

Oral conditions related to use of the lip plug (*ndonya*) among the Makonde tribe in Tanzania

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A series of cases of use of lip plugs (*ndonya*) are reported for members of the Makonde tribe living in southern and eastern Tanzania, and examples of damage caused by this custom to the oral and dental structures are described. □ *Dental anthropology; tribal mutilations*

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Body mutilations often play an important role in tribal rituals, and the facial region and the oral cavity are common sites for such mutilations. Tattoos, perforation of the perioral soft tissues combined with insertion of different physical objects, and filing of teeth are typical examples.

One of the early explorers of the African continent, Dr. Livingstone, described such habits in the Makonde tribes living around the Ruvuma river, forming the border between what is now Tanzania and Mozambique, as follows: 'The higher up the Rovuma river we ascend, the people are more and more tattooed on the face, and on all parts of the body. The teeth are filed to points and huge lip-rings are worn by the women' (1). Among these customs, the phenomenon of lip rings or lip plugs has received only limited attention in the dental literature in spite of the deleterious effects these objects have been suggested to have on the dental and oral health of their wearers (2, 3).

The purpose of the present study is to report on a series of members of the Makonde tribe who were lip-plug (*ndonya*) wearers and to describe dental and oral conditions caused by this custom.

Materials and methods

The study group comprised 19 subjects, who were located during a field visit to villages in Mtwara region in the southeastern part of Tanzania and through local contacts with the Makonde community in Dar es Salaam. All subjects were female.

Most of the subjects had to be interviewed through an interpreter, as they spoke only Kiswahili or a local tribal language.

Extraoral and intraoral clinical photographs were taken of all subjects, focusing on the *ndonya*. They were also given a clinical intraoral inspection to determine the presence and condition of teeth and oral tissues in the upper and lower front region.

Results

The ndonyas

The perforations for the *ndonyas* were made in the center of the upper lip, below the nose. The perforation was performed with a thorn, and a blade of grass was placed in the hole, which was then slowly expanded, until a *ndonya* could be inserted (3). All *ndonyas* were made of ebony. Their thickness varied from pencil thin (Fig. 1) through medium size (Fig. 2) to very thick (40–60 mm in diameter) (Fig. 3).

In some cases scar tissue in the periphery of the perforation indicated that a larger *ndonya* had previously been used but had been changed to a thinner one. One subject presented two perforations intraorally.

The length of the *ndonyas* also varied considerably, the thin *ndonyas* usually being longer than those with a larger diameter. The major part of the *ndonya* was located intraorally and only a few of the medium sized *ndonyas* extruded beyond the surface of the skin (Fig. 4).

One of the *ndonyas* had a central metallic core, which was corroded (Fig. 4), and several of the *ndonyas* showed calculus deposits.

Dental and oral conditions possibly associated with the use of ndonya

Labial abrasion of the incisors was seen in several of those cases in which the incisor teeth were still present (Fig. 5).

Among the special gingival conditions found were a gingival granuloma (Fig. 6) and extensive gingival recession on a central incisor in close contact with the *ndonya* (Fig. 2).

Loss of one or more upper incisors was found in 14 of the 19 subjects. The loss of incisors may have contributed to development of a crossbite in one case (Fig. 1) and in severe loss of alveolar bone with reduced anterior face height in another case (Fig. 4).



Fig. 1. Pencil-thin *ndonya*, loss of upper and lower incisors, and a tendency to crossbite on the left side.

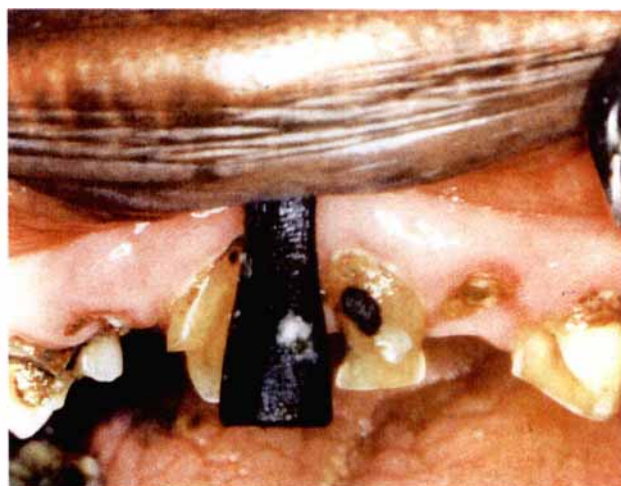


Fig. 5. Middle-sized *ndonya* resulting in extensive labial abrasion of teeth 11 and 21.

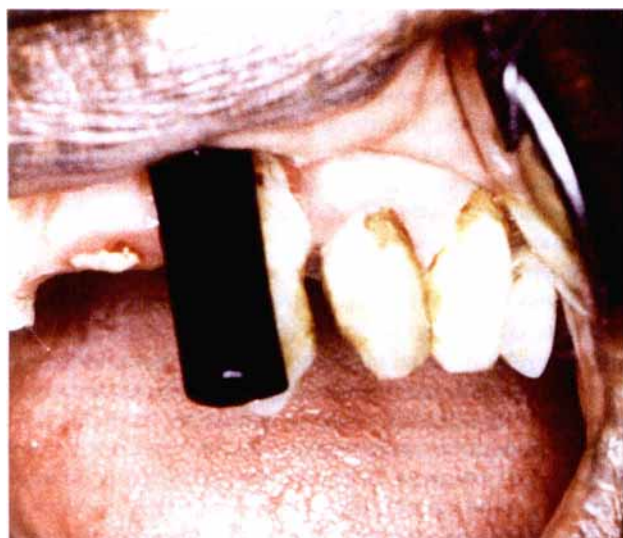


Fig. 2. Medium-sized *ndonya* causing gingival retraction of tooth 21.

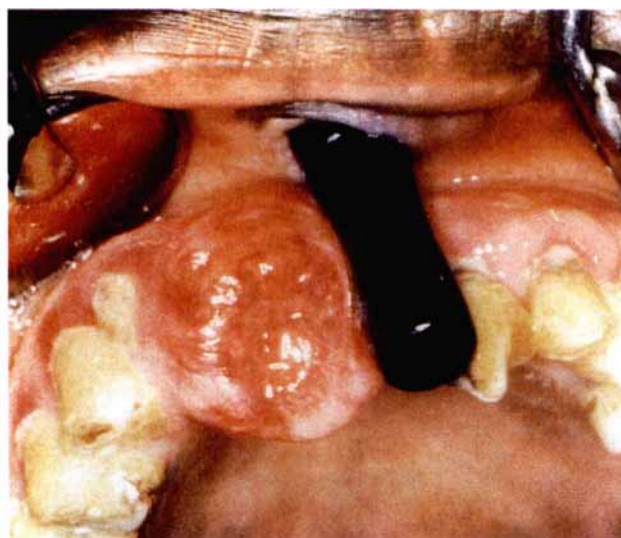


Fig. 6. Middle-sized *ndonya*, filing of upper incisor teeth, and gingival granuloma.



Fig. 7. Pencil-thin *ndonya* and filing of teeth resulting in necrosis and apical infection with fistula of tooth 21.



Fig. 3. Extremely large *ndonya* in a very old, totally edentulous woman.



Fig. 4. Large *ndonya* with corroded metallic core. Note loss of upper alveolar bone and reduced face height.

Dental conditions with possible relation to other types of tribal mutilations

The habit of filing of teeth is also widespread among the Makonde, and several of the subjects showed extensive loss of hard dental tissues of the incisors. Discolored teeth and fistulae due to necrosis of the pulp and periapical infections were seen in two of these subjects (Fig. 7).

Discussion

Insertion of the *ndonya* is described to take place early in

life, usually in connection with the initiation rituals. Previously, both men and women used *ndonya*, but recently the custom has been limited to females. Apart from being a tribal ritual, the custom has been explained as an attempt to protect the women of the tribe from slave raiders, since 'the pouting upper lip and the *ndonya* lowered the sex appeal of the women' (4). At the same time, the *ndonya* gave the Wamakonde women a mysterious power, which could have been the reason why they were looked upon with awe by slave raiders.

The subjects described in the present study were all middle-aged or older, and it was obvious that the custom is now dying out, especially among the younger members of the tribe. Some of the older women even explained that they had stopped wearing the *ndonya* - one of them because she claimed that it had damaged her teeth.

Previous descriptions of the effect of the *ndonya* on the teeth and gingiva are limited to two papers (3, 4). Both point to the damage caused by the abrasion of the incisors from the *ndonya*, leading to loss of teeth. One report (3) indicates that the plug exerts a pull on the cheeks, causing a pressure against the maxilla, which in turn leads to narrowing of the upper arch in the bicuspid region. Two of our cases were consistent with this observation (Figs. 1 and 4), but both subjects showed extensive loss of incisors, which could also explain the narrowing of the upper arch.

Information collected during the interviews indicated that teeth had been removed to make sufficient space for the *ndonya*. Thus, at least three different causes of loss of incisors relating to tribal mutilations have been identified in this population: 1) removal of teeth to accommodate the *ndonya*; 2) abrasion of the labial surface of the incisors with subsequent hypersensitivity of the teeth and, eventually, exposure of the pulp; and 3) pulp damage and subsequent pulp necrosis due to filing of teeth.

In the light of the fact that the custom of wearing the *ndonya* is being abandoned, little intervention from an oral health point of view seems indicated. This is, however, not the case for the habit of filing teeth. This habit is still being performed as a tribal ritual in many parts of the world with a high risk of subsequent loss of teeth due to extensive damage of the hard dental tissues.

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