

Evidence of Congenital Syphilis and Tuberculosis in a XIX Century Mummy (Perugia, Italy)

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Introduction

Umbria is one of the richest Italian regions of mummified bodies. The complex of the natural mummies of Borgo Cerreto, a village in the province of Perugia, was recovered in 1969, during the exploration of the northern crypt of the church dedicated to "The Saints Jesus and Mary" (17th century). The complex is composed by nine men, six women, six sub-adults and two infants for a total of twenty-three individuals with complete funerary equipment. This group of mummified bodies represents a very important case of study owing to the fact that it was not decontextualized. Mummification was the natural result of the microclimate of the burial chamber. According to the funerary epigraph of the crypt, the burials had taken place between the second half of the 16th and early 17th centuries, but the burial chamber was used as local cemetery until the first half of the 19th century (Costantini and Costantini Biasini, 2003). An interdisciplinary study including funerary archaeology, biology, anthropology and paleopathology was started in 2001. A database has been set up and is updated on an annual basis. The study of the BC 05 mummy is part of a larger project which includes the study of all mummified and skeletonized bodies of Valnerina in order to reconstruct the pathocenosis of the rural community of an Umbrian Valley in Modern Age.

Material and Methods

The body was lying in stretched out position with the head rounded on the right, the arms along the sides and the hands joined over the pubis, the inferior limbs bent and without its feet, lost post-mortem (Fig. 1). The individual was wearing a long skirt of raw hemp fabric, light-coloured, stranded in the neck and wrists. No funerary equipment was found. The poor garment was typical of the rural populations of Umbria in the 18th and 19th centuries. The BC 05 body belonged to a young female, aged 15-18 years. Sex determination was performed on the basis of



Fig. 1. The mummy.

the morphological characteristics of the skull and pelvis (Ferembach *et al.*, 1977-79; Canci and Minozzi, 2005). Age determination was carried out on the basis of dental eruption and the epiphyseal fusion (Ubelaker, 1989; Scheuer and Black 2004). The paleopathological study of the BC 05 mummy is the result of macroscopic, radiological and CT (Computed Tomography) examination.

Results

Macroscopic examination evidenced no skin and bone lesion. Teeth examination showed the second right upper incisor (I²) and the adjacent canine (C'), severely deformed, with partial atrophy of the crown and severe enamel hypoplasia (Fig. 2). X-ray examination confirmed the young age of the subject and no pathologic alteration of the bones. CT (Computed Tomography) examination revealed three calcified nodules in the mediastinum (Fig. 3).

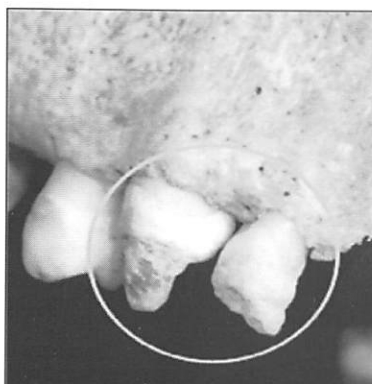


Fig. 2. "Hutchinson's teeth".

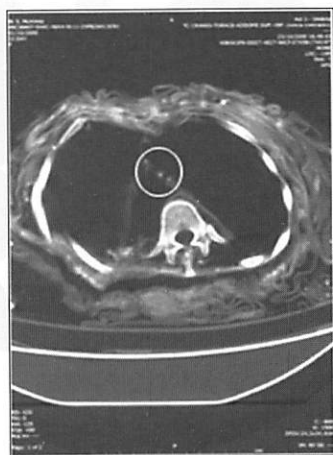


Fig. 3. CT (Computed Tomography) evidenced three calcified nodules.

Discussion

The second right upper incisor (I^2) and severely deformed adjacent canine (C') (the left upper incisors, left upper canine and lower incisors and canines are lost post-mortem) are known as Hutchinson's teeth and are pathognomonic of congenital syphilis. In 1858 Sir Jonathan Hutchinson, first, described defects in the teeth related to congenital syphilis, as part of his triad of signs comprehending dental deformities, keratitis and neural deafness. As reported by the Author in his case study: "The upper right canine seems to have a deep furrow-shaped defect around its tip with an excrescence in its centre whereas the upper second incisors and left canine are unaffected" (Hillson *et al.*, 1998). This pathology is the infection of the unborn fetus across the placenta by *Treponema pallidum* from a syphilitic mother. Congenital

syphilis is considered a rare disease (Aufderheide and Rodriguez-Martin, 1998) and only few cases are reported in paleopathology (Nystrom, 2011). The three calcified nodules, evidenced by CT (Computed Tomography) examination, are compatible with pulmonary tuberculosis, a common disease in Italy and in Europe in the 19th century. The place, aspect and reduced size of the nodules are the results of a previous inflammatory process.

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