UNVEILING THE EVIDENCES OF NEOPLASM IN THE COIMBRA AND LISBON REFERENCE SKELETAL COLLECTIONS

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ABSTRACT

Reconstruction of the history of oncological diseases is a stimulating endeavor, however, paleopathological research on this theme is still scarce, hindering the depiction of the past of these conditions. Studies of skeletons with known cause of death can bring valuable insights into this problematic. Aims: To evaluate the prevalence of skeletal lesions, and effects of biomorphic parameters, in a cohort of individuals deceased by malignant neoplasms (as registered on the cause of death) from the Museu Bocage and Coimbra Identified Skeletal Collections. Discuss the challenges and prospects of the identification of neoplastic conditions in paleopathology.

RESULTS

- 37.4% (group B) of the skeletons did not exhibit lesions consistent with metastatic disease (Fig. 2).
- 62.6% (group B) had proliferative and/or destructive bony lesions consistent with a metastatic process, however, the majority (45.0%) show a nonspecific pattern, i.e., the lesions could be metastatic but could also be attributable to other possible etiologies (group I vs II: x²=8.313, df=1, p=0.004). 17.6% of the individuals had a typical or highly characteristic pattern of bone metastases [Fig. 2].
- The evaluation of the significance of biomorphic parameters and skeletal preservation on the probability to have skeletal lesions consistent with metastases [group II], was performed with a logistic regression analysis:
  - Variables age, sex, age at death, year of death and preservation did not have a statistically significant effect on the occurrence of constant skeletal lesions [group II].
  - The comparison between individuals with a typical MMP pattern (n=23) with the remaining ones (n=108) did not show significance for the variables under analysis, except for year of death (x²=3.007, Exp (B)=1.059).

FIGURE 6.1: Graphic representation of the distribution of the cases of constant lesions and typical leontiasis by the primary tumor.

[Data and figures as in the original text]

DISCUSSION & CONCLUSION

- In clinical studies the prevalence of “bone metastases for all cancers”14,16 ranges from 7.2⁴⁻ to 26.4⁶ in bone scintigraphic surveys, with a similar distribution between sexes⁷⁻⁸ and affecting mostly individuals over 50⁹⁻¹⁰. Surveys on identified skeletal collections suggest a prevalence of skeletal metastases of 8.8%¹⁰.
- In the present study sex and age at death profiles do not markedly diverge from clinical studies.
- An overall high index of skeletal preservation did not hinder the identification of bony lesions.
- In our analysis the primary tumors that are considered more osteoaggregative (e.g., breast and prostate⁴⁻¹⁰) were the ones manifesting higher frequencies of lesions, which is also in accordance with clinical data.

[Data and figures as in the original text]

FINDINGS

- A significant proportion of the individuals (62.6%) exhibited proliferative and/or destructive lesions. Only 17.6% had the full spectrum of metastatic manifestations expected for an ongoing metastatic process, corresponding to those cases easily recognized by paleopathologists. The remaining ones had less straightforward diagnostic features, and most likely were been misdiagnosed if the cause of death was unknown.
- One aspect often neglected on the discussion of the past of oncological diseases is that the proportion of osteoaggregative tumors in a sample influences the frequency of skeletal metastases.
- Our study emphasize that a significant proportion of tumors can be unnoticed, in archaeological contexts, due to the non-specificity of lesions. It also supports the idea expressed by others¹¹⁻¹³ that the frequency of malignant tumours in the past may be underestimated. Research focusing on the improvement of accuracy of diagnosis in paleopathological needed.