Ectopic upper canines in bioanthropology: case-study of two individuals from the archaeological collection of slaves from Lagos (Portugal)

Ana Isabel RUFINO[1], Maria Teresa FERREIRA[1], Sofia N. WASTERLAIN[2]

[1] Department of Life Sciences, University of Coimbra, Portugal
[2] [2] CIAS - Centro de Investigação em Antropologia e Saúde, Department of Life Sciences, University of Coimbra, Portugal

Introduction

The maxillary canine is ectopic in approximately 2% of the present day human population, being the palatal position in relation to the arch more frequent than the buccal. Several etiologies can be assigned for this displacement, namely alterations in the arch size – spaced or crowded arches – or absence or diminution in the size of the lateral incisor. This report presents two adult individuals from the Lagos's sample of African slaves, one male and one female, dated from the beginning of the transatlantic trade (15th-17th centuries), with ectopic canines.

Case 1

PAVd'09 I66, adult male (<40 years)

Deposition: W-E, dorsal decubitus
Preservation: well preserved, almost complete

This individual displayed an ectopic permanent upper right canine with palatal location (Figure 1). The socket of the deciduous upper right canine was found in the buccal alveolar ridge, not totally remodeled yet, suggesting its retention even after the eruption of its homologous permanent tooth.

When in relation, the maxilla and mandible show a crossbite between the right canines, being the upper canine palatal to the lower (Figure 2).

Palatal location of ectopic teeth can be related to spaced arches (Millet, 2008). African individuals present more often wider arches than Europeans (Burris and Harris, 2000), with diastema between teeth. However, apparently this individual does not present spaces between upper teeth, not supporting this hypothesis.

Incomplete root resorption of the deciduous tooth or any trauma in the anterior region must be considered. It should be highlighted that this individual had the upper incisors modified, with the incisal angles intentionally fractured. In this skeletal collection, some individuals presented modification both on permanent and deciduous teeth (Wasterlain et al., 2015). Therefore, if performed in an early stage of development, this practice could lead to a dislocation of the permanent tooth in formation.

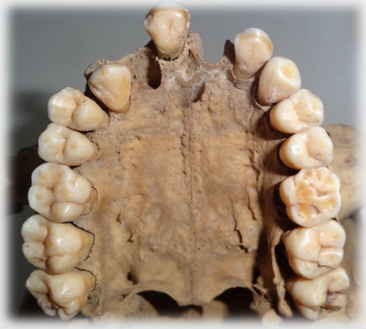

Figure 1 – Maxilla (oclusal view) of individual no. 66. Ectopic upper right canine palatally located.

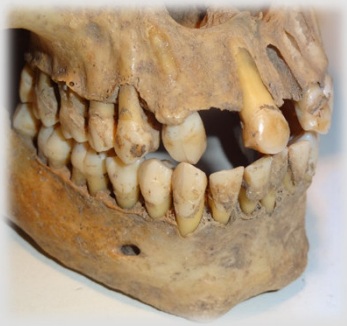

Figure 2 – Intermaxillary relation (buccal view) of individual no. 66. Right canines in crossbite.

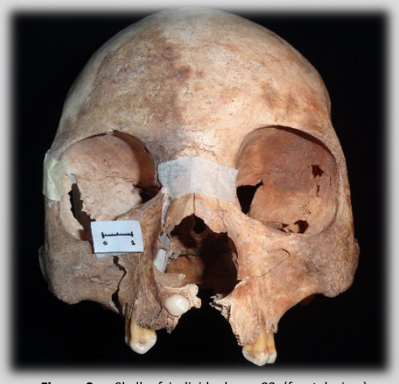

Figure 3 – Skull of individual no. 93 (frontal view). Ectopic upper right canine, bucally exposed.

Case 2

PAVd'09 I93, adult female (<40 years)

Deposition: SE-NW, dorsal decubitus
Preservation: well preserved, almost complete

This individual presented an ectopic permanent upper right canine, exposed buccally, next to the anterior nasal spine (Figure 3).

Labially unerupted canines tend to show a degree of arch-length deficiency (Zeitler, 2004). Canines are usually the last teeth to erupt in the anterior part of the maxilla, and present the longest trajectory to the occlusal plane (Stöckli, 2002). These teeth have been identified as the most likely to be impacted, following maxillary and mandibular third molars (Zeitler, 2004). The presence of the lateral incisor root with normal length at the right time is important to guide the canine in a proper eruptive direction (Zeitler, 2004). Therefore, it is not unusual to find ectopic canines next to microdontic lateral incisors, or when there is agenesis of this tooth.

In this individual, the upper right permanent lateral incisor was not found, and was possibly missing – due to early ante-mortem loss or agenesis – which could have led to an alteration of the canine's eruption. However, the poor preservation of the maxilla does not allow further conclusions.

Conclusions

Eruption disturbances are commonly found in maxillary canines. However, this pathology is not frequently described in the osteoarcheological literature. In this poster two different cases were reported and their possible cause discussed. It should be stressed that in bioanthropological cases a specific etiology cannot be achieved due to the lack of clinical data for these individuals.

References

Burris BG, Harris EF. 2000. Maxillary arch size and shape in American blacks and whites. *Angle Orthodontist*, 70: 297-302.
Millet D. 2008. Orthodontics: management of oclusal problems. In: Heasman P (Ed.), *Restorative Dentistry, Paediatric Dentistry and Orthodontics*. Elsevier, Philadelphia. P. 247-281.
Stöckli PW. 2002. Crescimento da face e dos maxilares e desenvolvimento da dentição. In: Waes HJM, Stöckli PW (Eds.), *Odontopediatria*. Artmed, Porto Alegre. P. 1-28.
Wasterlain SN, Neves MJ, Ferreira MT. 2015. Dental Modifications in a Skeletal Sample of Enslaved Africans Found at Lagos (Portugal). *International Journal of Osteoarchaeology.* DOI: 10.1002/oa.2453
Zeitler DL. 2004. Management of Impacted Teeth Other than Third Molars. In: Miloro M (Ed.), *Peterson's Principles of Oral and Maxillofacial Surgery*. BC Decker, Hamilton. P. 131-137.

Acknowledgments
CIAS and Grupo Dryas Octopetala
Support: UID/ANT/00283/2013