

DISH IN AN INDIVIDUAL FROM THE PORTUGUESE NAVY (18TH-19TH CENTURIES)

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In 2005 the crypt of *Espírito Santo Chapel* (Loures, Portugal) was excavated. Forty-nine primary inhumations, comprising 37 adults (27 females; 10 males) and 12 non-adults were identified. Inhumations took place between 1561 and 1834.

An adult male (> 35 years old) (Burial 1-Crypt 3) was individualized as belonging to the Portuguese Navy, based on the recovery of an uniform button¹ (Fig. 1) associated with the burial.



Fig. 1

This individual exhibited exuberant bone lesions, affecting the vertebral region, sacroiliac joint, and extraspinal entheses. Bone changes were recorded macroscopically and complemented with radiological exam (Table 1). The bone alterations are compatible with a diagnosis of diffuse idiopathic skeletal hyperostosis (DISH), according to Rogers and Waldron (2001)² criteria.



Fig. 2

Table 1. Distribution and typology of lesions observed.

Skeletal Region	Bone Changes Description
Vertebral region	MACROSCOPIC ANALYSIS: Ossification of the anterior longitudinal ligament on the right anterolateral aspect of the spine, in a candle wax pattern. Ankylosis of the vertebral bodies: 2 nd and 3 rd cervical; all thoracic and lumbar (except 5 th) (Fig. 2). Ankylosis of the zygapophysial joints: 3 rd -4 th , 7 th -8 th thoracic; 3 rd -4 th lumbar (Fig. 2). Ankylosis of the costovertebral joints: 1 st left, 4 th , 5 th and 7 th right joints (Fig. 2).
	RADIOLOGICAL EXAM: The zygapophysial and costovertebral joints show absence of intra-articular ankylosis. The intervertebral spaces are preserved (Fig. 3).
Sacroiliac joint (SI)	MACROSCOPIC ANALYSIS: Para-articular ankylosis of the sacroiliac joint (Fig. 2).
	RADIOLOGICAL EXAM: No involvement of the sacroiliac articular surface, thus the fusion is mostly due to ligament ossification and bridging between the ilium and sacrum (Fig. 4).
Extraspinal enthesal areas	MACROSCOPIC ANALYSIS: There are several peripheral ossification at enthesal sites. These were more noticeable at the <i>triceps brachii</i> , iliac crest, Achilles tendon and the patella ligament.



Fig. 3



Fig. 4

In the case-study herein described, the enthesal alterations, particularly the ossification of the anterior longitudinal ligament on the right anterolateral aspect of the thoracic spine (the hallmark of DISH), raises little diagnostic doubts. However, due to the involvement of the sacroiliac, zygapophysial, and costovertebral joints, the use of radiological techniques is germane to differential diagnosis. Radiology allowed the identification of key features, such as, the preservation of articular surfaces, whilst ligaments were ossified – which would not have been possible otherwise. This analysis allowed the exclusion of other vertebral disorders (e.g. spondyloarthropathies, vertebral osteophytosis, degenerative disease), contributing, therefore, to a accurate assessment of its aetiology. In conclusion, radiology paved the way for a more efficient and harmonizing discussion of the lesions. This case-study highlights the importance of radiology in paleopathology, as well as the importance of a multidisciplinary team approach.

References: ¹Santos, P. (2011). O famoso "botão de âncora" da Marinha Portuguesa. *Revista da Armada*, 458, 24-25.
²Rogers, J.; Waldron, T. (2001). DISH and the monastic way of life. *Int. J. Osteoarchaeol.*, 11: 357-65.

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