

DENTAL ANOMALIES: ONTOGENY AND EVOLUTIONARY PERSPECTIVES

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AIM: Combining evolutionary knowledge with current knowledge about the cascade of events that lead to the development of dental anomalies may result in better dental diagnosis and treatment by increasing awareness of the clinician to the commonest sites and types of their development in each jaw. The aim of this study was to characterize dental anomalies.

MATERIALS AND METHODS: The pretreatment records of 2897 patients (41.4% males and 58.6% females) were utilized to detect dental anomalies. The dental anomalies studied were related to number, size and shape, position, and eruption. A Chi-square test was carried out to detect associations between dental anomalies, jaw, and sex.

RESULTS: A total of 1041 (36%) of the subjects manifested at least one dental anomaly. The prevalence of all dental anomalies was jaw-dependent and greater in the maxilla, except for submerged and transmigrated teeth (Figure 1). The most frequently missing teeth were the maxillary lateral incisor (62.3%) and the mandibular second premolars (60.6%). The most frequent supernumerary teeth were the incisors in the maxilla (97%) and the first premolars in the mandible (43%) (Figure 2). In the maxilla, all anomalies, except submerged teeth, appeared in the anterior region, ranging from 82% to 100%. In the mandible, however, this was found to be more complex: half of the anomalies (missing, supernumerary, impaction, submerged, and retained teeth) appeared mostly in the posterior region (range: 57.1%–100%); the other anomalies (peg-shaped teeth, fusion/gemination, transmigration, and ectopic teeth) appeared mainly in the anterior region (range: 69.1–100%).

Figure 1. The relative frequencies of dental anomalies in the maxilla (blue) and mandible (red).

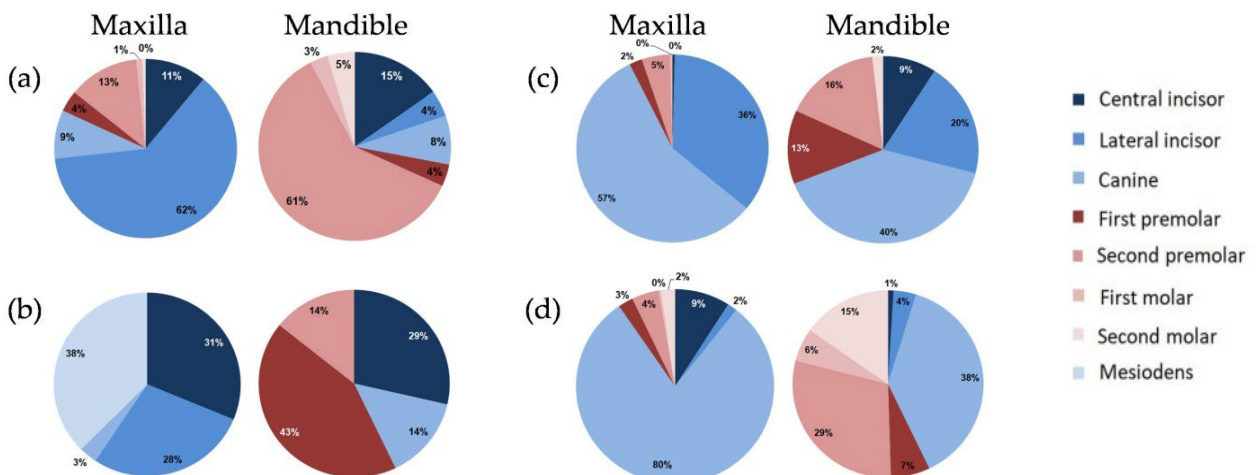
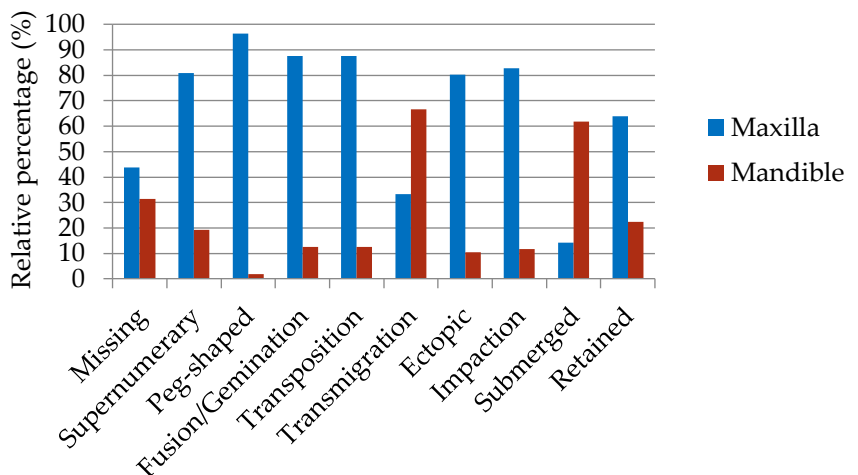


Figure 2. Distribution of dental anomalies by tooth type, jaw, and location (anterior (blue) vs. posterior (red)): (a) missing teeth, (b) supernumerary teeth, (c) ectopic teeth, and (d) impacted teeth.

CONCLUSIONS: The prevalence and severity of dental anomalies are high in human populations, and they are jaw- and location-dependent. Most dental anomalies occurring in the upper jaw involve the anterior region, whereas the inverse was found in the mandible. Dental anomalies are sex- and age-independent. The high rate of dental anomalies and the differences between the jaws can be explained by differences in their evolutionary history and ontogeny.