The gold nun: a case of a gold ligature from the 15th century and the origins of restorative dentistry in Europe

Eugénia Cunha1,*, Catarina Leal2, Miguel Munhós2 and Isabel Poiares Baptista3

1 BS, PhS, C-Fase, Centre for Functional Ecology, Laboratory of Forensic Anthropology, Department of Life Sciences, University of Coimbra, Calçada Martim de Freitas, 3000 454 Coimbra, Portugal
* Corresponding author: cunhae@ci.uc.pt
2 DRCC-Direção Regional da Cultura do Centro. Coimbra, Portugal clealdrcc@gmail.com
DRCC-Direção Regional da Cultura do Centro. Coimbra, Portugal munhosmiguel@gmail.com
3 DMD, PhDs, Department of Dentistry, Faculty of Medicine, University of Coimbra, Portugal icbaptista@fmed.uc.pt

With 6 figures and 1 table

Abstract: We here report the discovery of a gold dental ligature from the late 15th century, at the Convent of Santa Clara-a-Velha, in the city of Coimbra, Portugal. A medieval Clare’s nun presented the left upper lateral incisor splinted to the canine, since the others three incisors were lost, most probably due to an aggressive periodontal disease. The convent is associated with the medieval upper class, which was well known for its consumption of high levels of sugar. There is a higher prevalence of caries in comparison to other Portuguese skeletal samples of the same time period, as well as a high prevalence of periodontal disease. Thus far, this is one of the earliest findings of dental treatment in Europe.

Keywords: gold ligature; caries; dental treatment; aggressive periodontitis; 15th century

Introduction

According to existing historical and archaeological data (Ring 1985; Carranza 1990; Hillam 1990; Martinez 1989; Valentin & Granat 1997), dental treatment was not commonly practiced amongst European populations before the end of the 18th century. Although simple procedures such as tooth extractions were carried out prior to that period, restorative dentistry was initially restricted to the upper classes (Alt 1993; Whittaker 1993). Nevertheless, certain ancient (Becker 1994; Crubézy et al. 1998; Teschler-Nicola et al. 1998; Becker 1999), as well as medieval cases (Ulrich 1973) have been documented. However, there is no indication that the procedures found were continued in subsequent periods.

The most famous Phoenician specimen from southern Lebanon, dated to the 5th century BC, is a gold wire ligature used to immobilize teeth loosened due to periodontal bone loss. Phoenicians were also known to make dentures from a variety of materials (Hoffmann-Axthelm 1981). A mummy from ancient Egypt, which archaeologists have dated to 2000 BC, displays missing teeth being replaced by dentures secured by gold wire (in: Ring 1985).

It is known that Etruscans attempted making dental prostheses during the 7th century BC. Furthermore, they are recognized to have been the first ones to make dentures and false teeth (Hillam 1990), putting “very pure gold” around loose teeth in order to splint them together. They used gold wires, gold strips, and gold rivets in their intricate dentistry. Seguin et al. (2014) report the discovery of an iron pin in place of an upper incisor tooth from northern France, dated to the 3rd century BC (Iron Age), which may represent one of the earliest examples of a dental implant in Western Europe. Despite these early and rare examples from ancient times, there are very few cases known from middle ages.

The context

During an archaeological excavation performed in 1996 by the Anthropology of Coimbra University team at the Old Santa Clara Convent (Convento de Santa Clara a Velha) in