



DENTAL BIOGRAPHY OF UNIDENTIFIED SKELETAL HUMAN REMAIN

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INTRODUCTION

Dental autopsy of unidentified human skeletal remains can contribute to a preliminary generic profile of the subject to assist law enforcement agencies in the search for missing persons (or identify victims of crime). Forensic odontologist should retrieve all possible data obtainable from jaws and teeth including a tooth sample, samples of any dental material used in treated teeth, record the periodontal status, and take periapical x-ray images. Manufactures of dental treatment products, prosthetics, dental pigmentations and crown characteristics, are all recorded during the dental autopsy along with dietary and voluptuary habits. The state of oral and periodontal health contribute to a **dental biography** of the deceased.

MATERIAL AND METHOD

In this work the methods and results of three periodontal analysis performed on skeletonized skulls are presented. Two skulls (928, 533) belong to Coimbra Identified Osteological Collections, curated by the University of Coimbra, and one belongs to an unidentified cadaver found off shore in Sicily.

The periodontal status was assessed using the textural and architectural variations of the interdental *septum* and the extent of bone loss, as usually done during a palaeopathological evaluation, in combination with dental radiology images. The periodontal status was achieved considering the crater-like loss of alveolar bone. Kerr's scoring system was applied (see Table 1).

TABLE 1

Kerr (Kerr NW, 1988. A method of assessing periodontal status in archaeologically derived skeletal material. *J Paleopathol* 2: 67-78):

- 0) **Un-recordable.** Tooth on either side of the septum lost ante-mortem or the septum damaged post-mortem.
- 1) **Septal form characteristic of its region** (e.g., convex in the incisor region grading to flat in the molar region). The cortical surface smooth and virtually uninterrupted by foramina, depressions, or grooves.
- 2) **Septal form characteristic of the region.** Cortical surface showing a range from many small foramina and/or shallow grooves to a cortical surface showing larger foramina and/or prominent grooves or ridges. In a few instances, there was gross disruption of the cortical layer, but a normal contour for the region.
- 3) **Septal form showing a breakdown of contour with bone loss** in the form of a shallow depression extending across the interspace from the buccal to lingual aspect, or as one or two smaller discrete areas of bone destruction, the essential distinguishing features being a sharp and ragged texture to bone defect.
- 4) **Septal form showing breakdown of contour with bone loss** similar to that seen in Category 3, the essential difference being the bone surface, instead of being ragged in appearance, showed a porous or smooth honeycomb effect with all defects rounded.
- 5) Presence of a deep infra-bony defect with sides sloping at 45° or more and with a depth of 3 mm or more. The defect is more likely to be mesio-distally but may be bucco-lingually inclined. The surface may be sharp and ragged or smooth and honeycombed.

RESULTS

All dental data retrieved from the skull assessment was employed to draw the generic profile. For the purpose of this work only the periodontal status is reported. Skull 928 showed category 4 (more than 50% of septa) with extensive destructive lesion of the alveolar bone and presence of tartar, revealing acute periodontitis with probable teeth mobility. Skull 533 showed category 3 with destructive lesions due to periodontitis. Sicilian skull was scored with category 1 with only signs of gingivitis and good oral hygiene.



DISCUSSION AND CONCLUSION

In skeletonized and dry jaws, palaeopathological protocols for periodontal status evaluation should be considered, as soft tissues are not present and clinical assessment may not be possible. The combination of paleopathological and odontological methods used during dental autopsies can improve dental data retrieval. Particularly useful are periodontal evaluations, diagnosis and findings of skeletonized jaws in the final dental autopsy report. The periodontal status and the possible detection of periodontal disease of the unidentified remains can widen the generic biological profile, offering extra potential data for the dental biography of unknown ancient remains and in DVI process.

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