

Suction Disc Induced Palatal Papillary Hyperplasia: Case Reports and an Update

Megha Srivastava¹, Suhani Gupta², Yukti Dobhal³, Manjunath N⁴, Ranjeeta mehta⁵

¹Post Graduate student, Department of Oral medicine & Radiology, Seema Dental College & Hospital, Rishikesh; ²Post Graduate student, Department of Oral medicine & Radiology, Seema Dental College & Hospital, Rishikesh; ³Post Graduate student, Department of Oral medicine & Radiology, Seema Dental College & Hospital, Rishikesh; ⁴Professor, Department of Oral medicine & Radiology, Seema Dental College & Hospital, Rishikesh; ⁵Senior Lecturer, Department of Oral medicine & Radiology, Seema Dental College & Hospital, Rishikesh.

Address for Correspondence:

Dr. Megha Srivastava, Post Graduate student, Department of Oral medicine & Radiology, Seema Dental College & Hospital, Rishikesh.

ABSTRACT:

Construction of complete dentures with adequate retention is a complex procedure. Various techniques & measures have been tried to improve the retention of dentures. One of the oldest & commonest technique to improve retention is use of suction cup in maxillary denture. Suction cup placed on palatal aspect of denture provides retention and stability by inducing negative pressure on the mucosal surface. Palatal Suction cups which provide very high retention are not being recommended because of their pathological effects on the palatal tissues. This article describes four cases of suction cup induced palatal papillary hyperplasia who had reported to the Department of Oral Medicine and Radiology.

Keywords: Antifungal, Candida, Concentric, Hyperplasia, Suction.

INTRODUCTION

Inflammatory papillary hyperplasia also known as Denture papillomatosis. Papillary hyperplasia is a common finding in patients with loose maxillary dentures.^{1,2,3,4} Although the exact pathogenesis is unknown, the condition most often appears to be related to the following:

- An ill-fitting denture
- Poor denture hygiene
- Wearing the denture 24 hours a day

Approximately 20% of patients who wear their dentures 24 hours a day have inflammatory papillary hyperplasia. Candida organisms also have been suggested as a cause, but any possible role appears uncertain. Some investigators classify this lesion as part of the spectrum of denture stomatitis. Clinically, Inflammatory papillary hyperplasia usually occurs on the hard palate beneath a denture base.⁵ Early lesions may involve only the palatal vault, although advanced cases cover most of the palate and represents as a multiple, polypoid, and papillary nodules, found typically on the hard palate, giving a

cobblestone appearance. On rare occasions, the condition occurs on the palate of a patient without a denture, especially in people who habitually breathe through their mouth or have a high palatal vault. Candida associated palatal papillary hyperplasia also has been reported in dentate patients with human immunodeficiency virus (HIV) infection. Inflammatory papillary hyperplasia is usually asymptomatic. The mucosa is erythematous and has a pebbly or papillary surface. Many cases are associated with denture stomatitis.⁵ Treatment includes decreased or discontinued use of the denture. Tissue conditioners may reduce papillary hyperplasia along with concomitant treatment with an antifungal agent. Occasionally, surgical removal of the hyperplastic tissue is needed or the construction of new prostheses may be indicated.

1-CASE REPORT

A 66 year old female reported to the Dept. of Oral Medicine and Radiology, Seema Dental College and Hospital, Rishikesh, Uttarakhand with the chief complaint of ill- fitting denture

since 5 months. Past dental history revealed that the patient is a denture wearer from past 10 years. Past medical history revealed that patient is controlled diabetic from past 10 years and is under medication for the same since then. Personal history indicated that patient wear the denture overnight and cleans it rarely. Patient cleans the mouth by rinsing with water before wearing the denture.

On intraoral examination, an exophytic mass protruding out with an erythematous halo, circular in shape having concentric rings which measured approximately 2-3cm in greatest diameter was seen over the hard palate. This is Correlating with the impression of suction disc embedded on the denture surface. It was non-tender on palpation. (Figure 1)

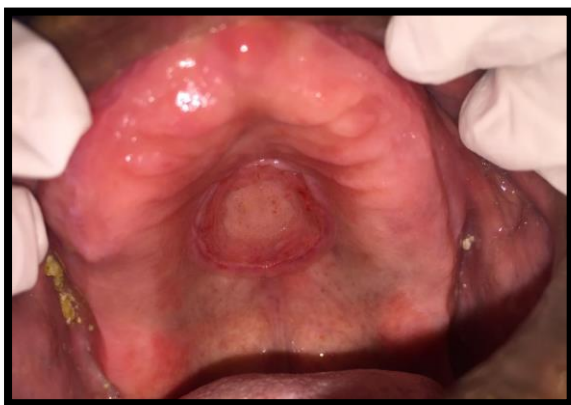


Figure 1: Presence of erythema and concentric rings over hard palate with impression of disc

Based on the history and the clinical examination, a provisional diagnosis of Palatal papillary hyperplasia was made. Patient was advised to discontinue the old denture. Topical application of candid mouth paint was prescribed for three times a day for 15 days. Chlorhexidine mouthwash rinsing 3 times a day for 15 days was also advised. After this, patient was advised to get new denture fabricated.

2- CASE REPORT

A 70 year old male reported to the Dept. of Oral Medicine and Radiology, Seema Dental College and Hospital, Rishikesh, Uttarakhand with the chief complaint of ill- fitting denture since 2 months. Past dental history revealed that patient is a denture wearer from past 15

years. Personal history revealed that patient wears the denture and cleans it rarely. Patient cleans the mouth by rinsing with water.



Figure 2: Maxillary denture with suction screw

On intraoral examination, palatal mucosa shows a well-defined depression at the middle of the hard palate. The center shows exophytic mass protruding out. The size of the lesion is approximately 4cm in greatest diameter. It was non-tender on palpation. Overall features suggestive of suction disc induced palatal papillary hyperplasia. (Figure 3)



Figure 3: Impression of suction disc- over hard palate

Based on the history and the clinical examination, a provisional diagnosis of Palatal papillary hyperplasia denture suction tip induced was given. Patient was advised to discontinue the use of old denture. Chlorhexidine mouthwash rinsing 3 times a day for 15 days was advised. After this, patient was advised to get new denture fabricated.



Figure 4: Maxillary denture with suction disc

3-CASE REPORT

A 65 year old male reported to the Dept. of Oral Medicine and Radiology, Seema Dental College and Hospital, Rishikesh, Uttarakhand with the chief complaint of missing teeth since 1 year. Past dental history revealed that patient is a denture wearer from past 5 years. Personal history revealed that patient wear the denture overnight and cleans it rarely.

Intraoral examination, reveals completely missing teeth in lower jaw region and partially missing teeth in upper jaw region. Remaining roots of 13 and teeth present are 11 and 23. Depression is seen at the center of the hard palate approximately 2cm in greatest diameter with a single concentric ring with erythema. Correlating with the suction disc impregnated over the denture surface. It was non-tender on palpation. Overall features suggestive of suction tip induced palatal papillary hyperplasia. (Figure 5)



Figure 5: Presence of erythema and papillary growth with concentric ring over hard palate

Based on the history and the clinical examination, a provisional diagnosis of Palatal

papillary hyperplasia was given. Patient was advised to discontinue the old denture. Topical application of candid mouth-paint was prescribed to use three times a day for 15 days. Chlorhexidine mouthwash rinsing 3 times a day for 15 days was also advised. After this, patient was advised to get new denture fabricated.



Figure 6: Maxillary removable partial denture with suction disc

4-CASE REPORT

A 42 year old female reported to the Dept. of Oral Medicine and Radiology, Seema Dental College and Hospital, Rishikesh, Uttarakhand with the chief complaint of broken denture since 6 months. Past dental history revealed that patient is a denture wearer from past 4 years. Personal history revealed that patient wears the denture overnight and cleans it rarely. Patient cleans the mouth by rinsing with water before wearing the denture.

On intraoral examination, well defined circular impression two in number, concentric with multiple papular eruption between them was seen on the palate. It was mild-tender on palpation. Correlating with the suction disc-over hard palate. (Figure 7)

Based on the history and the clinical examination, a provisional diagnosis of Palatal papillary hyperplasia was made. Patient was advised to discontinue the old denture. Topical application of candid mouth paint was given to use three times a day for 15 days. Chlorhexidine mouthwash rinsing 3 times a

day for 15 days was also advised. After this, patient was advised to get new denture fabricated.



Figure 7: Presence of depression with concentric rings over hard palate with impression of disc



Figure 8: Broken Maxillary denture with a suction screw



Figure 9: suction disc

DISCUSSION

Suction Disc: Dentures are fabricated with suction discs if the dentures did not provide Sufficient retention and stability. These discs are composed of small suction cups made of soft rubber that are attached on palatal surface of maxillary denture with a metal ring incorporated in the denture. These suction discs provide needed retention by inducing

Negative pressure on the tissue surface. This negative pressure induces harmful effect on Tissues of the contact area by reducing blood circulation, which produces hypoxic state in the affected area and necrosis of tissue. The underlying bony part also affected by this leading to tissues perforation.³ Patents on suction cup dentures was issued to J. Spyer and R.S. Ingalls in 1885. Dr. Arthur C Jermyn, originally from Rochester, New York, resurrected the idea of suction cup- retained dentures in 1952. They are avoided now due to their potency of creating palatal hyperplasia.

Inflammatory papillary hyperplasia also known as Denture papillomatosis.⁵ The etiology is considered multifactorial, with the prosthesis considered as the main etiological factor. other factors include poor denture hygiene, continual and night time wearing of removable dentures, accumulation of denture plaque & contamination of denture surface with bacterial and yeast. Ill-fitting dentures can increase mucosal trauma. All of these factors appears to increase the ability of *Candida albicans* to colonize on the surface of denture and oral mucosa, causing stomatitis & hyperplasia. Ill fitted dentures may also cause pressure on the mucosa and mechanical irritation may create a similar clinical appearance.³ In 1962, Newton⁶ has classified the denture stomatitis into three types.

Type I:- Pin point hyperemia or localized simple inflammation.

Type II:- Diffuse erythema confined to mucosa in contact with denture base.

Type III:- Granular surface or inflammatory papillary hyperplasia of palate.⁴

According to this classification, these cases come under type III denture stomatitis.

Bergendal and Isacson followed Ostlund's 10 classified as:

1. Local inflammation to describe red spots usually found around the small palatal minor salivary glands; the lesion was thought to be associated with trauma from the dentures.
2. Diffuse reddening referred to a diffuse hyperaemic, smooth and atrophic mucosa

extending over the entire denture area and was associated with increased growth of yeasts.

3. The third type of denture stomatitis was described as granulated and was characterized by hyperaemic mucosa with a nodular appearance in the central part of the palate and both trauma and candida infection have been linked with this lesion.²

Clinically, Inflammatory papillary hyperplasia usually occurs on the hard palate beneath a denture base. Inflammatory lesions in older adults occur often as a result of poorly fitting dentures. Early lesions may involve only the palatal vault, although advanced cases cover most of the palate and represents as a multiple, polypoid, and papillary nodules, found typically on the hard palate, giving a cobblestone appearance.¹¹ On rare occasions, the condition occurs on the palate of a patient without a denture, especially in people who habitually breathe through their mouth or have a high palatal vault. Candida associated palatal papillary hyperplasia also has been reported in dentate patients with human immunodeficiency virus (HIV) infection. Inflammatory papillary hyperplasia is usually asymptomatic. The mucosa is erythematous and has a pebbly or papillary surface. Many cases are associated with denture stomatitis. This hyperplastic granulation tissue surrounds the denture flange and can be associated with pain, burning sensation, bleeding, and ulceration. Treatment for very early lesions of inflammatory papillary hyperplasia, removal of the denture may allow the erythema and edema to subside, and the tissues may resume a more normal appearance. The condition also may show improvement after topical or systemic antifungal therapy. For more advanced and collagenized lesions, many clinicians prefer to excise the hyperplastic tissue before fabricating a new denture. The treatment includes the following steps.

1. Patient should be advised to take off their denture at night.

2. Good oral hygiene should be maintained and mouth should be free of any periodontal disease. Mouth wash advised like

chlorhexidine. It helps to reduce plaque in oral cavity.

3. It can be due to faulty design of the denture so identify the denture faults (occlusion disharmonies, improper vertical dimensions and centric position) and correct them.

4. Topical antifungals like Nystatin or Amphotericin B can be used to treat acute mucosal symptoms.

5. Microorganism colonies can be reduced with overnight soaking of denture in chlorhexidine gluconate. Sodium hypochlorite should not be used to avoid the bleaching.⁷

6. Treatment of underlying systemic disease like diabetes mellitus.⁴

Newer treatment modalities includes use of gaseous ozone (O₃). This has been proven clinically useful for disinfection of the dentures.⁸ The prognosis of the disorder is good, as no malignant transformation has been reported yet. The continuous aspiration and swallowing of candida species may rarely have potentially fatal consequences in immunocompromised patients.⁹ Various surgical methods have been used, including the following:

Partial-thickness or full-thickness surgical blade excision

Curettage

Electrosurgery

Cryosurgery

Laser surgery

REFERENCES

1. Dos Santos CM, Hilgert JB, Padilha DM, Hugo FN. Denture stomatitis and its risk indicators in south Brazilian older adults. *Gerodontology* 2009;27(2):134–40.
2. Webb BC, Thomas CJ, Willcox MD, Harty DW, Knox KW. Candida-associated denture stomatitis. Aetiology and management: a review. Part 2. Oral diseases caused by Candida species. *Aust Dent J* 1998;43:160–66.
3. Pathmashri VP, Abirami. A review on denture stomatitis. *J Pharm Sci & Res* 2016;8(8):875-7.

4. Mago J, Mittal K, Kaur M, Kaur A, Kaundal A. Denture Stomatitis- a case report and update. WJPMR 2016;2(4):224-6.
5. Oral and maxillofacial pathology -2nd edition -Neville Damm Allen Bouquot
6. Frenkel H et al. Improving oral health in institutionalized controlled elderly people by educating caregivers: a randomized controlled trial. Community Dent Oral Epidemiol 2001; 29:289-97.
7. Bansal P et al. Denture stomatitis an underlying menace. Dental journal of advance studies 2013;1(1):33-6.
8. Arita MS et al. Microbicidal efficacy of ozonated water against *Candida albicans* adhering to acrylic denture plates. Oral Microbiol Immunol 2005; 20:206-10.
9. Wilson J. The aetiology, diagnosis and management of denture stomatitis. Br Dent J 1998;185:380-4.
10. Hasan S, Kuldeep. Denture Stomatitis: A Literature Review. JOHS 2015;6(2):65-9.

How to cite this article: Srivastava M, Gupta S, Dobhal Y, Manjunath N, Mehta R. Suction Disc Induced Palatal Papillary Hyperplasia: Case Reports and an Update. Arch of Dent and Med Res 2017;3(3):33-38.