

Management of tobacco pouch keratosis in the tribal area of Mayurbhanj, India

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ABSTRACT

Introduction: Tobacco pouch keratosis (TPK) is a benign oral lesion primarily associated with the use of smokeless tobacco products. It is commonly observed in males, mainly due to their higher rates of tobacco consumption. Typically found in the lower vestibule, TPK presents as a white, curdy lesion on the oral mucosa. Despite its benign nature, persistence of TPK may lead to premalignant changes and subsequent malignancy. **Case description:** This case report highlights the occurrence of TPK in a 60-year-old female, detailing the clinical findings, diagnosis, and management plan. **Discussion:** This report underscores the need for better recognition and understanding of this condition. Tobacco cessation counselling, pharmacotherapy, and regular monitoring are important components of any management plan to prevent malignant transformation. **Conclusion:** By focusing on a female individual, this report aims to raise awareness among health care professionals of the potential occurrence of TPK in all smokeless tobacco users (including village tribal people), thereby facilitating early detection and appropriate intervention to mitigate the risk of malignant transformation.

RÉSUMÉ

Introduction : La kératose du tabac sans fumée est une lésion buccale bénigne principalement associée à l'utilisation de produits du tabac sans fumée. Il est couramment observé chez les hommes, principalement en raison de leurs taux plus élevés de consommation de tabac. Habituellement présente dans la partie inférieure du vestibule, la kératose du tabac sans fumée se présente sous la forme d'une lésion blanchâtre et texturée de la muqueuse buccale. Malgré sa nature bénigne, la persistance de la kératose du tabac sans fumée peut entraîner des changements précancéreux et une pathologie maligne subséquente. **Description du cas :** Ce rapport de cas met en évidence la présence de kératose du tabac sans fumée chez une femme de 60 ans, et en détaille les résultats cliniques, le diagnostic et le plan de prise en charge. **Discussion :** Ce rapport souligne la nécessité d'une meilleure reconnaissance et d'une compréhension plus approfondie de ce problème de santé. Des conseils sur la cessation du tabagisme, la pharmacothérapie et la surveillance régulière sont des éléments importants de tout plan de gestion visant à prévenir la transformation maligne. **Conclusion :** En mettant l'accent sur une personne de genre féminin, ce rapport vise à sensibiliser les professionnels de la santé à la présence possible de kératose du tabac sans fumée chez les consommateurs et les consommatrices de tabac à chiquer (y compris les membres des communautés tribales), facilitant ainsi la détection précoce et l'intervention appropriée pour atténuer le risque de transformation maligne.

Keywords: counselling; India; neoplasm; smokeless tobacco; tobacco pouch keratosis; tobacco use cessation; tribal
CDHA Research Agenda category: risk assessment and management

INTRODUCTION

Tobacco pouch keratosis (TPK), also known as snuff dipper's lesion, consists of thick, whitish, curdy patches on the oral mucosa that typically develop where smokeless tobacco products are placed.¹ These lesions are potential precursors to oral cancer, especially since the risk is increased fourfold for chronic smokeless tobacco users.¹ The management of TPK requires cessation of tobacco use and regular monitoring by health care professionals. A biopsy is advised if there is no clinical regression of

PRACTICAL IMPLICATIONS OF THIS RESEARCH

- Tobacco pouch keratosis (TPK) is a condition that occurs when the oral mucosa is continuously damaged by the use of smokeless tobacco.
- TPK is a potential precursor to oral cancer.
- Training and encouraging oral health professionals to provide tobacco cessation counselling may reduce the risk of malignant transformation of TPK.
- Greater public awareness of the oral health risks of tobacco use may have a significant impact on smokeless tobacco users.

the lesion.¹ Typically, microscopic examination reveals a corrugated parakeratotic surface, epithelial acanthosis, and an absence of dysplasia.² Providing comprehensive support services to TPK patients, which involve educating them on the adverse effects of tobacco use and offering counselling that enables them to quit the habit, has the potential to ultimately reduce their risk of developing oral cancer.

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the support of the Ministry of Health and Family Welfare, Odisha, has started an Early Detection Programme (EDP) for oral, breast, and cervical cancer in the Mayurbhanj district of Odisha state, India. EDP, a service program, involves raising cancer awareness and providing easy access to diagnosis and treatment in the community. This short communication presents a case of TPK in a 60-year-old female patient, who was diagnosed while attending EDP, and the intervention provided to her through that program.

CASE DESCRIPTION

A 60-year-old female patient, with a history of type 2 diabetes and hypertension diagnosed and controlled for over 10 years, visited EDP in the Mayurbhanj Outpatient Department (OPD), for oral cancer screening. She had a complaint of discomfort caused by a rough surface in her left lower vestibule. Aside from that, she experienced no pain, burning sensation or altered taste. The history taking of the patient revealed that she was a chronic smokeless tobacco user, having a long-standing habit of consuming betel leaf and dukta (dry tobacco leaf powder) for over 30 years. She consumed dukta 3 to 5 times per day. She typically formed a quid from these ingredients, retaining it in her left vestibule for 4 to 5 hours before disposal, chewing a minimum of 3 quids daily. She had no history of tobacco consumption in smoked form or of alcohol consumption.

The intraoral examination revealed a brownish-yellow plaque, which was present on the left gingiva-buccal sulcus extending to the buccal mucosa (Figure 1). The lesion was located between the distal surface of the lower left canine and the distal surface of the lower left first molar, with diffuse borders. Yellowish encrustation and remnants of the tobacco products were present on the lesion. The lesion had a thick and rough-corrugated surface texture

Figure 1. Tobacco pouch keratosis on the left lower buccal mucosa



on palpation. Apart from the lesion, severe tooth attrition was present with gingival recession and tobacco stains. Submandibular and sublingual lymph nodes were non-palpable. The patient's overall oral hygiene was poor and she had halitosis. The rest of the oral mucosa was healthy and appeared normal.

A biopsy was performed on the day of examination to confirm the clinical suspicion of leukoplakia, candidiasis, and frictional keratosis. A punch biopsy was conducted in the left lower buccal sulcus region, based on clinical examination findings. The tissue sample, approximately 0.3 mm to 0.5 mm, was immediately placed in 10% formalin and sent for histopathological examination, which further confirmed hyperkeratosis and acanthosis.

The patient was advised to have oral prophylaxis/scaling and to use a mixture of 10 mL of 0.12% chlorhexidine mouthwash mixed with 10 mL of warm drinking water twice daily for one week to maintain oral hygiene. Health care professionals from EDP Mayurbhanj provided education about the harmful effects of smokeless tobacco. The patient was given counselling to stop the tobacco habit and was also advised to switch the tobacco to the other side of the mouth temporarily if quitting tobacco completely was challenging.

RESULTS

At first, the patient was scheduled for a follow-up appointment in 1 month. During the initial follow-up, there was no observable clinical improvement in the lesion. The patient had decreased, but not quit, chewing tobacco at that point. The patient received more counselling on the importance of entirely abstaining from tobacco use. The patient was also advised to continue using the mouthwash mixture.

Figure 2. Three months after the initial appointment, the tobacco pouch keratosis had completely healed



The patient revisited the OPD 2 months after the initial evaluation, and the lesion showed moderate improvement as she had been able to successfully abstain from tobacco use. Antioxidant medications (Cap. Vitamin A [5000 IU] and Vitamin E [15 IU to 30 IU], each once daily) were prescribed. Further, tooth scaling and root planing were performed. At the third follow-up, which occurred 3 months after the initial evaluation, the TPK lesion showed total remission, as depicted in Figure 2. The patient was instructed not to resume tobacco consumption and to adhere to a nutritious diet. The microscopic findings of the histopathological sample ruled out evidence of malignancy and described hyperkeratosis and acanthosis, which was in favour of TPK.

DISCUSSION

This case report describes the occurrence of TPK in an older female patient. The development of a widely recognized white mucosal lesion in the area of tobacco contact, known as smokeless tobacco keratosis, snuff dipper's keratosis or TPK, is the consequence of habitually chewing tobacco leaves or dipping snuff that causes constant friction against the oral mucosa.¹

Differential diagnosis

- Tobacco pouch keratosis
- Leukoplakia
- Frictional keratosis
- Oral candidiasis

The absence of patches that were white, well demarcated, and non-scrapable ruled out leukoplakia. Additionally, the lack of sharp edges eliminated the possibility of frictional keratosis. Furthermore, the absence of creamy white lesions, soreness, burning sensations, cracks at the corners of the mouth, and difficulty eating ruled out oral candidiasis.

This lesion was characterized by a grayish white, smooth to leathery texture and was scrapable. It presented with wrinkling and was associated with tobacco use, leading to a diagnosis of TPK.

TPK lesions are usually found in the lower vestibule of the oral cavity, which is the most common place for keeping

smokeless tobacco. Usually, the lesion exhibits increased thickness and a wrinkled texture, and as the condition deteriorates, it develops a firmer, rough texture. The progression of TPK depends on several factors including duration and frequency of the tobacco consumption habit, type of smokeless tobacco used, and the number of oral cavity sites where tobacco is placed.³

Tobacco consumption, both in smoke and smokeless form, is a major public health issue. Tobacco, regardless of its form, contains more than 7000 chemicals, and of these, a minimum of 250 chemicals are known to be carcinogenic.⁴ As a result, tobacco use is linked to a higher likelihood of developing chronic inflammatory diseases of the oral mucosa such as periodontal diseases and oral cancer by interfering with mouth chemistry.⁴ Hence, although the chances of TPK undergoing malignant transformation are small compared to other premalignant conditions including leukoplakia and oral submucous fibrosis, it is crucial to enhance the knowledge and awareness of these lesions among health care professionals and the community.

There is a region-wide variation in the type of smokeless tobacco used in India. Some of the common smokeless tobacco products used in India include, but are not limited to, pan (betel quid), gundi, khaini, gudakhu, masheri, supari, and dukta.⁵ The description of these products is found in Table 1. Furthermore, the duration of the tobacco consumption habit also plays an important role in the development of TPK. The highest rates of smokeless tobacco consumption are reported in South and Southeast Asia.⁶ Furthermore, India, with 8.4% of tobacco use prevalence among children 13 to 15 years of age, has witnessed the early onset of smokeless tobacco use as 24% of youth consume smokeless tobacco products such as gutkha, khaini, and zarda before reaching 17 years of age.⁷ Research has shown that TPK can occur in 60% of individuals who use smokeless tobacco within a period of 6 months to 3 years.⁸ The early initiation of tobacco use is a cause for concern and necessitates strong health promotion programs that effectively convey the adverse effects of tobacco on oral and overall health.

While the prevalence of TPK has undergone extensive scrutiny across diverse populations, a higher incidence is consistently reported among individuals who habitually consume smokeless tobacco.⁹ TPK develops as early as 1 year after habit onset¹⁰; this case's delayed presentation in diagnosis may be because the patient did not approach a health care professional about the condition prior to her participation in EDP. The present case report underscores the significance of considering TPK in the differential diagnosis of oral mucosal lesions, even within demographics conventionally less associated with smokeless tobacco use.

A comprehensive treatment approach for TPK includes complete cessation of the tobacco habit by an individual as well as effective tobacco cessation counselling and regular monitoring for disease progression by oral health

Table 1. Types of smokeless tobacco products

Product	Description
Pan	A blend of betel leaf, catechu, slaked lime, and areca nut
Gundi	A powdered form of tobacco often wrapped in a betel leaf
Khaini	A form of chewing tobacco typically used in South Asia
Gudakhu	A paste-like tobacco product, commonly used in rural India
Masheri	A form of chewing tobacco mixed with lime and masala
Supari	Areca nut, often served with tobacco and other ingredients
Dukta	A blend of dried tobacco leaves, combined with slaked lime for flavouring and to make it sticky in the mouth

professionals. The Tobacco and Cancer Program of the National Cancer Institute has recommended the 5 As guidelines (Ask, Advise, Assess, Assist, Arrange) for tobacco cessation counselling.¹¹ TPK usually resolves to normal within 2 to 6 weeks after tobacco habit cessation.² A biopsy and confirmation with histopathology is beneficial to rule out any potential malignancy.

CONCLUSION

The use of smokeless tobacco has increased at a rapid pace in recent years, about twice as much as smoking in India. The use of smokeless tobacco is associated with premalignant and malignant lesions. Quitting tobacco aids in recovery and minimizes the risk associated with its continuous use. Health care professionals are essential in the early diagnosis of tobacco-related illnesses, hence they should be sensitized to the harmful effects of tobacco consumption and common tobacco-induced oral lesions such as TPK, and should be given training in effective tobacco cessation counselling. In addition, the community should be made aware of the hazards of tobacco use.

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CONFLICTS OF INTEREST

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