



## Huge Double Tuberculum Dentale (Lingual Tubercle) in maxillary central incisor – Report of a rarest dental morphological trait.

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Dear Editor-in-Chief,

### Case report

A 28-year-old male patient reported complaining of pain in the upper front tooth region since a week. On physical examination, patient appeared apparently normal with no signs and symptoms of systemic or metabolic disorders. Upon eliciting his past history, patient gave a history of trauma to the upper front tooth region few years back. On intraoral examination, patient exhibited generalised inflammation of gingival and periodontal tissues. The oral hygiene was poor with accumulation of large amount of calculus and plaque. The maxillary central incisor was in grade III mobility with severe bone destruction. Patient was advised to go for radiographic investigation of the same tooth. But unfortunately, he did not show positive response for the same. Upon patient’ wish, the tooth was extracted under local anaesthesia. Following extraction of the tooth and when the tooth was examined in detail for its morphology, it showed some unusual appearance on lingual surface of the tooth. On lingual surface two prominent huge tubercles were observed with presence of central deep pit (Figure 1). The two tubercles were joined by a deep developmental groove. The labial surface was normal with evidence of severe root resorption due to periodontal problem. Finally based on the literature search, the case was diagnosed as “Tuberculum Dentale” or “Lingual tubercle”.

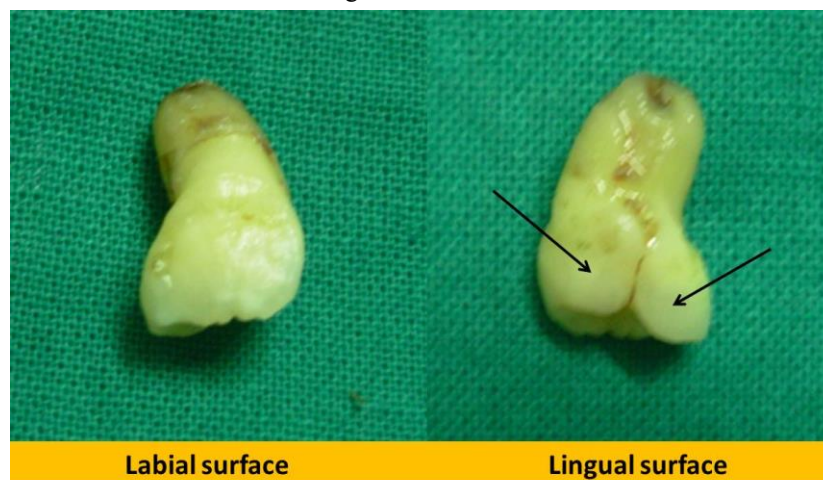


Figure 1: Photograph showing permanent maxillary left central incisor from labial and lingual view. On lingual surface, two huge lingual tubercles (black arrows) separated by a developmental groove can be seen. Root resorption is also evident.

## DISCUSSION

Dental morphological traits related to human teeth are of great significance in understanding the evolution of teeth pertaining to Homo-Sapiens. These traits have undergone gradual changes because of evolutionary modifications. The purpose of this paper is to report a rare occurrence of huge double “Tuberculum dentale” also called as “Lingual tubercle” in the permanent maxillary central incisor which was diagnosed in an Indian male patient. Understanding of rare morphological traits related to dental structure in different races is of utmost important to provide new insights to the existing literature.

Sometimes teeth exhibit extra small enamel projections called tubercles or extra accessory cusps [1]. Permanent maxillary anterior teeth are found with cingular projections on the lingual surface and are referred as “Tuberculum Dentale” or “Lingual Tubercle” [2,3]. They are more commonly encountered in human populations and have a deep history of hominin and hominoid evolution, and are characterised in the shape of ridges and or tubercles. Their expression varies among the three anterior teeth including central, lateral and canine teeth and hence different classification system is given for each tooth. Tuberculum dentale (TD) are called by various synonyms by different authors such as canine tubercle by Scott in 1971 [2], dental tubercle, basal cingulum or tuberculum projection by Carlsen in 1987 [2,3].

Scott in 1973 gave a classification system for occurrence of tuberculum dentale in the maxillary central incisor [2]. In the maxillary central incisor, Tuberculum dentale (TD) is typically expressed in the form of ridges which vary in size and number. The minimal expression is a single faint ridge and the maximal expression is two and sometimes three pronounced ridges. Scott’s classification includes both ridge count and degree of expression which is mentioned in Table 1.

**Table 1: Scott’s classification on Tuberculum Dentale/Lingual Tubercle seen in Permanent maxillary incisors**

| Classification | Description                    |
|----------------|--------------------------------|
| 1-3            | One moderately developed ridge |
| 2-1            | Two slightly developed ridges  |

“Shoveling” is the one more morphological trait encountered frequently in the maxillary central incisors among African and Asian races. Shovel-shaped incisors (or, in simpler terms shovel incisors) are incisors whose lingual surfaces are scooped as a consequence of lingual marginal ridges, crown curvature or basal tubercles, either alone or in combination [4]. This condition was differentiated from the “tuberculum dentale” in the present case. Other dental anomaly that needs to be differentiated from the current condition is the talon cusp. However, talon cusp is the anomaly involving shape of the tooth characterized by “V” shaped morphology seen attached most commonly on the lingual surface extending from the cemento-enamel junction to the incisal edge [5]. Although different types of talon cusp are classified based on their degree of expression, it does not match with the morphology of the tuberculum dentale. Therefore, this condition was excluded from the diagnosis of tuberculum dentale, as it exhibited a prominent tubercle like structure seen attached to the lingual surface at the level of cemento-enamel junction. Another dental crown morphological feature that should be considered is the occurrence of central tubercle [6]. Fukuta et al in 1997 [6] reported a case of central tubercle on the lingual surface of maxillary lateral incisor in the Japanese male patient. Central tubercle is usually found in the lingual surface of the maxillary incisors attached at the centre of the lingual surface and appears like small bead like structure with round in shape. This rare morphological structure was almost similar to the structure of dens evaginatus which occur most commonly on mandibular premolars. In the present case, the tubercle appeared huge and was in two in number. This resulted in a big diagnostic dilemma in achieving at the correct diagnosis of the unusual morphological structure. Fortunately, based on the deep literature search the case was ruled out with confirmatory diagnosis of “Tuberculum Dentale” or “Lingual Tubercle” as it was extending from the cemento-enamel junction, was not in round or ‘V’ shape and the morphology was almost similar to the tuberculum dentale/lingual tubercle.

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