

## RESIDENT ROUNDS: PART III

# Case Report: Betel Quid Induced Irritant Contact Dermatitis of the Hand

Regine J. Mathieu BS,<sup>a</sup> Nikoo Cheraghi MD,<sup>b</sup> and Marian A. Russo MD<sup>b</sup>

<sup>a</sup>New York Medical College, School of Medicine, Valhalla, NY

<sup>b</sup>New York Medical College, Department of Dermatology, New York, NY

### ABSTRACT

Betel quid is a drug used in Far East Asia, India, and the South Pacific. The habit of betel quid chewing is widely reported to cause oral cancer and tooth and gum disease. However, skin disease due to betel quid use is underreported. We report a case of irritant contact dermatitis to betel quid components in a 35-year-old male betel quid user who presented for evaluation of a persistent rash on his fingertips.

### CLINICAL PRESENTATION

A 35-year-old Bengali male with no significant past medical history presented to the dermatology clinic with a rash on the first 3 digits of the right hand that had been present for several years. He complained of itchiness and peeling associated with the rash. The patient was a baker and his hands were frequently submerged in water. Physical examination of the hands revealed erythematous and hyperpigmented plaques with cracking on the first 3 distal fingertips of the right hand (Figure 1). No lesions were present on the left hand.

Initially, the diagnosis of hand irritant contact dermatitis due to frequent water exposure was suspected. Because the distribution involving only the first 3 digits on one hand was unusual, other etiologies that would explain the peculiar distribution were explored. Further examination of the patient revealed that his lips were slightly tinted with a faint red pigment. After inquiry, the patient revealed that he had chewed betel nut and betel leaf for many years. In fact, the patient brought his betel chewing components with him to the clinic and described the process of rolling the betel nut mixed with lime paste into the betel leaf and inserting this betel quid between his gum and cheek using the first 3 digits of his right hand (Figure 2). After the patient washed out the betel quid residue from his mouth, an extensive examination of the oropharynx revealed thick adherent black calculus on the teeth with attrition of many of the teeth and severe gingivitis and gum recession (Figure 3).

The diagnosis of an irritant contact dermatitis to the betel quid components, specifically lime paste, was made. Cessation of betel quid chewing was extensively recommended and

the patient was referred to dentistry. The hand dermatitis was treated with clobetasol 0.05% ointment without significant improvement as the patient continued to chew betel quid.

### DISCUSSION

Betel nut, or areca nut, is a seed derived from the areca palm tree, which natively grows in Far East Asia, India, and the South Pacific.<sup>1</sup> In these areas, it is widely used as a natural drug that is chewed for its psychoactive and cholinergic effects.<sup>2</sup> The preparation, known as betel quid, is commonly a mix of the areca nut, alkaline slaked lime (calcium hydroxide), and tobacco wrapped in betel leaf.<sup>3</sup>

Many adverse oral manifestations of betel quid chewing have been reported, including oral lichen planus, submucous fibrosis, angular cheilitis, and squamous cell carcinomas involving the oral cavity, larynx, and esophagus.<sup>3-7</sup> Betel nut also produces deep red staining of the oral mucosa, as was evident in our case.

Cutaneous manifestations of this habit are widely underreported, but can include hand irritant contact dermatitis due to the alkalinity of the slaked lime.<sup>8</sup> Interestingly, this dermatitis along with hyperpigmentation is most commonly seen involving the first 3 fingers of the dominant hand as those are the fingers that assemble the betel quid, as was seen in our case. This is rarely seen in the United States as betel nut chewing is primarily limited to East Asian immigrants.<sup>9</sup> Allergic contact dermatitis of the hand to *Piper betle* L. inflorescence (the flower component of the betel plant) confirmed by patch testing has

**FIGURE 1.** Hand dermatitis involving only the first 3 fingers on the dominant hand.



**FIGURE 2.** The various components of betel quid, including the betel leaf, betel nut, and lime paste.



**FIGURE 3.** Attrition of teeth, with black calculus, gum recession, and gingivitis.



been previously reported.<sup>8</sup> Eugenol, the major component of betel leaf containing psychoactive ingredients, has also been reported to cause allergic contact dermatitis.<sup>2,10</sup> In our patient, although patch testing was not performed, the clinical appearance and distribution of the rash indicates a contact dermatitis to a component of the betel quid, likely due to the irritating alkaline slaked lime.

## CONCLUSION

The practice of chewing betel nut mixed with slaked lime paste, tobacco, and betel leaf is not common in the United States; however, when faced with a patient with a non-correlating history and physical exam, inquiry into cultural practices is imperative for accurate diagnosis.

## DISCLOSURES

The authors have no conflicts of interest to declare.

## REFERENCES

1. Raghavan V, Baruah HK. Arecanut: India's popular masticatory—history, chemistry and utilization. *Econ Bot.* 1958;12(4):315-345.
2. Nelson BS, Heischouer B. Betel nut: a common drug used by naturalized citizens from India, Far East Asia, and the South Pacific Islands. *Ann Emerg Med.* 1999;34(2):238-243.
3. Mankapure PK, Humbe JG, Mandale MS, Bhavthankar JD. Clinical profile of 108 cases of oral lichen planus. *J Oral Sci.* 2016;58(1):43-47.
4. Bhat SJ, Blank MD, Balster RL, Nichter M, Nichter M. Areca nut dependence among chewers in a South Indian community who do not also use tobacco. *Addiction.* 2010;105(7):1303-1310.
5. Tsai YS, Lee KW, Huang JL, et al. Arecoline, a major alkaloid of areca nut, inhibits p53, represses DNA repair, and triggers DNA damage response in human epithelial cells. *Toxicology.* 2008;249(2-3):230-237.
6. Singh G. Betel chewers' perleche. *Br J Dermatol.* 1973;89(1):98.
7. Sharan RN, Mehrotra R, Choudhury Y, Asotra K. Association of betel nut with carcinogenesis: revisit with a clinical perspective. *PLoS One.* 2012;7(8):e42759.
8. Wang BJ, Guo YL, Guo HR, Chang HY. Piper betle L. inflorescence causes allergic contact dermatitis of the hands during betel quid assembly. *Contact Dermatitis.* 2008;58(6):368-370.
9. Blank M, Deshpande L, Balster RL. Availability and characteristics of betel products in the U.S. *J Psychoactive Drugs.* 2008;40(3):309-313.
10. Sánchez-Pérez J, García-Díez A. Occupational allergic contact dermatitis from eugenol, oil of cinnamon and oil of cloves in a physiotherapist. *Contact Dermatitis.* 1999;41(6):346-347.

## AUTHOR CORRESPONDENCE

**Nikoo Cheraghi MD**

E-mail: ..... nikoo.c@gmail.com