



Case Study

Vertebral disease in excavated canine in Lower Silesia, Poland



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ABSTRACT

A mostly complete canine skeleton was excavated during rescue archaeological explorations in Domasław (Lower Silesia, Poland). The archaeozoological analysis revealed loss of several left maxillary incisors. Discospondylitis was observed in two adjacent lumbar vertebrae. Potential causes of the vertebral pathology are discussed. The cause of death is unknown, but sepsis should be considered. No other pathological changes or evidence of human manipulation to the skeleton were identified.

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1. Introduction

This case report describes a dog skeleton with pathological spinal changes, excavated from Domasław (Lower Silesia), a site dating to the Przeworsk culture in the early period of Roman influence (BC/AD–160 AD). We compared pathology noted in this skeleton to similar modern pathological changes using digital radiography, and we interpreted results using modern human and veterinary medical knowledge.

In both human and veterinary medicine, “adjacent segment disease” is a specific term that describes partial vertebral column fusion resulting from degeneration, inflammation, or other pathological processes (Ortega et al., 2012). Vertebral fusions are reported only rarely in the archaeozoological literature. The incidence in larger animals is linked to social and cultural role of dogs. Therefore, its presence may provide information for interpreting archaeological findings (Bartosiewicz and Bartosiewicz, 2002;

Chrószcz et al., 2010, 2011; Janeczek et al., 2010, 2014; Janeczek and Chrószcz, 2011; Chrószcz and Janeczek, 2012; Pluskowski et al., 2010; Onar et al., 2012).

2. Materials and methods

Rescue archaeological exploration of Domasław site was performed during 2006–2008, prior to construction of the Wrocław Ring circumferential highway (Fig. 1). The archaeological site no. 10/11/12 in Domasław (Domasław) is located ca. 20 km south-west from Wrocław, capital city of Lower Silesia. During the archaeological site exploration (154,600 m²), over 14 thousand of the artifacts were documented and dated from the Neolithic to the Migration period (5th century AC).

A nearly complete dog skeleton (Fig. 2) was discovered in feature no. 7025. This feature is interpreted as a ground-embedded building of the Przeworsk culture, a rectangular area measuring approximately 432 m × 360 m and 51 cm deep. Postholes were identified along the gable wall of the building, which is typical for the *Barbaricum*, area stretching east of the river Rhine and north of the

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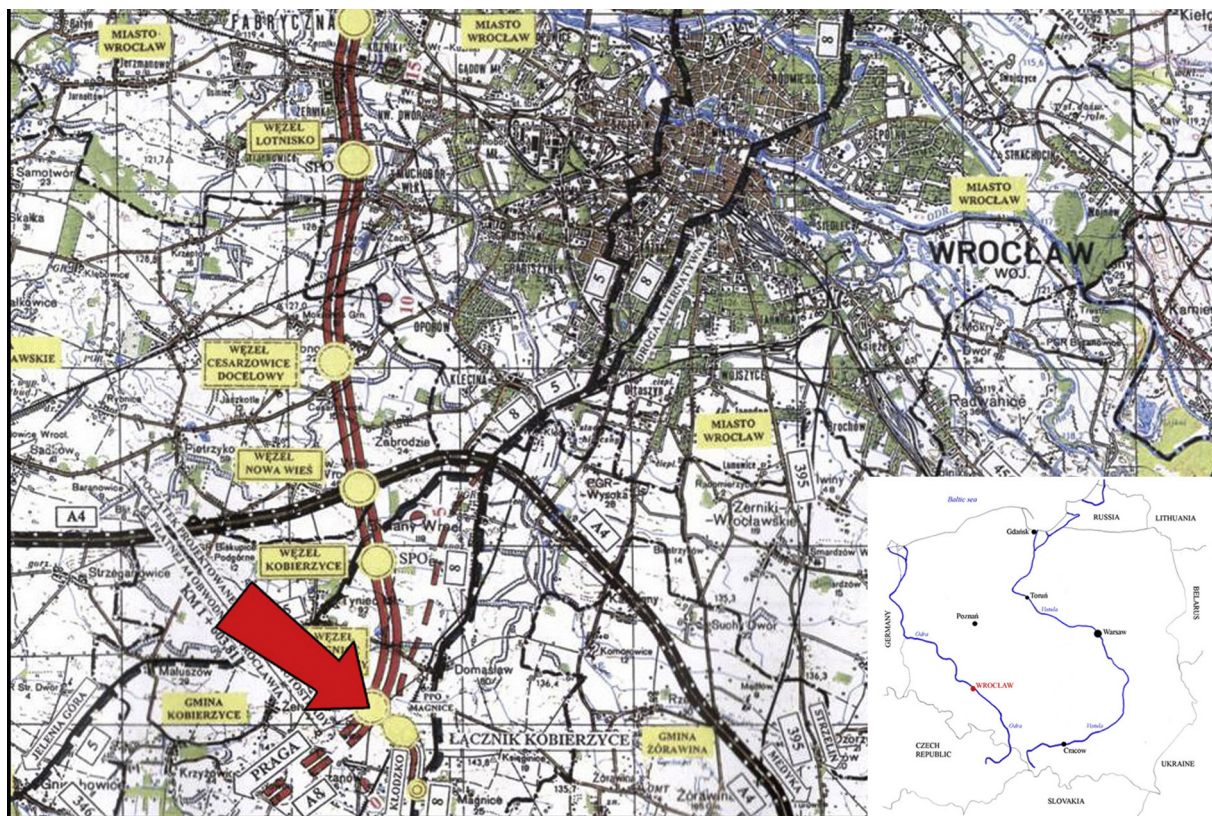


Fig. 1. The location of Domasław (Domsław) archaeological site.

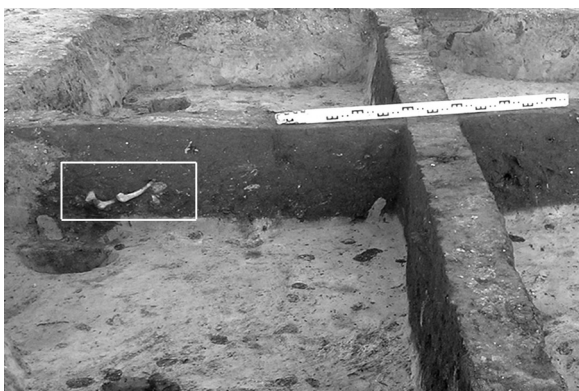


Fig. 2. Dog skeleton remains (no. 7025) within the archaeological site.

Danube, during the Pre-Roman, Roman and Early Migration Periods.

Feature no. 7025's fill included clay pottery fragments (1792 artifacts) together with whetstones, spindle whorls. Its ceramic chronology is estimated as the early stage of Roman influence (1–2nd century AC), connected with settlements of the Przeworsk culture.

Canine burials inside buildings within human settlements are observed frequently in European Iron Age cultures, especially that of Przeworsk (Leube, 1975; Maringer, 1980; Makiewicz, 1987, 1994; Nedoma et al., 2000; Beneš and Fišáková, 2008). Such inhumations usually are interpreted as an evidence of magical or sacred rituals that are linked to a hearth and home cult (Leube, 1975; Makiewicz, 1987; Gralak, 2012).

The dog's age was estimated based on bone fusion in the extremities, and dental maturation (Dyce et al., 1996).

Osteometry was performed as described by Driesch (1976). The height at the withers was estimated from long bone and Ethmoideum–Basion dimensions (Harcourt, 1974; Chrószcz et al., 2007). The skeleton was radiographed with an Orange 1040 HF unit, and the images were interpreted using the CR – system 35 digital with Promis software (IGP UK Limited, Battles bridge, Essex).

3. Results

The classical skeletal osteometry results are summarized in Table 1. The shoulder height was estimated to be ca. 58.6 cm (Table 2), the age was estimated as 15–28 months. An os penis identified in the dog as male. Vertebral fusion was observed in the postcranial skeleton. The left maxillary incisors (I_1 , I_2 , and I_3 ; 201, 202, 203 in modified Triadan system) were absent, and new bone was noted in their respective alveoli on radiographs (Fig. 3). M_1 (209 in modified Triadan system) also was missing.

No signs of massive periodontal disease are present in the mandibular or maxillary dental arches. The incisors may have been lost following inflammation or injury, leading to bone remodeling with visible macroscopic transformations. Limited signs of a reactive process are observed in the wall of left maxillary molar alveolus (loss of M_1) and an exposed root and furcation of the right maxillary molar (M_1 ; 109 in modified Triadan system) (Fig. 4). The accessory buccal root of M_1 was found in the maxillary arch and was accompanied by an accessory canal within the maxillary alveolar process. Fig. 4c shows some bone loss near alveolar margins that may be partly pre-mortem, but this could be consistent with a degree of periodontal disease, especially given the staining of the roots that is visible. Moreover, Fig. 3 shows perialveolar small encircling rims that are consistent with mild-moderate bilateral periodontal disease.

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