

Verruciform xanthoma of the buccal gingiva: two cases with different clinical presentations

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Running title: Verruciform xanthoma of the buccal gingiva

One sentence summary: Two cases of a relatively rare lesion, verruciform xanthoma, presented on the gingiva, and while benign, require histopathologic examination for a definitive diagnosis; recurrence is rare with complete surgical removal.

Abstract

Introduction:

Verruciform xanthoma is an uncommon, benign, asymptomatic lesion commonly affecting the attached tissues in the oral cavity, especially the gingiva. Clinical presentation can be variable and requires biopsy to confirm the diagnosis.

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Case Series:

Two cases of verruciform xanthoma in a 21-year old male and a 46-year old female are reported, emphasizing the need for thorough comprehensive analysis of all oral lesions. The clinical features, differential diagnoses, typical and atypical histological features and potential etiology are presented.

Conclusions:

Verruciform xanthoma should be considered in the differential diagnosis of solitary lesions in the oral cavity with a papillary, granular or verrucous surface texture, and confirmed with histopathological examination. Continued monitoring for recurrence at routine examination is necessary especially in sites where the lesion may not have been completely excised.

Key Words: diagnosis, histology, pathology-oral, periodontal medicine

Background:

Verruciform xanthoma (VX) of the oral cavity is an uncommon, hyperplastic, benign lesion of unknown etiology mainly affecting the masticatory mucosa.¹ The typical presentation can include a pink, red, or yellow coloration with a rough, pebbly texture, and a pedunculated or sessile base.² The presentation may resemble other oral lesions and may be clinically misdiagnosed as a papilloma.¹ The majority of cases are found during routine examination presenting with no radiographic bone changes.³ Most reports show 50% of documented lesions are verrucous in nature.¹ The size is usually less than 2 cm in greatest diameter but lesions over 4 cm have been reported^{1,2,4} with an overall incidence rate of 0.025-0.095%.^{2,5} Diagnosis is based on biopsy and histopathologic exam, as the clinical presentation is often non-diagnostic.

This report describes two occurrences of oral VX with differing clinical presentations.

Clinical Presentation + Case Management + Clinical Outcomes

PATIENT 1:

Clinical Presentation: A healthy, 21-year-old male presented to the Indiana University School of Dentistry (IUSD) Graduate Periodontics Clinic in July 2015 with an asymptomatic soft tissue mass on the buccal gingiva of tooth #1 extending onto the enamel surface. Clinical examination revealed a well-circumscribed, 1 cm, pedunculated nodule with a speckled light pink and yellow coloration and papillary texture (Figure 1).

Case Management: An excisional biopsy (Figure 2) was performed incorporating 2-3mm of unaffected tissue and submitted for histopathological examination. The histologic findings demonstrated papillary proliferation of surface epithelium overlying nodules of connective tissue packed with xanthoma cells, crypts of parakeratin with exocytosis of neutrophils, and an intense lymphoplasmocytic infiltrate within the connective tissue (Figure 3). These findings were consistent with a diagnosis of VX.

Clinical Outcomes: Follow up at 6 weeks revealed uneventful healing and no signs of recurrence (Figure 4). The patient did not return for any further examinations after the 6-week visit.

PATIENT 2:

Clinical Presentation: A 46-year old female with a non-contributory medical history presented to IUSD Dental Faculty Practice in September 2015 for evaluation of a non-ulcerated, well-circumscribed flat lesion on the buccal gingiva of #19 (Figure 5). The lesion measured approximately 2 x 6 mm and had a “speckled” yellow-white appearance. The lesion was discovered during a routine examination and had been present for approximately 2 years and may have slightly increased in size according to the patient.

Case Management: The lesion was conservatively excised and submitted for histopathologic examination. Histologic findings included a papillary proliferation of hyperplastic, hyperparakeratinized epithelium organized into finger-like projections. Within the connective papillae, numerous large macrophages with foamy cytoplasm were noted (Figure 6). This was consistent with a diagnosis of VX.

Clinical Outcomes: The patient healed uneventfully and showed a normal gingival appearance at 4 months (Figure 7). The patient has been followed for 2 years and has shown no recurrence.

Discussion:

Reports show that VX is most commonly located on the masticatory mucosa,^{2,3} and is most frequently found on the gingiva,^{1,3} followed by hard palate, tongue, buccal mucosa/vestibule, floor of mouth, alveolar mucosa, and soft palate.^{1,3} It is most commonly seen between 40-70 years of age with studies reporting differing sex predilections.^{1,2,3,5,6} The clinical presentation consists of isolated pink to white-yellow papules or nodules, that are persistent, slow growing, and asymptomatic. The surface texture can be papillary, granular or verrucous with either a pedunculated or sessile base.^{1-3,5,6} Treatment of choice consists of complete conservative surgical excision with an excellent prognosis and a rare recurrence rate.^{1-3,6}

Due to the nonspecific clinical features, differential diagnosis usually comprises verrucous-like solitary lesions in the oral cavity including, but not limited to, focal epithelial hyperplasia, squamous papilloma, condyloma accuminatum, verrucous leukoplakia, verruca vulgaris, and verrucous carcinoma.²

Lesions are classified histologically into verrucous, flat, or papillary, in order of most to least prevalent, based on surface characteristics and rete ridge proliferation.^{1,5} Both patients

presented with a microscopic appearance of papillary-type VX¹, however their clinical presentations differed: patient 1 appearing papillary, patient 2 appeared flat.

Histological findings show verrucous or papillary proliferation of the squamous epithelium with parakeratinization, acanthosis, and hyperkeratosis.^{2,3} This epithelium often, but not always, presents with relatively uniform, elongated rete pegs extending into the connective tissue. The histologic hallmark sign for diagnosis of VX is a large accumulation of lipid-laden, macrophages or foam cells within the connective tissue of the papillary projections, termed xanthoma cells.^{1,3,5,6} These foam cells are restricted within the papillae above the level of the rete pegs further most extension into the connective tissue.

The etiology remains unclear. Damage of the squamous cells from trauma, irritation, and/or infection⁵ can cause an increase in epithelial turnover and degeneration. This can lead to an inflammatory response, inducing the release of lipid proteins from the degenerated cells that are later scavenged by macrophages, thus forming xanthoma cells.^{3,5,6} Other investigators speculate that the epithelial architecture could be secondary to the presence of foam cells that affects the epithelial cell metabolism leading to hyperkeratosis.⁷

Recent studies have analyzed the origin of the xanthoma cells. Immunohistochemically, these cells are characterized as having a macrophage lineage, due to a strong positive immunoreactivity to CD-68 and cathepsin-B, both macrophage markers,^{2,3} and moderate staining for CD63 and CD163.^{1,3} Basal layers of the epithelium are strongly positive to CD138 and cytokeratin 14 in all cases of VX.¹

Conclusions:

Two cases and clinical management of verruciform xanthoma are presented. VX, an uncommon benign lesion, is most commonly found on the masticatory mucosa appearing as a pink, red, or

yellow verrucous plaque characterized histologically by xanthoma cells and epithelial papillary hyperplasia. Surgical excision is curative with a rare recurrence rate.

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Conflict of Interest:

The authors declare no conflict of interest.

Summary:

- **Why is this case new information?**
 - Two cases of a relatively rare lesion, verruciform xanthoma, presented on the gingiva. While benign, these lesions require histopathologic examination for a definitive diagnosis.
- **What are the keys to successful management of this case?**
 - Complete removal of the lesion to prevent recurrence
 - Histopathologic exam for definitive diagnosis to rule out other verrucous-like solitary lesions in the oral cavity.
 - Continued monitoring at follow-up visits for recurrence.
- **What are the primary limitations to success in this case?**
 - Recurrence is possible if not completely excised.

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PATIENT 1

Figure 1: Papillary pedunculated lesion on buccal gingiva of tooth #1.

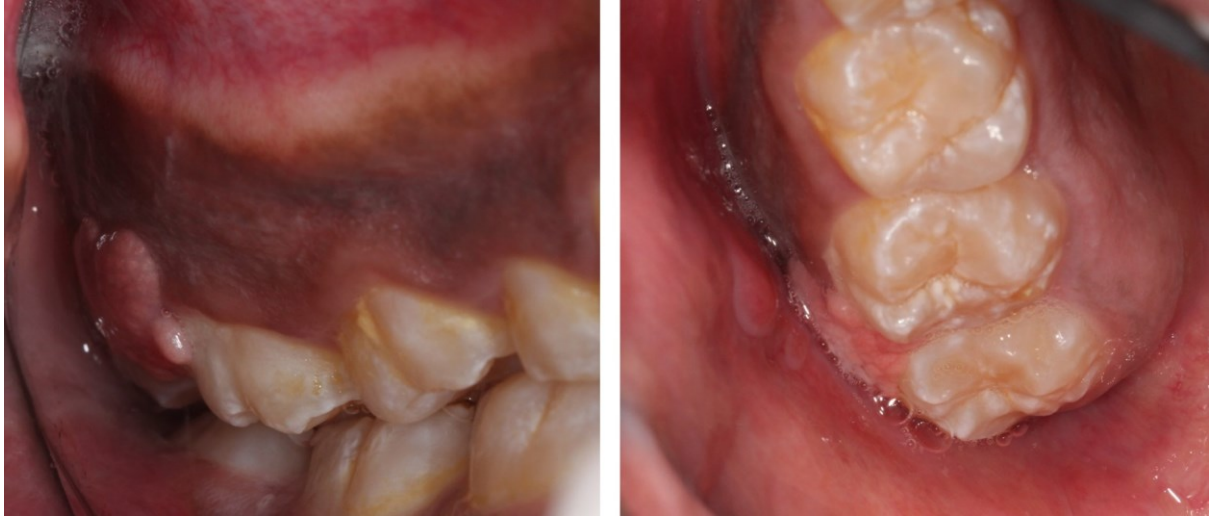


Figure 2: Biopsy specimen of papillary lesion with a 2-3mm border of healthy, unaffected gingival tissue.

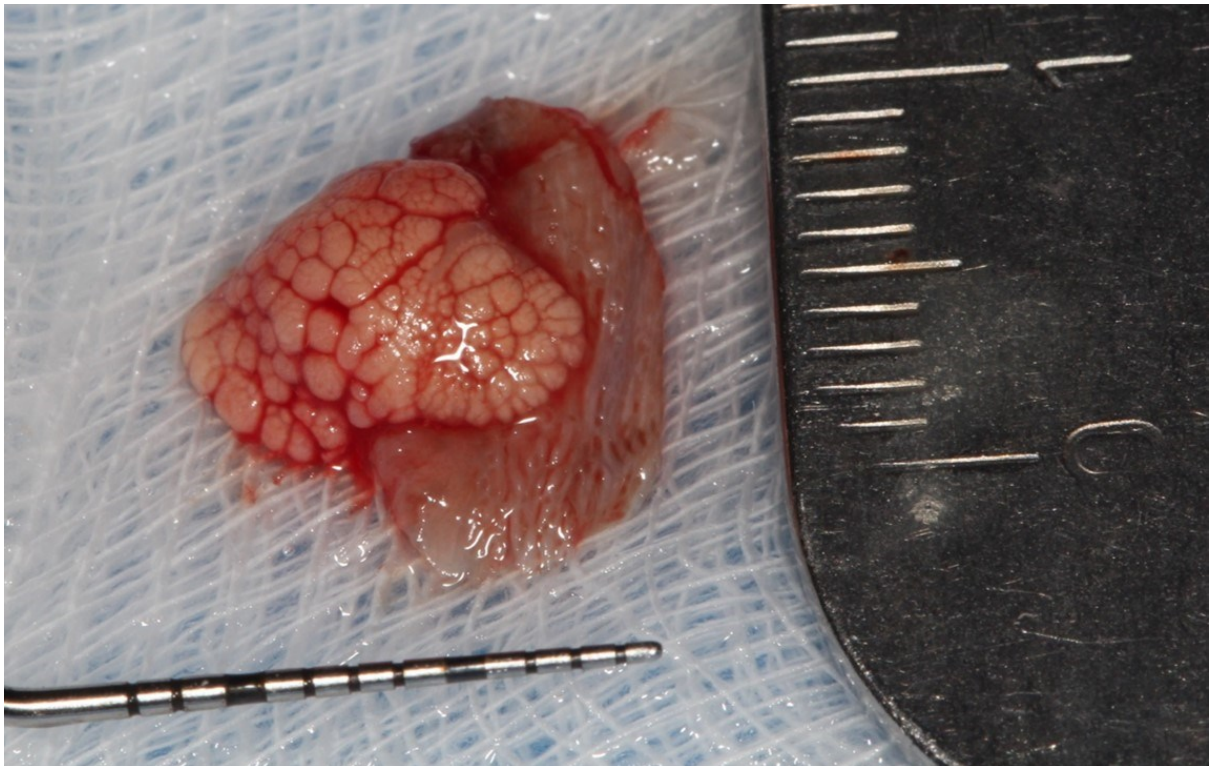


Figure 3: H&E staining of the biopsy specimen. a) Low power histologic section showing papillary proliferation of the surface epithelium overlying nodules of connective tissue. (Original magnification 20 X) b) High power view showing xanthoma cells and an intense lymphoplasmocytic infiltrate within the connective tissue. (Original magnification 200 X)

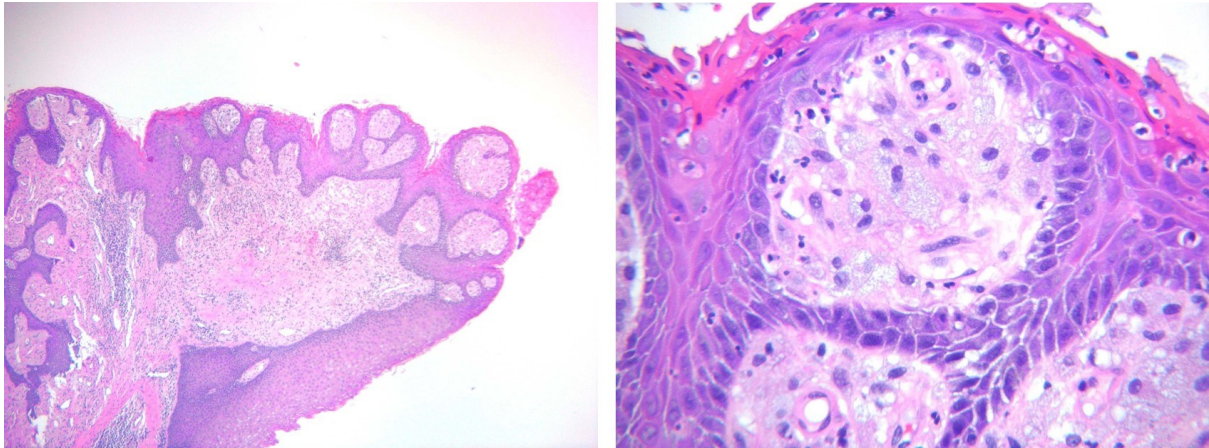
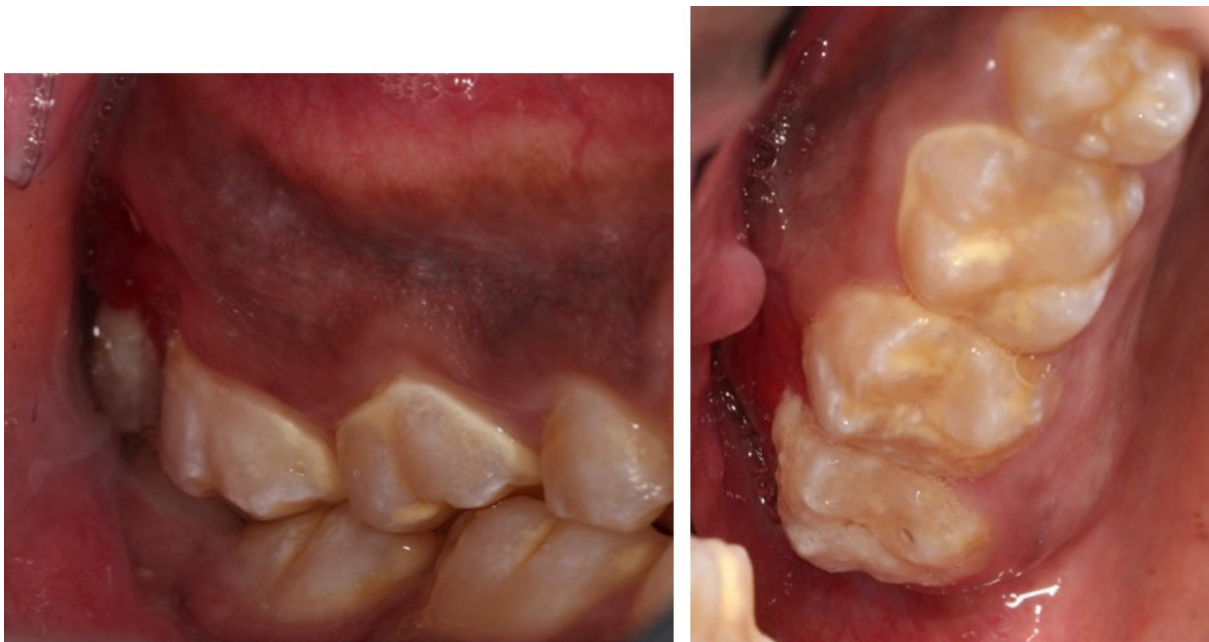


Figure 4: At the 6 week post op, uneventful healing with no recurrence is seen.



PATIENT 2

Figure 5: Flat, yellowish-white speckled lesion on buccal gingiva of #19.



Figure 6: a) Low power histologic sections showing papillary finger-like projections of hyperplastic epithelium. (Original magnification 40 X) b) high power view demonstrating numerous large macrophages with foamy cytoplasm within the connective tissue. (Original magnification 100 X)

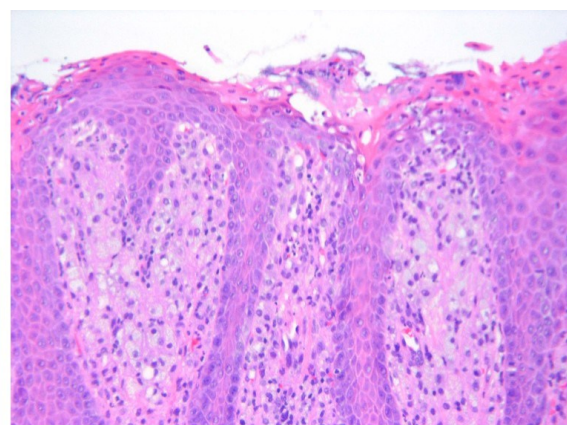
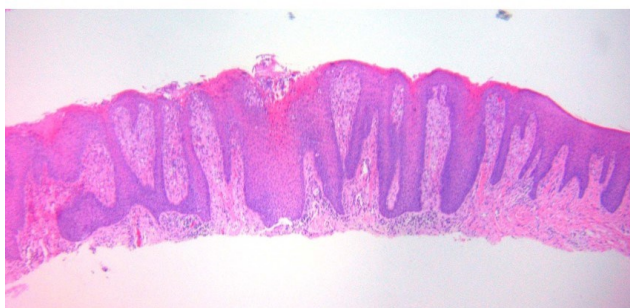


Figure 7: Normal gingival appearance at 4 months.

