

# Oral Squamous Papilloma Management with Diode Laser: A Case Report

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## ABSTRACT

**Introduction:** Oral Squamous Papilloma (OSP) is a benign, hyperplastic wart-like localized proliferation, representing an exaggerated growth of normal squamous epithelium caused by Human Papillomavirus (HPV) types 6 and 11. It can occur at any age and is commonly found on the tongue, lips, buccal mucosa and palate.

**Case report:** We present a case of oral squamous papilloma in a 40-year-old male patient in the hard palate which was managed by laser excision.

**Conclusion:** Oral Squamous Papilloma is an exophytic non-contagious growth which is caused by papilloma virus. Surgical excision is the treatment of choice and laser excision has shown to be a promising treatment modality with high patient compliance.

**Keywords:** Oral Squamous Papilloma, Human Papilloma Virus, Laser Excision

## INTRODUCTION

Squamous cell papilloma or Oral Squamous Papilloma (OSP) is a benign epithelial HPV induced growth. It is the fourth most common oral mucosal mass and is found in four of every 1000 and accounts for 3-4% of all biopsied oral soft tissue lesions.<sup>1</sup> The HPV types 6 and 11 have been identified in up to 50% of oral papillomas.<sup>2</sup> It can arise at any age, but more commonly seen in third to fifth decade. It is commonly seen in tongue, lips, gingiva, palate, although it can affect any part of oral mucosa.<sup>2</sup> It is often seen as a pinkish-white soft painless usually pedunculated exophytic mass less than 1 cm with numerous finger-like projections. Conservative surgical excision is considered the treatment for oral squamous papilloma and laser excision has shown to provide adequate treatment outcomes. This article aims to present a case of oral squamous papilloma of hard palate treated with diode laser and the post-surgical follow up.

## CASE REPORT

A 40-year-old male patient reported with chief complaint of growth in his palate since 2 months. Patient revealed that he was informed about the growth by a private dentist when he visited for filling his teeth. Patient was advised regarding removal of the growth by excision but was reluctant to do so. The patient noticed that the growth gradually increased in size and attained its present size. He had no associated pain, paresthesia or discomfort in speech or deglutition. No similar lesions were present elsewhere in the body. There were no contributory Medical, Dental, Family and Personal

history. The patient had a habit of smoking 2-3 cigarettes per day since 2 years.

Intra oral examination revealed a solitary well defined, exophytic sessile growth with an irregular finger-like projection was seen on the junction of hard palate and soft palate along the midline. The growth was pale pink in color, roughly oval, 1.2 x 0.8 cm in size (Figure 1). The surrounding mucosa appeared normal. On palpation, inspectory findings were confirmed. The growth was non-tender, soft in consistency with no discharge.

Based on the history, clinical features and the nature of the growth a provisional diagnosis of squamous papilloma was given. Differential diagnosis considered were verruciform xanthoma, papillary hyperplasia and condyloma acuminatum. The patient was assured and educated before obtaining consent for biopsy. The patient was subjected to complete hematological examination and all the parameters were within normal limits. Surgical excision of the growth was done using diode laser (K Laser 970 nm) with a 1 mm margin to the depth of submucosa under local anesthesia (Figure 2). There were no post-operative complications. After excisional biopsy, specimen was fixed and stained with hematoxylin and eosin for histological analysis.

Histological examination under 5X magnification revealed hyperplastic orthokeratinized stratified squamous epithelium with thin and elongated rete ridges with finger like projections. The finger like projections consist of central thin connective tissue carrying blood vessels. The deeper connective tissue stroma consist of minor salivary glands (Figure 3).

Based on clinical and histopathological report, the final

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**How to cite this article:** Rose Maria Jose, Ramnarayan B.K., Namitha Jayapal, Chaya M David, Pallavi Nanaiah, Vidya Anne Gowda. Oral squamous papilloma management with diode laser: a case report. International Journal of Contemporary Medical Research 2019;6(5):E25-E27.

**DOI:** <http://dx.doi.org/10.21276/ijcmr.2019.6.5.45>



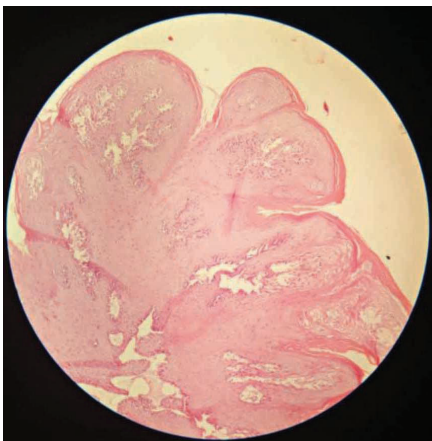
**Figure-1:** Clinical photograph showing solitary exophytic growth with finger like projections in the junction of hard palate and soft palate



**Figure-4:** Post operative photograph (one month) showing healed biopsy site.



**Figure-2:** Clinical photograph of the region after laser excision of the growth



**Figure-3:** Photomicrograph (Hematoxylin and eosin stain, 5 X) section showing tissue specimen stained with hematoxylin and eosin - hyperplastic stratified squamous epithelium with thin and elongated rete ridges with finger like projections, central thin connective tissue carrying blood vessels and deeper connective tissue stroma consisting of minor salivary glands

diagnosis of oral squamous papilloma was given. A month later, the clinical follow-up showed the complete tissue healing (Figure 4). One year of follow-up was done and no evidence of recurrence of the lesion was noted.

## DISCUSSION

Oral Squamous Papilloma is a benign, hyperplastic wart-like localized proliferation, representing an exaggerated growth of normal squamous epithelium. It is composed of benign epithelium and small amount of connective tissue core that is supportive. Tomes in 1848 first described this lesion as “gingival wart”.<sup>3</sup> The causative agent of this lesion is Human Papillomavirus types 6 and 11. HPV is a DNA virus and the replication of HPV occurs within the nuclei of epithelial cells in the spinous layer due to stimulation of host DNA synthesis. This induces a series of proliferative alterations that result in tumor growth.<sup>2,4</sup> The occurrence of these lesions is influenced by smoking, co-existent infections, dietary deficiencies and hormonal changes.<sup>5</sup> In the present case, the patient had a habit of smoking which could have act as a predisposing factor for the occurrence of squamous papilloma.

The route of transmission of the virus is unknown, although direct contact in an area of local trauma would be favored.<sup>6</sup> Theories have proposed multiple pathways including perinatal transmission (during the passage through an infected birth canal and in utero, as a transplacental or ascending infection), autoinfection from orogenital contact by hand and sexual transmission by orogenital contact.<sup>7</sup> A latency or incubation period of 3-11 months has been suggested.<sup>2</sup> The development of this incubation phase into active expression depends on three factors: cell permeability, virus type and host immune status.<sup>4</sup> HPV types 6 and 11 are less virulent and have low infectivity rate compared to other HPV virus infecting oral cavity.<sup>2</sup>

Oral and oropharyngeal squamous cell papillomas are commonly seen in the age group of 30-50 years.<sup>2</sup> It can also occur in children and represent about 8% of oral tumors in children.<sup>8</sup> It has slightly higher prevalence rate in males than in females and in whites compared to blacks.<sup>6</sup> It can occur anywhere in the oral cavity with greater predilection for the palatal complex (hard palate, soft or uvula).<sup>6</sup> It is considered to be the most common soft tissue mass to arise in the soft palate. The age, gender, site of occurrence in the present case are in favor of squamous papilloma. Squamous papillomas are traditionally divided into two types: Isolated-solitary and multiple-recurring. The former is usually found in an adult's

oral cavity, while the latter is mostly found in a child's laryngotracheobronchial complex.<sup>8</sup>

Clinically, oral squamous papilloma presents as a solitary, painless, well circumscribed, exophytic growth with a verrucous, roughened or cauliflower or wart-like surface.<sup>1,2</sup> The surface shows numerous small finger-like projection which may be pointed or blunted. They are pedunculated but can be sessile occasionally. The color may appear white or pink depending on the degree of keratinization. The size is most often small measuring a few millimeters to less than 1 cm in diameter, but sometimes large growth measuring up to 3 cm can be seen.<sup>1,2</sup> The present case also showed these characteristic clinical features of squamous papilloma. Patients who are infected with human immunodeficiency virus (HIV) often have multiple oral lesions.<sup>8</sup>

Histologically the exophytic finger like projections are lined by stratified squamous epithelium and contains a thin central connective tissue which was seen in the present case also. Some papilloma exhibit hyperkeratosis because of the amount of trauma or frictional irritation to which it has been subjected. The spinous cells proliferate in a papillary pattern. Koilocytes (HPV altered epithelial cells with perinuclear clear spaces and nuclear pyknosis) may or may not be found in the superficial layers of the epithelium.<sup>1,2</sup> This cell is thought to be indicative of a virally-altered state. Other features include basilar hyperplasia, mild mitotic activity, presence of chronic inflammatory cells in the connective tissue.<sup>1,2</sup>

The differential diagnosis of solitary type of OSP includes verruciform xanthoma, papillary hyperplasia and condyloma acuminatum. The clinical appearance of all of these growths are similar to squamous papilloma. Verrucous xanthoma has predilection for the alveolar ridge and gingiva, inflammatory papillary hyperplasia shows a definite causative factor (irritation) and condyloma are larger, have a broader base, and would appear pink due to less keratinization. These differences, along with characteristic histopathological features helped in giving the final diagnosis as squamous papilloma in the present case. Clustered or multiple squamous papillomas suggest focal epithelial hyperplasia (Heck disease).<sup>1</sup>

Detection of the virus by conventional biopsy is very difficult as only changes caused by the virus can be observed. Electron microscopic analysis shows viral particles. The other methods of detection are in situ hybridization, immunohistochemistry and polymerase chain reaction (PCR) techniques.<sup>2</sup>

The typical treatment for squamous papilloma is surgical excision with recommended clearance of 1mm margin at base to the depth of the submucosa. Either routine excision or laser ablation can be used. Laser assisted surgery have several advantages including successful hemostasis, visibility, better tissue manipulation, devoid of sutures, wound sterilization and minimal post-operative pain and edema.<sup>9</sup> Considering these advantages, the diode laser was chosen as an alternative for the removal of the squamous papilloma lesion in the present case. Other treatment modalities include electrocautery, cryosurgery, and intralesional injections of interferon.<sup>8</sup>

Recurrence is not common, except in patients infected with HIV.<sup>2</sup> The lesion has no reported transformation into malignancy, continuous enlargement or dissemination to other parts of the body.

Vaccines could be used as adjuvant treatment following surgery by generating an immune response. Two vaccines have been developed: Cervarix and Gardasil that can prevent infections and precancerous lesion caused by HPV infection.<sup>10</sup>

## CONCLUSION

Early clinical diagnosis as well as histopathological examination of oral squamous papillomas are important because of their similar clinical appearance with other lesions and their association with oral dysplasias and carcinomas. Lasers can be used by dental clinicians to treat oral papillomas and should be considered as an alternative to conventional surgery because of their discernable advantages. Laser treatment also offers easy treatment in apprehensive, medically compromised and pediatric patients.

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**Source of Support:** Nil; **Conflict of Interest:** None

**Submitted:** 09-04-2019; **Accepted:** 01-05-2019; **Published:** 20-05-2019