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"Horseman Syndrome" in the Tuscan Early Middle Age: The Sk888 Case

E. Bagagli[1], F. Cantini[1], F. Mallegni[1], F. Bartoli[1]

[1] Dipartimento di Biologia, Università di Pisa, via Volta 6. E-mail: fbartoli@biologia.unipi.it

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Introduction

SK888 is a skeleton unit found during an archeological excavation (between 2000 to 2002 y.) in Montelupo Fiorentino, Florence, Italy, under the supervision of Prof. Federico Cantini, in the dug-out area called SS. Quirico and Lucia Church. A long attendance from roman age to present day is shown from the studies; particularly, over a roman aged cobbled paving, during the late ancient age (V-VI A. D.) a necropolis was born, and between VII- IX century over that a church was built up. Some presbitery's potsherds and SK888's burial place are related to this period. The particular location for SK888 in front of the church, the stone's use in the burial, the find's storical-social contest suggest overall that SK888 was a member of the upper class during his life. The study want to show this membership throught SK888 anthropological and ergonomic analisys: particularly, we concentrated on particular skeletal markers related to horseback riding and weapon use.

Materials and Methods

To determine sex we used Acsadi and Nemeskéri method (1970). To fix the death age we applied both Mendl and Lovejoy's method (1985) and macroscopical observation of degenerative type's phenomena. To calculate height, we used both Trotter and Gleser' method (1970) and Rollet and Siovold'coefficient. To determine anthropometric measures, we used Martin and Saller's method (1957-1962). The ergonomic study, based on the post-cranial enthesys's development mapping, from grade 0 to grade 4 (pathological), was been elaborated over the Donatelli method's (2004). The ergonomic assessement of post cranial district is based on a Mariotti and Belcastro's study (2001); Capasso *et al.*, (1999); Iscan and Kennedy (1989). Paleonutritional analysis was been made in the University of Pisa laboratories, by Prof. Bartoli F. and Dott. Orlandi M. (2010).
SK888 lies down one's back, the skull is in front position; it seems to have been to lift up by a cephalic pillow: at the time of the decay of the pillow, the skull has fallen back due to a secondary empty space, causing the separation of atlas and mandible. Probably, the clavicular verticalization has been caused by a shroud made to wear at the time of deposition; which would explain also the good preservation of connection in the joints of upper district.
The decay next phase takes place in the burial empty space. Right upper limb spreads along the body, while left upper limb is slightly angled, with forearm and hand over pelvis. Empty space caused pelvis opening, consequently femurs rotation and kneecaps falling. Both feet are in place. SK888, despite being almost complete in its entirety (except for the total absence of a hand), however shows some damages caused by hydrogeological situation of the settlement.

Results

SK888 is a male, probably 45/55 years old. Anthropometric results, diaphisis sturdiness and rotundity show us an well-off style of life, thus alluding to a higher class of membership. Paleonutritional analysis seem to confirm the hypothesis, revealing a diet which, although low in protein supplies (meat, milk and dairy products), is actually made from cereals, carbohydrates and freshwater fish; there are no deficiency states.
Ergonomic study: Upper limbs. The insertion sites observation show a concentrated activity of scapular and elbow girdles muscles, for the most part great movements of abduction and adduption in upper limb and flexion in the forearm. *Lower limbs.* The *markers* point out flexion, extension and rotation of thigh and flexion of leg. Extension and flexion of foot. Markers etiology may be functional: the insertion sites analisys shows an higher envelopment of those in most part envolved in the movements causing standing-up position, deambulation and horseback riding. *Pathologies:* Vertebral arthrosis, like ernations and ossification due to ernial extrusion in lumbar; extra-vertebral arthrosis, in upper and lower limbs joints is in relation with muscle impressions particularly heavy. Arthrosic description has been interpreted taking into account age; however, the presence of arthrosis phenomena in determinate sites show us a connect with stress factors. Arthrosis phenomena both in the pelvis and in the lower vertebral column is connected by a Capasso study (1999) with horseback riding. SK888 shows also ischial osteitis, probably caused by sitting for long period on a hard

surface; this pathology can appear in association with medial bowing of the fibulae. In SK888 there's a fibular fracture in the right fibulae, a fracture of the proximal one-third of the diaphisis that extend distally and laterally. Capasso (1999) connects this fracture's kind with military activity.

Discussion

Skeletal markers with pathologies and trauma in SK888, all together, seem to suggest which that's so called "Horseman syndrome": the syndrome consists in the presence of different factors with various origins, like some kind of entheses development, enthesopathies, trauma, heavy articular surfaces, arthropaties particularly developed in special complexes, to suppose functional etiology to connect with horseback riding and weapon use. From a Fornaciari's new study (2003) we try to cut off more specifically "Horseman syndrome" markers. In upper district there are: greater entheses development of deltoid, of latissimus dorsi muscle, pectoral major, teres major (abdution and addution movements) and brachioradialis insertion site in the ulna (flexion). In lower district there are: fovea's ostheophitosis, greater enthesopathy in gluteus maximus and vastus lateralis insertion sites, ostheophitosis and flattening in lesser trochanter, enthesophaties on linea aspera. In tibia, ostheophitosis on soleus insertion site: hyperthrophy of linea solea is a most important mark, because soleus muscle causes a specific horseback riding movement, so plantar flexion of the ankle with knee partially flexed.

In calcaneum, there is enthesophaties in tendine d'Achille insertion site. The functional etiology in arthrosis phenomena is a so important factor, expecially because it's so heavy in great joints. Erniations, expecially in toraco-lumbar vertebral column, intentional iniuries and fibulae's fracture are an ulterior piece in the syndrome's picture. SK888 shows most markers, so he may be a horseman during his life.

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