



## Clinical Case Report

# Looking Beyond a Rare Presentation of Betel Nut Use in a North American Patient — an Opportunity for Lessons in Global Health and Gender Equity

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## Abstract

Betel nut is estimated to be the fourth most common psychoactive substance used globally behind caffeine, alcohol, and nicotine with 600 million global users. Betel nut use has a strong association with oral cancer and many other systemic effects including oral submucosal fibrosis. Although North American use is rare, its enduring effects may surface long after use posing a diagnostic challenge to practitioners caring for an increasingly global diaspora. Herein, we present a patient with severe trismus due to advanced oral submucosal fibrosis who was unexpectedly found to be importing and using Betel nut for over thirty years after immigrating. The prevalence of use in North America is unknown due to a paucity of current epidemiologic data. Betel nut side effects include a strong association with oral squamous cell carcinoma, hepatocellular carcinoma, cirrhosis, and cardiovascular disease, among others. However, there remains widespread lack of attributable risk awareness and entrenched social norms that permit betel nut use in early childhood in endemic areas. Importantly, women often bear a higher proportion of betel nut-related disease not only due to limited means of healthcare access but also due to cultural norms that often discourage women from smoking tobacco and instead encourage betel nut use. Here, standard tobacco and cancer screening had the potential to overlook a silent but significant driver of poor health. This case demonstrates a need for awareness of betel nut availability and its effects in the North American context. Moreover, it underscores the judicious care warranted for migrant patients who may have a history of exposure to betel nut and other imported cultural habits of clinical importance; these considerations are relevant to the individualized provision of culturally informed, gender equitable care.

## Introduction

Betel nut (BN) is estimated to be the fourth most common psychoactive substance used globally behind caffeine, alcohol, and nicotine with 600 million global users. [1] BN use is strongly associated with oral cancer and many other systemic effects including oral submucosal fibrosis (OSF). [2] Although North American use is rare, its enduring effects may surface long after use posing a diagnostic challenge to practitioners caring for an increasingly global diaspora. Herein, we present a patient with severe trismus due to BN-related advanced oral submucosal fibrosis which highlights another aspect of BN use: the enduring effects of gender-based health inequalities.

## Case Presentation

A 39-year-old female with history of emigration from South Asia, thirty years prior, presented with one year of progressive dysphagia to solid foods and liquids. She also developed weight loss and severe trismus with the inability to swallow her own saliva. Her history was negative for facial trauma, radiation exposure, animal bites, dental abscess, or symptoms suggestive of autoimmune disorders or cancer; she denied use of tobacco, milk alkali, tricyclic anti-depressants, dopamine or muscarinic antagonists and had never received tetanus immunization. Importantly, she had daily BN use since early childhood which continued after immigration through an exotic goods importer in her area; after interview, it was realized that she had never been asked or counseled about BN use prior to this presentation.

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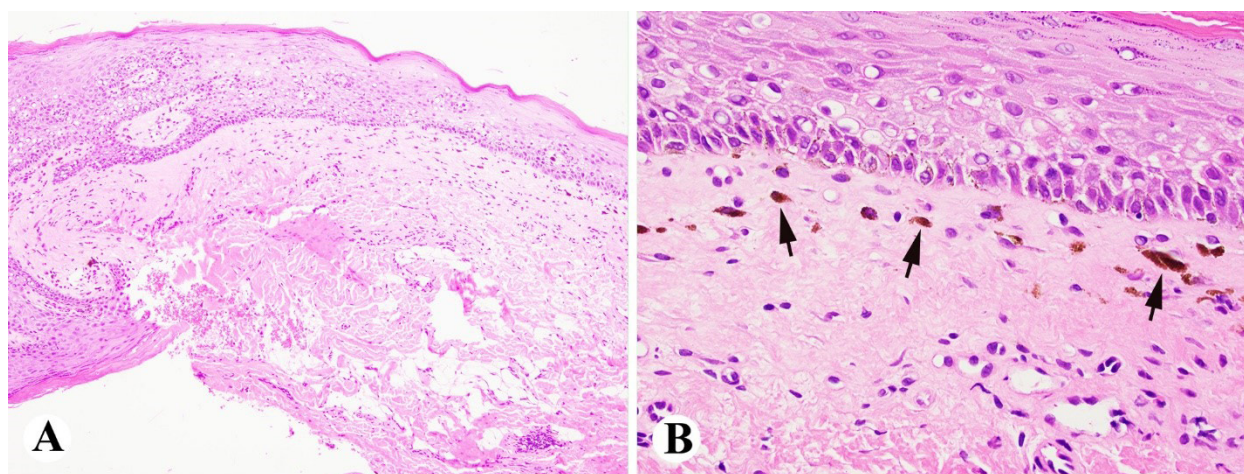


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Physical exam was normal except for sialorrhea, hypophonia, and a limited ability to labialize or retract her jaw at the incisors greater than 0.9 cm of separation. Her labs revealed normal electrolytes and mild iron deficiency anemia; an autoimmune workup was also normal. Computed tomography of the head, neck, and esophagus showed normal temporomandibular joints without masses and a normal esophagus without strictures or lesions. Nasopharyngeal endoscopy revealed diffuse thickening of the oral mucosa; biopsies showed squamous mucosa with hyperkeratosis with subepithelial fibrosis and hyperpigmented macrophages without malignancy confirming a diagnosis of BN-associated OSF (**Figure 1**). She was subsequently taken for corrective brisement surgery and required a feeding gastrostomy for anticipated long term oral physical therapy. After one year, she has had a full recovery, has had regular follow up with her PCP for surveillance, but discloses continues occasional BN use; she remains well.

We report a patient with severe OSF related to BN which is rarely reported in North America. BN is a mild, addictive stimulant consumed in many parts of the world, particularly in South and Southeast Asia, which is unregulated by the US Food and Drug Administration. The prevalence of use in North America is unknown due to a paucity of current epidemiologic data. BN has a strong association with oral squamous cell carcinoma, hepatocellular carcinoma, cirrhosis, and cardiovascular disease, among others. [2] However, there remains widespread lack of attributable risk awareness and entrenched social norms that permit BN use in early childhood in endemic areas. Importantly, women often bear a higher proportion of BN-related disease not only due to limited means of healthcare access but also due to cultural norms that often discourage women from smoking tobacco and instead encourage BN use. [3] Here, standard tobacco and cancer screening missed a silent but significant driver of poor health which highlights the importance of a sagacious approach to migrant patients who may have a history of exposure to imported substances and cultural habits of clinical importance, particularly where women may be inadvertently neglected. This case demonstrates a need for awareness of BN availability and its effects in the North American context. Moreover, it illustrates the enduring effects of gender-based health inequalities and serves to help recognize the potential role practitioners may play to interrupt the occult import and perpetuation of gender disparities; these considerations are relevant to the individualized provision of culturally informed, gender equitable care.



**Figure 1.** (A) H&E staining of oral mucosa biopsy demonstrating significant fibrosis of the submucosa (B) close-up of hyperpigmented macrophages (arrows) from uptake betel nut product. within an area of increased hyaline fibrosis (light pink), deep to the dense mucosal layer (large green arrow).

## Methods

This manuscript has been de-identified to the best of the authors ability without compromising salient case details. This manuscript is a case report which does not require IRB review in accordance with the policies of the University of Florida Institutional Review Board. Written, informed consent was obtained by the authors.

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