

Multifocal Gingival Squamous Cell Papilloma: A Case Report and Literature Review

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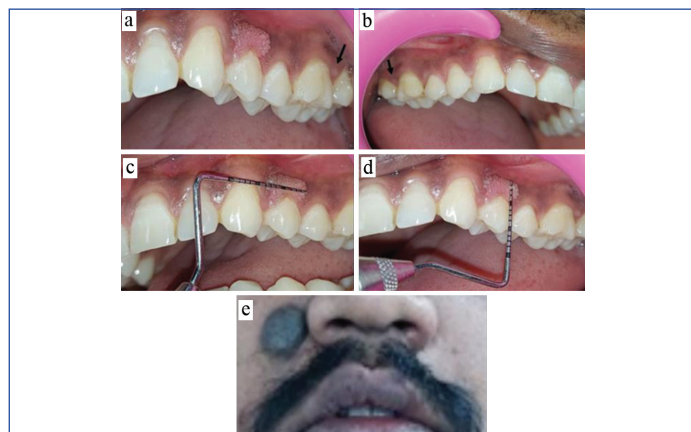
ABSTRACT

Squamous Cell Papilloma (SCP) is a benign, asymptomatic, exophytic cauliflower-like growth of mucosal mass. It is mostly associated with Human Papilloma Virus (HPV) subtypes 6 and 11, and has a very low virulence and infectivity rate. The papillomas are commonly known as warts or verrucas when found on the skin. The typical lesion is a single mass with finger-like extensions, resembling a soft, pedunculated growth supported by a stem or stalk. If keratin, a skin protein, accumulates around the lesion, the projections can be long and pointed or short and rounded. Intraorally, the most common sites of occurrence are the tongue, lips, buccal mucosa, palate, and uvula. Hereby, the author present a case report of 25-year-old male patient with a 4×9 mm exophytic growth exhibiting a pebbled surface in the upper left first premolar region, with no signs of radiographic bone loss. Additionally, smaller pinpoint lesions were observed bilaterally in the interdental region of the first and second maxillary molars. A nevus on the right side of the face was also noted. Histological analysis confirmed the diagnosis of SCP. The presence of multifocal gingival squamous papilloma, along with an extraoral nevus, represents a novel finding that warrants reporting. The gingival lesion in the maxillary left first premolar region was surgically excised, along with 1 mm of healthy surrounding gingiva. This resulted in complete healing, and no recurrence was observed during the 12-month follow-up period.

Keywords: Benign neoplasm, Human papilloma virus, Oral cavity

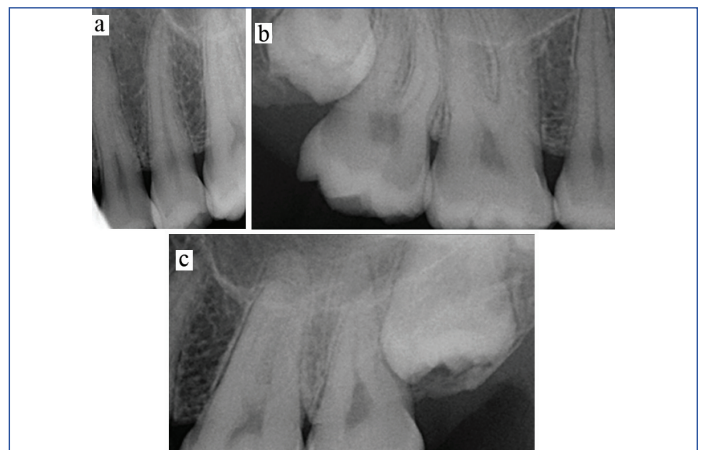
CASE REPORT

A 25-year-old male patient reported mild intermittent pain and irritation in the gums while chewing hard food in the upper left-side region for the past six months. The dental and medical history were non contributory. Intraoral clinical examination revealed a pinkish, exophytic sessile growth measuring 4×9 mm with a pebbled surface on the facial marginal and attached gingiva in the maxillary left first premolar region. The lesion did not involve the mucogingival junction. The surrounding gingiva appeared normal, with no bleeding on probing and a pocket depth of 3 mm around the same tooth. Similar solitary pinpoint lesions were observed bilaterally in the interdental papillary region of the first and second maxillary molars [Table/Fig-1a-d]. Extraorally, a hard and sessile nevus measuring 8×9 mm was present on the right side of the face, lateral to the nostril. The nevus was non-painful and had been present since birth, as reported by the patient [Table/Fig-1e].



[Table/Fig-1]: a) Shows an exophytic growth with finger-like projections in relation to upper left first premolar region (tooth #12). Arrow points to the pinpoint lesion in interdental papillary region between maxillary left first and second molars (teeth #14 and #15); b) Shows arrow pointing toward the pinpoint lesion in interdental papillary region between maxillary right first and second molars (teeth #2 and #3); c) Shows 9 mm mesiodistal width of the solitary lesion with respect to #12; d) Shows 4 mm apico-coronal dimension of the solitary lesion with respect to #12; e) Shows the extraoral hard and sessile nevus 8×9 mm on the right-side of the face, lateral to the nostril.

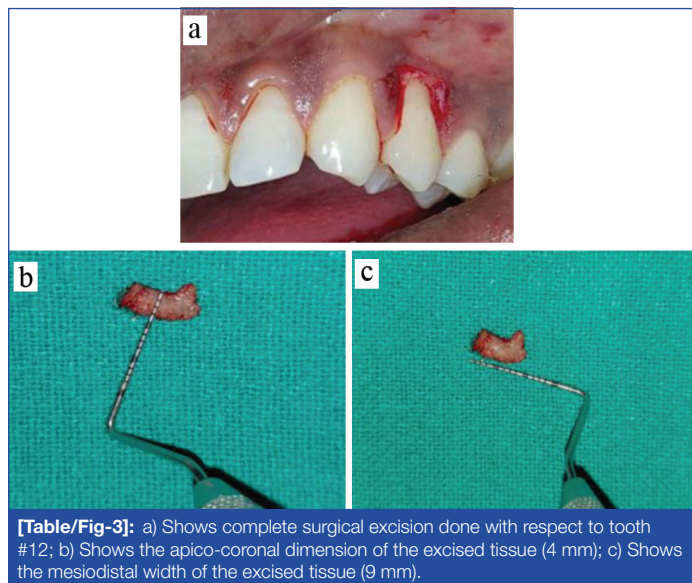
No intervention was performed for the extraoral nevus at this point. The patient was advised and referred to a surgeon for an opinion. However, the patient expressed disinterest in seeking treatment for the nevus. Regarding the gingival lesions, no radiographic bone loss was evident in relation to the maxillary left first premolar or the interdental area between the first and second maxillary molars on either side [Table/Fig-2a-c].



[Table/Fig-2]: a) Shows no crestal bone loss in upper left first premolar region (tooth #12); b) Shows no crestal bone loss in interdental papillary region between maxillary right first and second molars (teeth #2 and #3); c) Shows no crestal bone loss in interdental papillary region between maxillary left first and second molars (teeth #14 and #15).

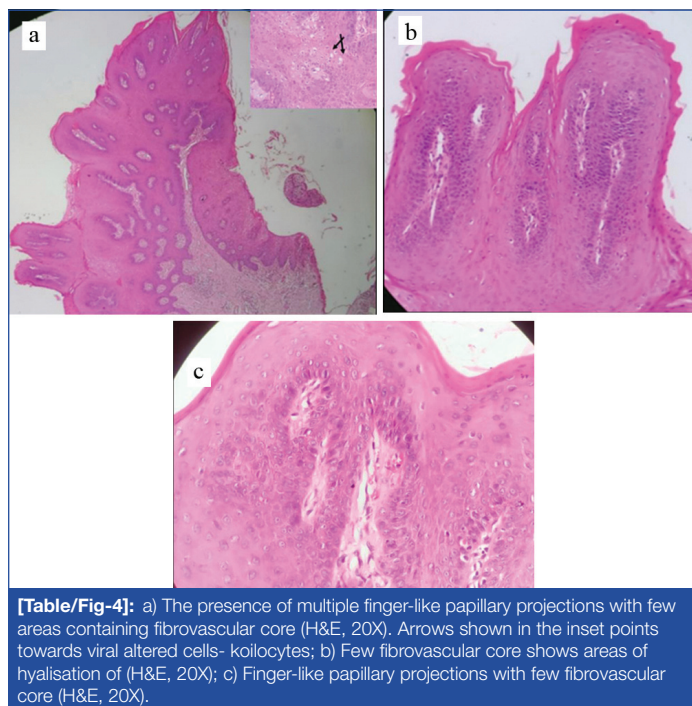
A provisional diagnosis of gingival squamous papilloma was made, with differential diagnoses including papillary hyperplasia, verruciform xanthoma, condyloma acuminatum, and verruca vulgaris. Excisional biopsy was planned for the exophytic tissue present on the mid-buccal surface of the maxillary left first premolar, while the pinpoint lesions were left untreated. The patient provided written informed consent after the procedure was explained. Complete haemogram levels were within normal limits, and full mouth scaling and root planing were performed. The biopsy was conducted in accordance with the ethical standards outlined in the 1975 Declaration of Helsinki, as revised in 2013. Under local anaesthesia, the lesion

was excised along with 1 mm of surrounding healthy gingiva [Table/Fig-3a-c] using a No.15 Bard Parker (BP) blade, and periodontal dressing* was applied to the site. The excised tissue was sent for histopathological {Haematoxylin and Eosin (H&E)}.



[Table/Fig-3]: a) Shows complete surgical excision done with respect to tooth #12; b) Shows the apico-coronal dimension of the excised tissue (4 mm); c) Shows the mesiodistal width of the excised tissue (9 mm).

Histological features included hyperkeratinised stratified squamous epithelium projecting as finger-like papillary projections with fibrovascular cores. Some fibrovascular cores showed hyalinised stroma. The underlying stroma exhibited small and large vascular channels and a moderate amount of inflammatory cell infiltrate, predominantly lymphocytes. Additionally, koilocytes were also observed [Table/Fig-4a-c]. These findings confirmed the diagnosis of gingival SCP.

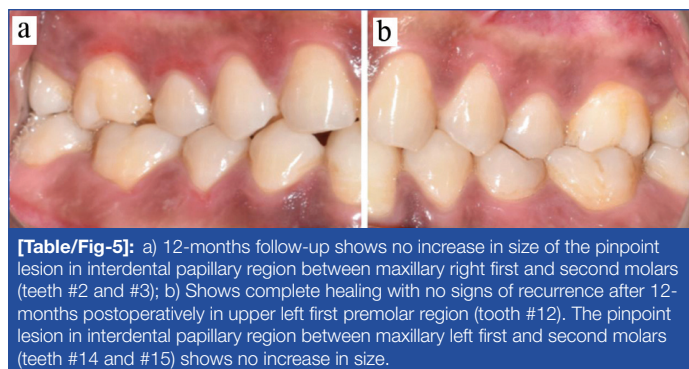


[Table/Fig-4]: a) The presence of multiple finger-like papillary projections with few areas containing fibrovascular core (H&E, 20X). Arrows shown in the inset points towards viral altered cells- koilocytes; b) Few fibrovascular core shows areas of hyalinisation of (H&E, 20X); c) Finger-like papillary projections with few fibrovascular core (H&E, 20X).

Following the surgery, the patient was recalled after one week for evaluation, and the healing process was uneventful. Follow-up examinations at 1, 6, and 12 months showed no signs of recurrence [Table/Fig-5a,b].

DISCUSSION

Squamous Cell Papilloma (SCP) is a benign exophytic growth characterised by localised verrucous or cauliflower-like proliferation. The aetiology of SCP includes mechanical and chemical irritation and/or infection with HPV subtypes 6, 11, and 16, with HPV 6 and



[Table/Fig-5]: a) 12-months follow-up shows no increase in size of the pinpoint lesion in interdental papillary region between maxillary right first and second molars (teeth #2 and #3); b) Shows complete healing with no signs of recurrence after 12-months postoperatively in upper left first premolar region (tooth #12). The pinpoint lesion in interdental papillary region between maxillary left first and second molars (teeth #14 and #15) shows no increase in size.

11 having low oncogenic potential [1]. SCP is the fourth most common oral mucosal lesion, accounting for 4 in 1000 of all biopsied lesions [2]. It often occurs in the age group between 30-50 years with a higher predilection in males. HPV lesions are infectious, but SCPs have an extremely low virulence and infectivity rate [1].

Squamous Cell Papillomas (SCP) most commonly occurs on the vermillion of the lips, hard and soft palate, with a high predilection for the uvula [3]. However, its occurrence on the gingiva is relatively rare [3,4]. This case report presents a case of multifocal gingival squamous papillomas, with a lesion on the keratinised mid-buccal gingiva in relation to the upper left first premolar, smaller pinpoint lesions bilaterally in the interdental region of the first and second maxillary molars, and a nevus on the right side of the face lateral to the nostrils. Basal cells of the gingival epithelium are considered one of the possible reservoirs of latent HPV infection [5]. The aetiopathogenesis of squamous papilloma of the gingiva could be explained by the presence of local irritation or persistent inflammation of the gingiva, leading to increased epithelial cell division, which further aids in HPV replication [5].

The current case presents a squamous papilloma involving the marginal and attached gingiva of the maxillary left first premolar. Although no radiographic bone loss was evident. Histopathologically, SCPs present as characteristic finger-like projections showing hyperkeratosis, with a fibrovascular core and a hyalinised stroma containing a marked granular cell layer. Koilocytes may or may not be seen. Under conditions of chronic irritation or trauma, small foci of lymphocytes can be observed at the base of the lesion [3]. In the present case report, the patient complained of gum irritation during mastication, and clinical findings revealed multifocal exophytic gingival lesions along with a nevus on the face. Furthermore, histological findings demonstrated typical features of SCP, along with the presence of lymphocytes and koilocytes. All these findings pointed towards a viral aetiology. Differential diagnoses of squamous papilloma may include papillary hyperplasia, verruciform xanthoma, condyloma acuminatum, and verruca vulgaris [6]. The limitation of the present case report includes the absence of advanced techniques such as Polymerase Chain Reaction (PCR), comet assay, and DNA Break Detection/Fluorescence in-situ Hybridisation (DBD-FISH) testing to confirm HPV involvement. Treatment of squamous papilloma includes surgical excision in toto, including the base of the lesion and a small area of marginal tissue. Laser treatment has also been proposed as an alternative treatment option to surgical scalpel in the literature [7]. Recurrence of SCP is relatively rare, except for Human Immunodeficiency Virus (HIV) infected lesions [8].

Literature review: In a review of the literature a case report showed the presence of a cauliflower-like growth 6x10 mm with tiny finger-like projections on the facial aspect of the mandibular left second premolar, involving the keratinised gingiva with mild crestal bone loss [Table/Fig-6] [1,4,9-15].

Name of author and year of publication	Type of study	Patient age and sex	Site of occurrence	Associated habit	Medical history	Cinical appearance	Symptoms	Radiographic finding	Any associated features	Histological findings
Jaju PP et al., 2010 [9]	Case report	25 years/ female	Palatal rugae area	-	-	Exophytic and sessile growth of (2x2 cm) dimension, pink in colour with pebbled surface, present on palatal rugae area. Another small papule with a pebbled surface, (1x1 cm) present posterior to the larger lesion.	Slow growing	-	A firm verrucous growth having a dry and rough surface was present on the index finger of left hand. The left submandibular lymph nodes were tender on palpation.	Long, thin finger-like projections extending over mucosal surface, lined by stratified squamous epithelium consisting of a thin central connective tissue core. Koilocytes may or may not be seen.
Vieira EV et al., 2012 [10]	Case report	40 years/ Male	Soft palate	Smoker, alcoholic, history of wearing upper and lower complete dentures	-	-	-	-	History of previous injuries in the skin of the hands.	Hyperplastic epithelium stratified keratinised, with intense vacuolisation and moderate hydropic projecting itself in the form of papule.
Singh AP et al., 2013 [11]	Case report	51 years/ Male	Present on the lower lip near the left corner of mouth	-	-	White coloured 1x1 cm in size exophytic exophytic growth, pedunculated, finger-like projections showing a cauliflower-like appearance.	Gradually increasing in size	-	The left submandibular lymph nodes were tender on palpation.	Histological features shows digitiform pattern of the spinous layer cells with a fibrous connective tissue core and supporting stroma.
Alan H et al., 2015 [12]	Case report	44 years/ Male	Border of hard and soft palate	-	-	Exophytic pedicle lesion, (5x3 mm) in size, white in colour, having a pebbled surface.	-	-	-	Hyperplastic stratified keratinised squamous epithelium, showing numerous finger-like projections.
Singh AK et al., 2016 [13]	Case report of 2 cases	A. 55 years/ Male	Lower lip	Patient was edentulous from five years with no history of denture wearing.	-	Exophytic, sessile growth, pink in colour with an irregular surface, 0.5x0.5 cm in diameter, present in the middle of labial mucosa of lower lip.	Asymptomatic and gradually increasing in size	-	-	Proliferation of the spinous layer cells, forming finger-like projections with a fibrous connective tissue core constituting the supporting stroma.
	-	B. 33 years/ Female	Left upper alveolar ridge	Edentulous from past one year but no history of denture wearing	-	Exophytic, sessile growth of 1.5x1.5 cm in size, whitish in colour with an irregular surface.	Asymptomatic and gradually increasing in size	-	-	Proliferation of the spinous layer cells, forming finger-like projections with a fibrous connective tissue core.
Pesantez J et al., 2018 [1]	Case report	63 years/ Male	Involving the soft palate, lateral to the base of the uvula	History of smoking, 20 cigarettes a day since 40 years	Controlled type II Diabetes Mellitus since one year ago, taking Metformin 800 mg twice a day	Vegetative lesion with a pedunculated base, white in colour, approximately 8 mm in diameter.	Asymptomatic	-	-	Proliferation of stratified keratinised squamous epithelium, forming numerous finger-like projections with fibrovascular connective tissue core, keratin in the superficial layer of epithelium. Koilocytes were evident in the spinous layer of epithelium.
Cameron YS 2019 [14]	Case report	12 years/ Female	Involves dorsum of the tongue	-	-	A freely movable pink-white coloured exophytic lesion having a pebbled surface texture resembling, "cauliflower".	Asymptomatic	-	-	Papillary projections of parakeratinised stratified squamous epithelium were seen.

-	-	-	-	-	-	-	-	-	-	Localised areas of basilar hyperplasia were seen. Koilocytes were present.
Aldhafeeri K et al., 2020 [15]	Case report	18 years/ Female	Tip of uvula	-	-	0.5 cm long fine strand of tissue was seen extending from uvular tip inferiorly, ending in a small disc-like pedunculated mass (0.5x0.55x0.5 cm).	History of dysphagia since five months. History of choking sensation, globus sensation, and felt the need of frequent throat clearing	-	-	1. Finger-like papillary projections, with a fibrovascular core, lined by benign stratified squamous epithelium. 2. Focal surface parakeratosis was seen.
Datta P et al., 2020 [4]	Case report	52 years/ Male	Present on buccal aspect of the mandibular left second premolar (#35) involving the keratinised gingiva	Occasional paan chewing for 7-8 years	-	Localised solitary exophytic lesion resembling a cauliflower like growth with a sessile base was seen involving the attached and marginal gingiva of 6 mmx10 mm wrt. #35.	-	Marginal bone loss in relation to #35 and #36	None	1. Hyperplastic squamous epithelium comprising of central fibrovascular core. 2. Finger-like papillary projections in the connective tissue were seen. 3. Koilocyte-like cells were present.

[Table/Fig-6]: Review of literature [1,4,9-15].

CONCLUSION(S)

The lesion present in the maxillary left first premolar region was surgically excised along with 1 mm of healthy surrounding gingiva, resulting in a complete healing. No signs of recurrence were observed during the 12-month follow-up period.

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