A MEDIEVAL POLISH SKELETAL EXHIBITING AN UNUSUAL PATTERN OF CRANIAL AND POST-CRANIAL LESIONS

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Introduction

- A skeleton with an unusual presentation of cranial and post-cranial lesions is shown. Skeleton 50/99, a young male (17-19 years), is from the medieval (XI-XII c) cemetery site Gz4, in Giecz, Poland. Giecz was a rural agricultural settlement that served as a political and economic center in the newly formed Polish state. Of the 278 skeletons excavated to date, this individual is the only one exhibiting lesions of this type. The unique character and distribution of lesions are consistent with actinomycosis.

- Actinomycosis is a chronic granulomatous bacterial infection caused by any of six Actinomyces species in the human. It is suppurative, characterized by medullary abscess formation and draining sinuses. Actinomyces israelii, bacteria normally associated with the oral cavity, is the classic cause of actinomycotic infection. The cervicofacial region is the site most commonly affected, although that is not the case here. Thoracic actinomycosis, favored here, is a much rarer form constituting only 5-20% of actinomycosis cases. It preferentially affects young males.

- Origin of the infection in skeleton 50/99 was most likely the lungs, with abscess followed by pleural empyema and then spread to contiguous ribs (left 9th-11th ribs here).

- Although rare, cases have been reported of actinomycosis affecting the extremities. This is consistent with periostitis and osteomyelitis in this skeleton.

- Severe osteomyelitis with destructive cloaca is present on both tibiae (Fig 5) and the left ulna. Periostitis is evident on the following elements: both femora, both tibiae, both fibulae, both humeri, left ulna, right radius, both os coxae, both scapulae, right clavicle, left ribs 9-11, both calcanei, and left metacarpals 2 and 4. Consistent with periostitis seen on other skeletal elements, surface vascular impressions suggesting hypervascularity are observed on the sacral ala and anterior body of LS.

Other Conditions Considered

- Neoplastic disease- Although the frontal lesions resemble that of a lytic meningioma as seen in Ortner et al., it would not account for the prolific dispersal of lesions.

- Histocytosis X- Eosinophilic granuloma commonly affects the frontal bone, but can be ruled out because these lesions are generally solitary, very localized, mainly lytic, and without cloacae.

- Hematopoietic disease- Although skull lesions present on skeleton 50/99 exhibit the typical sclerotic borders seen in multiple myeloma, it is excluded because the focal lesions of multiple myeloma do not coalesce or raise productive reactions as is common in actinomycosis. In addition, it usually affects older individuals, almost never those under 40 years of age.

- Bacterial infection- Bacteria of the actinomycetes group, Nocardia, are ruled out because infections are usually confined to the pleural cavity, and if in the rare case spread to bone occurs, no sclerotic reaction is seen.

- Mycotic infection- Fungal osteomyelitis progresses slower than actinomycosis and so is characterized by tabulated lytic defects, smoother, persistent reactions, and less of a tendency for cloacae formation. Lesions of cryptococcosis (European blastomycosis) are mostly distributed in the metaphyses and bony prominences, and sclerotic reaction is rare.

Conclusion

Actinomycosis is rarely discussed in the paleopathological literature. It is favored as the diagnosis here because the distribution and character of lesions are consistent with current understanding of actinomycotic bone involvement. A thorough description of similar cases will expand our knowledge of the effects of bacterial infections in the past.

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References Cited: