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Ovarian teratoma: A case from 15th–18th century Lisbon, Portugal

Sofia N. Wasterlain[a,*], Rute V. Alves[b], Susana J. Garcia[b], António Marques[c]

[a] Centro de Investigação em Antropologia e Saúde, Department of Life Sciences, University of Coimbra, Portugal
[b] CAPP/ISCSP, Museu Nacional de História Natural e da Ciência, Universidade de Lisboa, Portugal
[c] Centro de Arqueologia de Lisboa, Câmara Municipal de Lisboa, Lisboa, Portugal

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ABSTRACT

This paper discusses the differential diagnosis of an unusual calcified mass found in the pelvic cavity of 45+-year-old female excavated from 15th-18th century Lisbon (Portugal). The mass is relatively large, irregularly shaped, and exhibits a concave base with malformed teeth embedded within its inner surface. Considering its macroscopic and radiological characteristics, several conditions were considered in the differential diagnosis, namely eccyesis, *fetus in fetu*, lithopaedion, and ovarian teratoma. However, the morphological features of the specimen, such as its structure, morphology, and dimensions, are diagnostic of a teratoma. Its location and the sex of the individual are more specifically compatible with a calcified ovarian teratoma. With regional and temporal variations in the frequency of tumours, the report of new cases becomes imperative, especially from geographic regions where few cases have been identified. In fact, this appears to be the first case of ovarian teratoma detected in the Portuguese archaeological record and adds to the few palaeopathological cases described in the osteoarchaeological literature worldwide.

1. Introduction

During the second season of archaeological interventions (2010/2011) carried out in the cemetery located in Largo do Carmo, outside the Church and Convent of Carmo (Fig. 1), Lisbon, Portugal, an incomplete skeleton with a relatively large pelvic calcified mass caught the attention of the excavators. At that time, the recovered bones were mainly those from the lower limbs but, in the campaign of 2013/2015, the remainder of the skeleton was exhumed, enabling its analysis and reporting.

1.1. Archaeological background

The Church and Convent of Carmo were built by Nuno Álvares Pereira as a religious vow for the Portuguese victory over the Kingdom of Castile (Spain) at the Battle of Aljubarrota in 1385 (Santa Ana, 1745; Pereira, 1989). However, the construction of this gothic monument was difficult due to the instability of the soils, being completed only after its structure collapsed twice (Sequeira, 1939). In addition, it had been damaged by the earthquake of 1531, after which it was repaired. In the 17th century the urban environment of Convent of Carmo was transformed, with the destruction of part of its early cemetery (Marques and Bastos, 2013). In the 18th century, it was once again severely damaged by the 1755 earthquake. After that, just some minor incomplete repairs were performed once it was decided to leave the monument in ruins, in remembrance the catastrophic event. Hence, it is believed that the cemetery was used between the beginning of the 15th century and 1755 CE.

Despite the location of the graveyard in an urban area, it was not a public cemetery, receiving only either members of the religious brotherhoods related to the Church of Carmo or patrons. Therefore, it can be hypothesised that most of the individuals buried outside the church would belong mainly to the middle class. Additionally, along the southern façade of the church there are inscriptions referring to several middle-class professions, such as shoemaker and tailor.

In 2010/2011, an archaeological excavation of the surroundings of the Church and Convent of Carmo led by a team from the Centro de Arqueologia de Lisboa ('Lisbon Archaeological Centre' - Câmara Municipal de Lisboa) was undertaken due to the implementation of an urban renewal project. The excavations recovered 42 individual burials in varying states of preservation. Most of the individuals were in an east to west orientation with head to the west (in accordance to the Christian belief in the resurrection of the soul), and were buried in simple pits, in the field surrounding the south and west fronts of the church, which began to be urbanized after the 17th century. Individual 22, described here, was lying in a supine position, with the upper limbs crossed over the waist and the lower limbs extended (Fig. 2), in compliance with the standard Catholic rite of the time. The presence

* Corresponding author at: Departamento de Ciências da Vida, Universidade de Coimbra, Calçada Martim de Freitas, 3000-456 Coimbra, Portugal.
E-mail address: sofiawas@antrop.uc.pt (S.N. Wasterlain).

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Fig. 1. (a) Location of Convent of Carmo in Lisbon; (b) Location of Lisbon in Portugal (Photo credits: Google Earth).

of strict anatomical connections is demonstrative of a primary burial (following Duday, 2009). The skeleton was surrounded by a thick layer of lime (information reported by the excavation team), presumably deposited over the corpse at the time of death (Figs. 2 and 3). Lime (both CaO and Ca(OH)2) was used as a biocide, particularly in cases of mass graves due to infectious disease, in order to prevent the growth of micro-organisms and retard the rate of decomposition in the burial environment. For a more comprehensive contextualization of this collection, see Alves et al. (2017).

2. Materials and methods

Sex determination was made based on the morphology of the *os coxae* (Bruzek, 2002) and the morphometric analysis of the long bones, the calcaneus and talus (Cardoso, 2000; Wasterlain, 2000; Garcia, 2012). As the pubic symphysis was not preserved, the age-at-death estimate was taken from morphological changes of the auricular surface of the ilium (Lovejoy et al., 1985) and the sternal rib ends (Işcan et al., 1984). As the long bones were fragmented and it was not possible to measure their lengths, stature was estimated on the basis of the maximum length of the first metatarsal, following Cordeiro et al. (2009). The preservation of the skeletal remains was determined by calculating the Anatomical Conservation Index developed by Garcia (2005/2006). This index corresponds to a modification of the method developed by Dutour (1989), which divides each skeleton into 44 parts, grouped into four anatomical regions: cranium, axial skeleton, appendicular skeleton, and extremities. Each anatomical part is classified with a value between 0 (absent bone) and 1 (complete or almost complete bones). For the anatomical parts constituted by several elements (e.g., teeth, vertebrae, ribs, hands and feet), Garcia (2005/2006) suggests the calculation of the Bone Representativeness Index (BRI = Σ skeletal elements observed/number of expected skeletal elements). In short, the objective of the BRI calculation is to assist in the determination of a more accurate ACI. For further details, see Dutour (1989) and Garcia (2005/2006).

All the bones of Individual 22 were analysed by careful visual