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PRIVILEGED BURIAL IN THE PAVA PIEVE (SIENA, 8th CENTURY AD)

Abstract - During the 6th archaeological excavation campaign performed at the «Pieve di Pava» (San Giovanni d'Asso, Siena, Italy) in the summer of 2009, a stone-lined burial of a high-status single individual (US 2378) was discovered, covered by a monolithic slab and placed in front of the altar. The tomb is about 160 cm long, 40 cm wide and over 70 cm deep. The skeletal remains of a young male (18-20 years), not in anatomical connection, were found on the floor of the tomb. ¹⁴C dating revealed a period between 650 and 688 AD. Stable isotope analysis (¹⁸O, ¹³C, ¹⁵N) attested that he was a member of the local community, with a diet quite rich in animal proteins. We are in presence of the secondary burial of an eminent personage, perhaps a saint, likely to have been transported to the church in a sack of perishable material, possibly textile, which caused their alignment along a curved line, as clearly demonstrated by the circular delimitation of the bones. The body was probably used for the re-consecration of the church, following the restoration works of the 8th century.

The paleopathological study diagnosed a case of *acromesomelic dysplasia*, a congenital anomaly with disproportionate limbs: short, enlarged distal segments (radius-ulna and tibia), almost normal proximal segments (humerus and femur), short stature of about 150 cm, and bilateral fibular agenesis. *Tibiae* malformation and *fibulae* agenesis led to bilateral *talipes valgus*, with major walking problems. Extensive enthesopathies in the upper limbs indicate the use of crutches.

Key words - High status burial, *acromesomelic dysplasia*, enthesophyte, palaeopathology, early Middle Ages, Italy.

Riassunto - La sepoltura privilegiata della Pieve di Pava, VIII secolo (S. Giovanni D'Asso, Siena, Italy). Lo scavo archeologico della Pieve di Pava, nel comprensorio delle Crete Senesi, iniziato nel 2004 e tuttora in corso, ha permesso di mettere in luce l'antica Pieve di S. Pietro in Pava, citata per la prima volta in un documento del 715, e l'area cimiteriale circostante databile dal IX al XIII secolo. Il campione portato alla luce è costituito da un numero straordinario di sepolture, oltre 1.000, tutte dislocate all'esterno del perimetro dell'antica pieve e che ne seguono l'andamento ovest-est. L'unica eccezione è rappresentata dalla tomba oggetto di questo studio, caratterizzata da una duplice valenza: archeologica e paleopatologica. Infatti, non solo si tratta di una sepoltura privilegiata, a cassa litica e coperta da un lastrone in travertino e posta in prossimità dell'altar maggiore, ma risulta anche l'unica ad essere collocata all'interno della chiesa. Sul fondo della cassa sono stati rinvenuti i resti, privi di corredo, di un individuo maschile di 18-20 anni, in evidente deposizione secondaria, in quanto nessun distretto osseo conserva le originali connessioni anatomiche, ad esclusione di una sommaria disposizione del cranio da un lato e del bacino e dei femori dall'altro; inoltre,

risultano assenti le vertebre cervicali e la maggior parte delle piccole ossa dalle mani e dei piedi. Anche le dimensioni della tomba, insufficienti per accogliere un corpo in connessione anatomica, fanno escludere una deposizione primaria. Inoltre, la disposizione curvilinea delle ossa fa ipotizzare la presenza, al momento della deposizione, di un contenitore in tessuto, molto verosimilmente un sacco in materiale deperibile.

Lo studio paleopatologico ha evidenziato che l'individuo era affetto da una *displasia acromesomelica*, con accorciamento e deformità e slargamento del tratto distale delle ossa lunghe degli arti, soprattutto inferiori, agenesia delle fibule ed una statura stimata in circa 150 cm. Inoltre, la grave malformazione delle epifisi distali delle tibie, dell'articolazione della caviglia e l'assenza del supporto fibulare, determinarono un quadro di piede valgo bilaterale, con conseguente difficoltà alla deambulazione. L'individuo mostra inoltre una serie di patologie correlate, tra le quali entesopatie bilaterali localizzate a livello degli arti superiori, all'attacco del grande pettorale sugli omeri e al legamento costo clavicolare, da correlare verosimilmente all'utilizzo di stampelle. La datazione ¹⁴C ha rivelato che l'individuo è deceduto nella seconda metà del VII secolo, e più precisamente tra il 650 e il 688 d.C. (datazione calibrata). Nonostante si tratti di una sepoltura secondaria, oggetto quindi di spostamento, si trattava certamente di un abitante dell'area circostante, come ha dimostrato la determinazione dell'isotopo ¹⁸O ($\delta^{18}\text{O}$: 14,9; valore medio per Pava: $13,8 \pm 1,2$). Siamo evidentemente di fronte ad un personaggio eminente della comunità di Pava, laico o religioso, vissuto nel VII secolo, il quale, in occasione dei grandi lavori di ristrutturazione dell'edificio religioso effettuati nel corso dell'VIII secolo, ebbe l'onore di essere risepolto davanti all'altar maggiore.

Parole chiave - Sepoltura privilegiata, displasia ossea, entesopatie, alto medioevo, paleopatologia, Toscana

INTRODUCTION

The aim of this paper is to describe a very peculiar burial, interesting from an archaeological, taphonomic and palaeopathological point of view. The excavations of the «Pieve di Pava» (church with baptismal font), in the southern part of the Province of Siena, central Italy (Fig. 1), performed by the Landscape Archaeology and Remote Sensing Laboratory (Lap&t) of the University of Siena in 2004, revealed an important archaeological complex, composed by the religious building of the *Pieve* with annexed cemetery. It is undoubtedly the

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Fig. 1 - Site location.

Pieve of San Pietro in Pava, first recorded in a document of AD 714 (Campana *et al.*, 2009), related to a dispute between the bishops of Siena and Arezzo for the control of some *pievi* (Schiapparelli, 1929, n. 17) (Felici, 2009).

The cemetery (Fig. 2) produced an extraordinary number of burials, about 1000 (Mongelli *et al.*, 2007), and these funerary practises around the church are dated, back to the 9th-13th centuries, according to ¹⁴C. The burials, which only occur outside the *Pieve*, are simple graves, in only a few cases with stone or wooden elements. During the 6th archaeological excavation campaign performed in the summer of 2009, the only stone lined burial discovered was that of a high status indi-

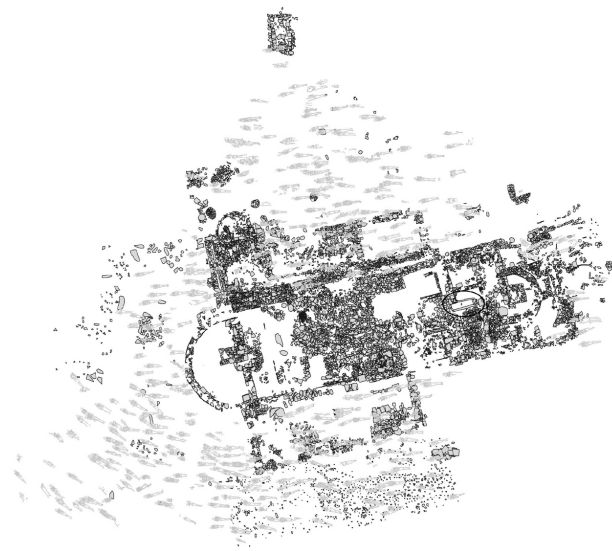


Fig. 2 - Pava Pieve, with cemetery area and position of the high status burial (oval).

vidual (US 2378), covered by a monolithic slab, placed in front of the altar. The tomb is about 160 cm long, 40 cm wide and over 70 cm deep.

MATERIAL AND METHODS

The age of death was established according to synostosis of cranial sutures (Meindl & Lovejoy, 1985), tooth wear (Lovejoy, 1985), sternal articular surface (Iscan *et al.*, 1984; Iscan *et al.*, 1985) and pubic symphysis (Lovejoy *et al.*, 1985). Sex was determined on the basis of the hipbone, pelvis (Ubelaker, 1989) and skull morphology (Buikstra & Ubelaker, 1994). For the metric and morphometric characters of the skull we adopted the method of Hug (1940) and Martin & Saller (1956-59). For the calculation of the stature we applied the method of Trotter & Gleser (1977). For the enthesopathies, reference was made to the works of Mariotti, Facchini, Belcastro (2004). For the description and classification of diseases we used the standards established by a group of American anthropologists and palaeopathologists (Buikstra & Ubelaker, 1994). For palaeonutrition we adopted the stable isotopes of carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) (Sutton *et al.*, 2010).

ARCHAEOLOGICAL AND ANTHROPOLOGICAL EVIDENCE

The skeleton, in good state of preservation and deposited on the floor of the tomb not in anatomical connection (Fig. 3), with the absence of few small bones of the hands and feet and some cervical *vertebrae*, belongs to a young male of 18-20 years. The spatial distribution of bones, not in anatomical position and conditioned by two delimitations, consisting in the vertical wall of the grave and a circle formed by a perishable element, most probably a sack used for transportation to the church (Henri Duda, personal communication) (Fig. 4), confirms that this is a secondary burial (Duda, 2006). A bone sample from the skeleton, submitted to ¹⁴C dating, revealed a calibrate date between 650 and 688 AD. Stable isotope analysis (¹⁸O, ¹³C, ¹⁵N) attested that he was a member of the local population (Tab. 1) (Prowse *et al.*, 2007), with a diet (Fig. 5) rather rich in animal proteins, $\delta^{15}\text{N} = 10.10$ e $\delta^{13}\text{C} = -18.97$ (CIRCE Laboratory, Center of Isotopic Research for Cultural and Environmental Heritage, Department of Environmental Sciences, 2nd University of Naples).

PATHOLOGY

The paleopathological study revealed significantly disproportionate limbs, in particular the lower ones (Fig. 6), characterised by:

- short forearms, with deformation of the proximal and distal epiphyses of the radius and ulna and bowed radii;
- bilateral short lower limbs, with bowed and stubby tibial diaphyses;



Fig. 3 - The privileged burial.

- bilateral absence of triangular fovea for *fibulae* (agenesis), with oblique articular surfaces of distal tibial epiphyses;
- abnormally positioned *talus* and *calcaneus*.

In order to establish the proportion of limbs, we calculated the stature with the proximal and distal bones of the appendicular skeleton (Trotter & Gleser, 1977). The stature obtained with the humerus and femur is similar (about 160 cm), but shorter if calculated with the distal bones of the upper limbs such as the ulna and radius (about 156 cm) or very short with the tibiae (about 149 cm), with evident *brachicnemia* (Tab. 2).

RELATED PATHOLOGIES

The skeleton (Fig. 6) also shows bilateral extensive enthesopathies of the clavicle, with destructive *fovea* of the costoclavicular ligament and strong bilateral insertion of *pectoralis major* and *teres maior* of the humerus, characterized by osteolytic fossae (Mariotti *et al.*,

2004). These enthesopathies may have been caused by the use of crutches. The T7, T8 and T12 vertebral bodies show Schmorl's nodes (Weiss, 2005). There is also S1 lumbarization, and *osteochondritis dissecans* of the right femoral head, probably caused by an overload of the lower right.

DISCUSSION

For differential diagnosis, the shortening of the extremities is generally classified as follows (Fig. 7): *micromelic* (shortening of the whole limb); *rhizomelic* (shortening of the proximal segment); *mesomelic* (shortening of the middle segment) and *acromelic* (shortening of the distal segment) (Waldrom, 2009). This individual shows short and enlarged middle segments (*radius-ulna* and *tibia*), with bilateral fibular agenesis and malformed talus and calcaneus; the normal proximal segments (humerus and femur) are normal, with short stature of about 150 cm. In our case, using Waldrom's

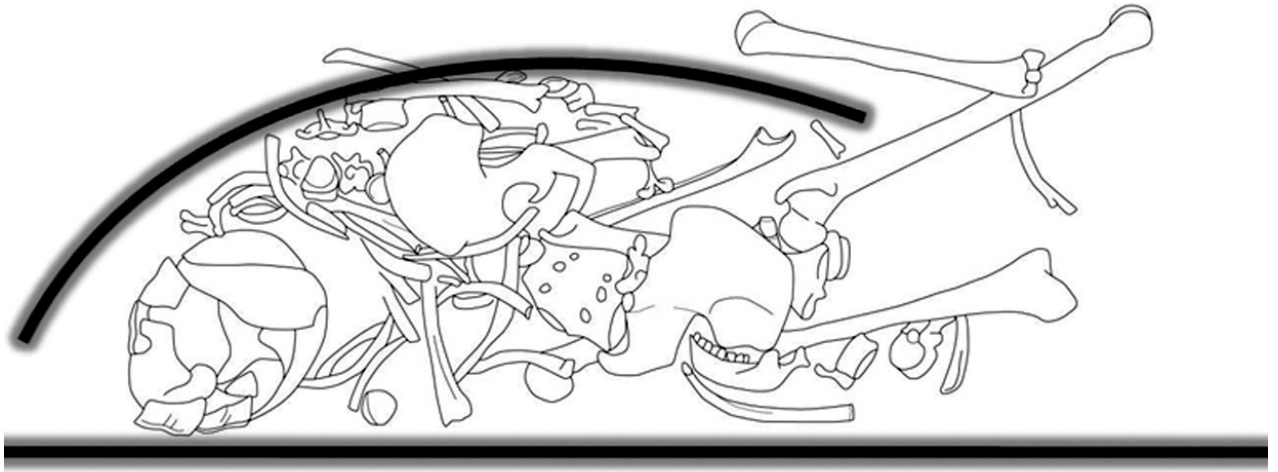
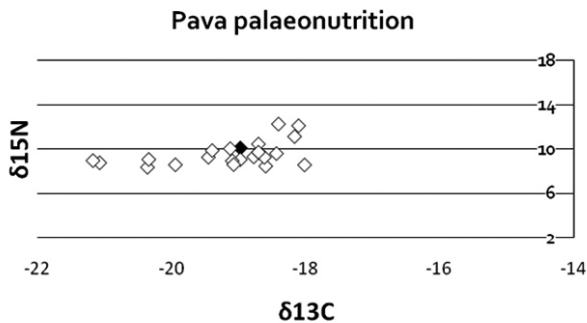


Fig. 4 - Drawing of the bones with lines of constraint.

Tab.1 - Values of $\delta^{18}\text{O}$.

Samples examined	US 2378	T62	T80	T64	T99	T77	US 4659	Media
$\delta^{18}\text{O}$	14.9	13.9	11.8	13.5	12.7	15.3	14.2	13.8 ± 1.2

Fig. 5 - Pava palaeonutrition (the high status individual in black): high values of $\delta^{15}\text{N}$ demonstrate a diet rather rich in meat.

schema about the different types of dwarfism (2009), we easily excluded the section «normal proportions», because the skeleton is characterized by abnormal proportions, like the *rhizomelia*, since the proximal segments shows no deformation or shortening. This is a case of *acromesomelic dysplasia*, a congenital anomaly with disproportionate limbs (Baxova *et al.*, 1994). *Tibiae* malformation and *fibulae* agenesis led to bilateral *talipes valgus*, with major walking problems, and the extensive enthesopathies in the upper limbs indicate that he made use of crutches.

There is an example of this type of dwarfism in palaeopathological literature, as is the case of a Roman skeleton, found in England in 1985. This skeleton shows a form of dwarfism affecting the middle segments of the limbs, similar but more severe than the skeleton of the present study (Rogers, 1986). Another very ancient case of acromesomelic dysplasia, dated back to the late upper Palaeolithic, was found in southern Italy (Frayer *et al.*, 1988).

CONCLUSIONS

It is possible only to speculate about the identity of this individual, certainly important, despite his handicap, for the Pava community of the 7th century AD, which honoured him with such a privileged burial. It is evident that the position of this secondary burial in a stone tomb in front of the high altar during the restoration of the building, certainly had great symbolic value, probably designed to give prestige to the church. Therefore, two hypotheses are possible: he was either the member of a local elite family, perhaps a benefactor of the church, or an eminent religious personage, perhaps a saint, so distinguished in the Pava community as to obtain the honour of this privileged burial. This second hypothesis, of a relic used for the re-consecration of the church after the restoration works of the 8th century, seems more suitable.

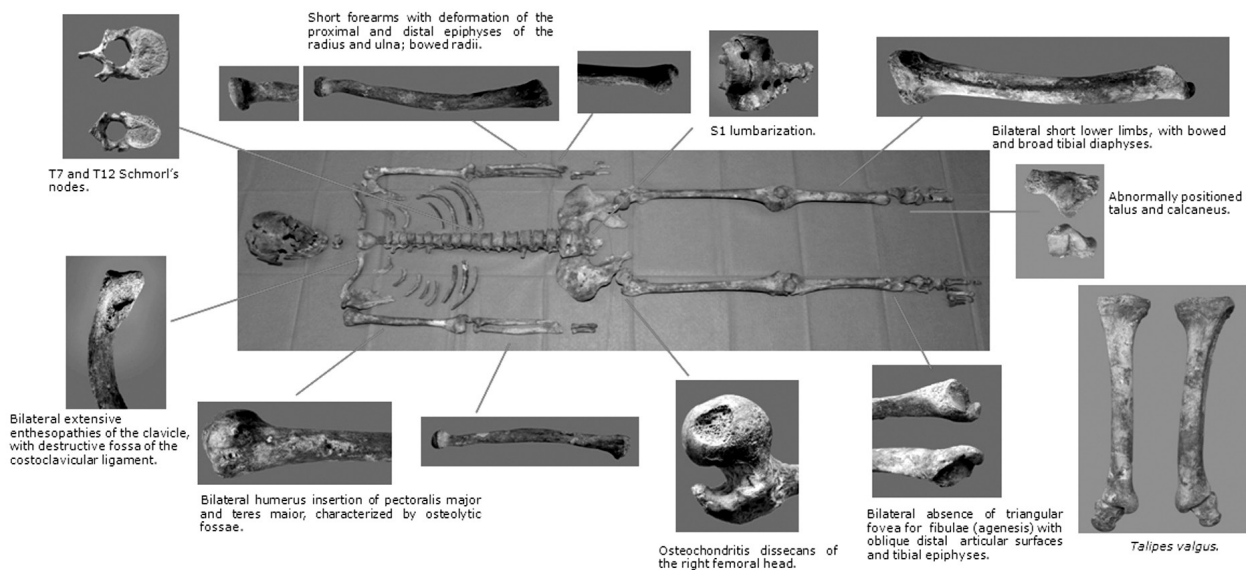
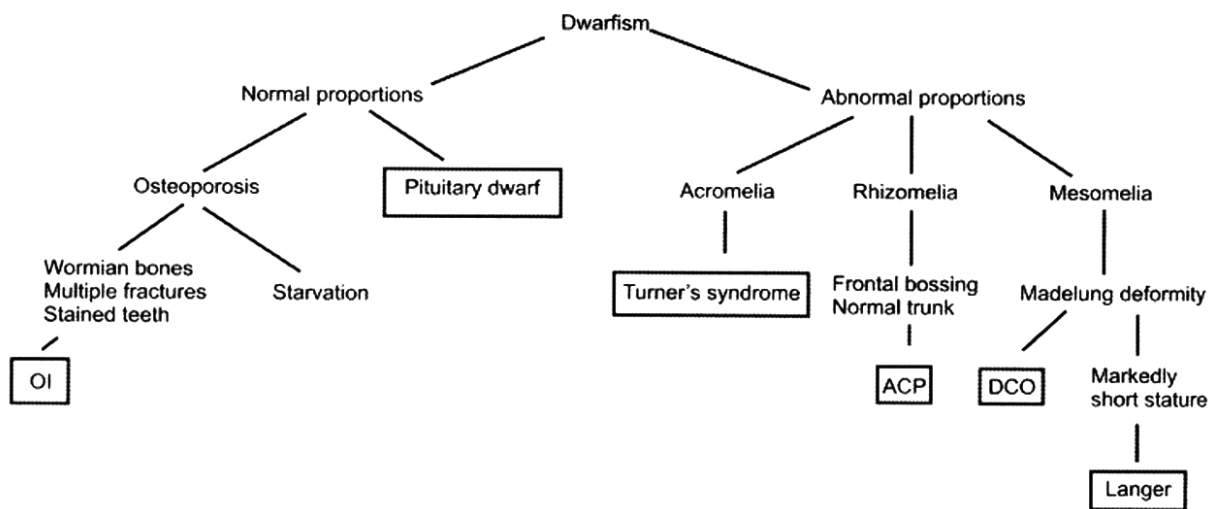


Fig. 6 -Skeleton with list of the diseases.

Tab. 2 - Disproportionate limbs (Trotter & Gleaser stature, 1977).

BONE	Humerus		Radius		Ulna		Femur		Tibia	
	R	L	R	L	R	L	R	L	R	L
Length cm	296	291	209	207	-	217	412	417	284	277
Stature cm	161.1	160	158	157.3	-	154.3	159.4	160.6	150.1	148.4



OI Osteogenesis imperfecta

ACP Achondroplasia

DCO Dyschondrosteosis

Fig. 7 - Differential diagnosis between the common forms of dwarfism and short stature (Waldrom, 2009).

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