Clinical features: The disease is commonly seen in teenagers and young adults. Oral lesions are most common on the lips, floor of the mouth, tongue, buccal mucosa and soft palate. The lesions appear as solitary or multiple, sessile or pedunculated, pinkish papules or papillary lesions with pebbled surface (Rimkevičius, 2011).

Histopathological features: Histologically CA is marked by presence of papillary projections of the surface epithelium with basilar hyperplasia and acanthosis. Pseudoepitheliomatous hyperplasia and presence of koilocytic changes in the superficial layers of the epithelium are important characterstic features of CA (Thwaites, 1990).

Focal Epithelial Hyperplasia (FEH): Focal epithelial hyperplasia also called Hecks disease or multifocal papilloma (Archard, 1965) is another HPV induced lesion of the oral cavity. HPV 13 and 32 are the chief etiological agents of Hecks disease.

Clinical features: FEH is more predominantly seen in early ages of life without significant gender predilection. Clinically FEH manifests as solitary or multiple, painless, small, papular or nodular growths with normal overlying mucosa primarily on the buccal mucosa, lower lip and tongue and less commonly on the upper lip, palate and gingival (Heck, 1965).

Histopathological features: Microscopically FEH is marked by clubbing and fusion of rete ridges of epithelium. Marked acanthosis and parakeratotic changes are also noted. Ballooning changes, nuclear fragmentation and abnormal chromatin are evident in the superficial layers of the epithelium. Koilocytic changes are evident (Regezi, 2012).

Keratoacanthoma (KA): Keratoacanthoma is a benign neoplastic condition arising from the hair follicles (Jaju, 2010). The lesion is characterised by initial rapid growth phase followed by spontaneous regression (Chauhan, 2011).

Clinical features: The disease primarily affects the fair skinned, elderly individuals with a predilection for sun exposed areas like vermilion border of the lips, cheeks, nose and the back of the hands (Miot, 2006). Very few cases of KA affecting oral mucosa and conjunctiva have also been reported (Svirsky, 1965). It presents as a dome shaped nodular mass with a central crateriform depressed area filled with keratin (Chauhan, 2011).

Histopathological features: The growth of the lesion takes place in several phases. The early stage lesion shows downgrowth of proliferating squamous epithelium with marked degrees of acanthosis (Rajendran, 2009). The late stage lesion shows enlarged cells with pale, eosinophilic, glass like cytoplasm. These cells are arranged concentrically with increased central keratinisation. Edges of the lesion overlap the central crater giving the appearance of lipping or buttressing. Inflammatory cell infiltrate could be noted in the connective tissue stroma (Weedon, 2003).

Verrucous Carcinoma (VC): *Verrucous carcinoma also known as Ackermans tumour is a low grade variant of squamous cell carcinoma affecting skin and mucosa. UV radiation, consumption of tobacco (especially chewable forms) and HPV 16 and 18 are considered to be the chief etiological agents of this lesion.*

Clinical features: *VC is common in older males and presents as slow growing, whitish grey, exophytic, verrucous papules or plaques. Secondary infection causing lymphadenopathy are noted in some cases (Warshaw, 2000).*

Histopathological features: Sections of VC under microscope reveal hyperkeratosis, acanthosis and broad elephant foot shaped rete pegs. The hyperplastic epithelium seems to push into the underlying connective tissue but the basement membrane remains intact. Cellular atypia is not prominent in VC. The stromal tissue shows presence of inflammatory changes (Neville, 2009).

Pyostomatitis vegetans (PV): *PV is a disease of unknown etiology though some cases have been related to gastrointestinal disorders* (*Regezi, 2012*).

Clinical features: *The lesion is more common in males and appears as small, edematous, nodular growths with occasional fissured surface. Multiple small pustules with papillary projections may also be occasionally encountered.*

Histopathological Features: *Microscopically the affected mucosa demonstrates hyperkeratosis and acanthosis along with pseudoepitheliomatous hyperplasia. Papillary surface projections are often evident. Epithelium may show ulceration and necrosis. Inflammatory infiltrate in the connective tissue is also a frequent finding and abscess formation in the stroma may be noted which extends to the basal layers of the epithelium* (*Sciuba, 2012*).

Verruciform Xanthoma (VX): VX is a rare lesion affecting the oral mucosa and appears as small papillary or cauliflower like growth. Few cases of extraoral verruciform xanthoma have also been reported and these are usually associated with other disorders like lymphodoema, epidermal nevi, congenital hemidysplasia etc. (Rajendran, 2009).

Clinical features: VX is common in gingival, alveolar mucosa and hard palate and presents as a single, asymptomatic, pale white to red, sessile or pedunculated growth with pebbly surface (Rajendran, 2009).

Histopathological features: Microscopically VX is characterised by the presence of fat laden macrophages i.e. foam cells exclusively in the connective tissue papilla. The crypts between the connective tissue papillae show parakeratosis (Akshay Shetty, 2013).

Conclusion

The verrucopapillary lesions affecting the oral mucosa include a wide spectrum of lesions ranging from reactive to neoplastic ones. At times it is difficult to distinguish these lesions by clinical examination alone as they bear close resemblance to each other. Thus a thorough understanding of these lesions through amalgamation of the clinical and histological features is important for early diagnosis and proper treatment.

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