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JUXTACORTICAL OSTEOMA: AN HISTOPATHOLOGICAL DIAGNOSIS IN AN ANTHROPOLOGICAL SPECIMEN

Abstract: Deceased persons or human remains may be identified by the recognition of pathological structures, malformations or normal anatomical variants of organs and tissues. Throughout times, they have also contributed to historical and epidemiological studies of diseases and populations' characteristics. The case here reported concerns a femur presenting a mass-forming lesion, whose anthropological examination suggested to be a certain bone tumor and the histopathological evaluation provided a different and definitive diagnosis – that of a Juxtacortical (Parosteal) Osteoma –, thus emphasizing the value of cooperative work among forensic sciences, for any kind of medico-legal investigation.

Keywords: Forensic histopathology; forensic anthropology; bone tumors.

Introduction

The existence of pathological evidences/structures – like recent or signs of old bone fractures, tumors, etc –, of malformations – as femoral hypoplasia –, or even of normal anatomical variants of organs and tissues – as for example those of patella and trochlea at the patellofemoral joint –, may contribute, in a unique way, to medico-legal investigation. Yet, the characterization of some of them requires the input of various forensic areas, as illustrated by the present case.

Case report

A long bone was recovered from the countryside in the South of Portugal and brought to the Medico-Legal Institute for anthropological examination. This evaluation catalogued it as a femur belonging to human bone remains and pointed out an anomalous formation, which was described as: “an exuberant lesion located approximately 180mm from the great trochanter and corresponding to an ossified ‘mass’ laterally joined to the diaphysis, with a length of 150mm and without external evidence of disorganization of the bone layers’ architecture” (Figure 1). The hypothesis of a bone tumor – probably benign, as for example an osteochondroma – was put forward, yet keeping in mind other possible etiologies. Imaging evaluation was then performed (Figure 2) and histopathological examination requested afterwards. In order

to do it, the bone was submitted to a particular variant of the usual tissue handling/processing technique, named *Sandison's Technique*¹ (Figure 3), which is recommended for specimens with a long skeletization period; and whose crucial phase consists in an additional hydration procedure.

The results of the different methods were:

Plain X-ray disclosed reactive periosteal thickening and did not show bone infiltration by the lesion.

Histologically, the 'mass' was incorporated in the external femoral surface, without evidence of malignant infiltration. It consisted of well-differentiated mature bone, with predominantly lamellar structure, presenting haversian system and architecture identical to the normal cortical bone (Figure 4).

Thus, the final diagnosis was *Juxtacortical (Parosteal) Osteoma*.²

Discussion

Juxtacortical (Parosteal) Osteoma is a benign bone tumor, rare, especially in this location (long bone), since it is more prone to involve the skull and facial bones.³ It is a slow growing lesion, whose histogenesis is – for some authors – controversial; since they consider it an hamartoma.² It may be asymptomatic or not, with a large range of possible dimensions.³ Among its differential diagnosis, the parosteal osteosarcoma – its malignant counterpart – is of major relevance.⁴ In the medico-legal setting, the presence of the tumor may represent an identification marker, either *per se* or in combination with other data and/or characteristics of a victim or his/her remains.

Conclusions

The present case reinforces the importance of the contribution from different forensic areas / sciences to, and their joint cooperation in, the identification of alive and dead individuals; the evaluation of their nosological conditions; as well as the characterization of diseases in ancient specimens^{1,5}, even from eventually disappeared cultures and civilizations. The multidisciplinary work definitely has medico-legal, epidemiological and/or historical relevance.

References

- ¹ CIRANNI R, FORNACIARI G, The aortic coarctation and the Etruscan man: morphohistologic diagnosis of an ancient cardiovascular disease, *Virchows Arch*, 449, 476-478, 2006.
- ² SCHAJOWICZ F, *Histological Typing of Bone Tumours*, Heidelberg, Springer-Verlag, 1993.
- ³ BERTONI F, UNNI K, BEABOUT J, SIM F, Parosteal osteoma of bones other than of the skull and face, *Cancer*, 75 (10), 2466-2473, 1995.

⁴ CHIKUDA H, GOTO T, ISHIDA T, IJIMA T, NAKAMURA K, Juxtacortical osteoma of the ulna, *J Orthop Sci*, 7 (6), 721-723, 2002.

⁵ MENDONÇA DE SOUZA S, CODINHA S, CUNHA E, The girl from the Church of the Sacrament: a case of congenital syphilis in XVIII century Lisbon, *Mem Inst Oswaldo Cruz*, 101 (Suppl. II), 119-128, 2006.



Figure 1

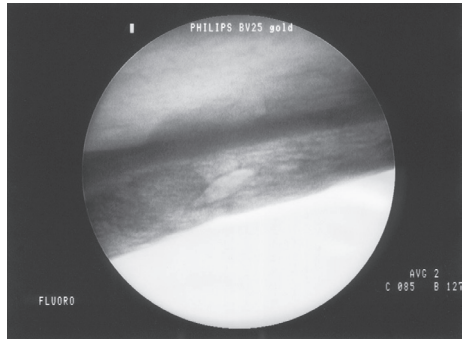


Figure 2



Figure 3

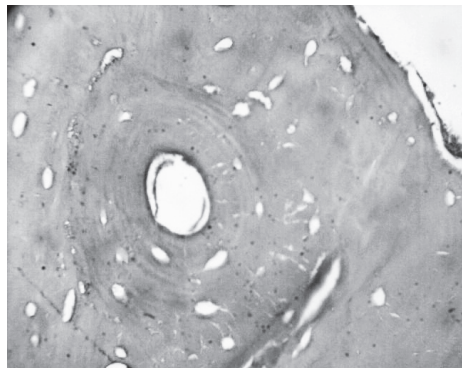


Figure 4