

Signs of Trauma in an Adult Parietal Bone Exhumed from a Portuguese Prehistoric Collective Burial

Ana Maria Silva and Maria Teresa Ferreira

Department of Anthropology, University of Coimbra, Coimbra, Portugal

ABSTRACT

A fragment of parietal bone from an adult individual of unknown sex exhumed from the collective burial of Praia da Samarra (Sintra, Portugal), dated to the end of the Neolithic, presents signs of different types of trauma. These include thinning of the skull vault and incisions marks. Differential diagnoses for these alterations are discussed: for the first one, depressed skull fractures is the most likely cause. For the incisions, trepanation (more probable) and trauma due to a sharp force are proposed. These hypotheses are also discussed in terms of other similar findings from coeval Portuguese collective burials.

Key words: cranial injuries, incisions, fractures, late Neolithic/Chalcolithic, Portugal

Introduction

In 1948, the prehistoric grave of uncertain typology was discovered near the beach of Samarra (Sintra, Lisbon). The excavation of this collective burial place revealed a great number of commingled fragmentary human remains. These days, part of these remains are curated in the Museum Arqueológico de São Miguel de Odrinhas (Sintra). So far, it was not possible to localize the rest of the exhumed human bones.

Anthropological analysis of the sample housed in the abovementioned Museum revealed a minimal number of 79 individuals, 55 adults (both sexes) and 24 non-adults. Due to the nature of the sample, few adult age estimators were available. Even so, it is possible to say that the sample includes young adults but evidence of old individuals (> 50 years) was also register. The non-adult sample includes individuals between 7 months and 17 years of age at death. The detailed osteological study of the sample is published elsewhere¹.

The datation of one human bone confirmed the Late Neolithic/Chalcolithic chronology: 3820 ± 60 BP; 2399-2144 cal BC (1 sigma); 2465-2042 cal BC (2 sigma) (Sac-1827).

This article reports on antemortem cut marks and thinning of the skull vault found on a fragment of adult parietal bone.

Case Report

Among the fragmentary and disarticulated human bones preserved from the grave of Samarra, a fragment of a right parietal bone, belonging to an adult of unknown sex, displays signs of trauma.

On the lateral side of the parietal bone fragment, a complete incision with at least, 6 mm is visible (the bone is broken postmortem) (Figure 1). Near the coronal suture (last 2 mm), the cutting was incomplete, perforating only the outer table (Figure 1 – see a). Macroscopic signs of remodelling are visible along the margin, with smoothing of the margin edges. Furthermore, loss of typical layering of the skull bone at the defect margins, in particular the loss of the diploic structure already started. According to studies of Nerlich et al.², these are characteristics of remodelling processes after cutting skull defects. At the posterior end of the incision, the parietal

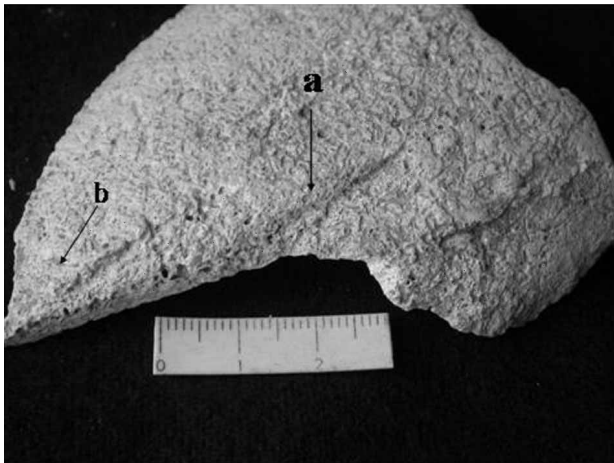


Fig. 1. Lateral side of a right adult parietal bone exhumed from the collective burial of Samarra (Portugal) with signs of a complete incision. a – incomplete perforation; b – thinning of the cranium vault.

bone is very thin, exhibiting almost half of the thickness of the surrounding bone (Figure 1 – see b). Radiological examination show signs of healing along the incision since part of the diploe is recover with new bone (Figure 2).

The left margin of the parietal bone fragment, with 8mm, also show signs of trauma, that is, due to a complete incision. Here, the cutting line is curved, in direction to the endocranium. At the mid portion of this incision, resorption of the marginal bone edges started and new bone formation is visible. Moreover, partially loss of the diploic structure occurred. On this side of the fragment, the parietal bone near the coronal suture is also very thin.

Discussion

Among the human remains recovered from the collective grave of Samarra, one right parietal bone fragment, belonging to an adult individual of unknown sex display signs of several traumas.

For the two areas of cranial thinning, depressed skull fractures are a possible diagnosis. These cranial injuries are described in several coeval Portuguese series, as Cabeço da Arruda, Dolmen de Ansião, Eira Pedrinha, Serra da Roupa, Hipogeu de São Pedro do Estoril II, Hipogeu de Monte Canelas I³⁻⁴.

For the two perforating trauma, two possible diagnoses can be advanced: sharp-force cranial trauma or trepanation. For Portuguese late Neolithic/Chalcolithic populations' only two possible penetrating weapons wounds are published³⁻⁴. In both cases arrowheads caused the lesions. Nevertheless, it is unlikely that the incisions now described were caused by this kind of weapon due to their features.

A case of trepanation is another possible explanation. The incisions observed in the cranial fragment of Sa-

marra are very similar to the trepanation of the Hipogeu de São Pedro do Estoril (SPEII) described by Silva⁵. This artificial cave, also dated to the Late Neolithic/Chalcolithic, is situated only few kms south from Samarra. The trepanation of SPEII was performed on young adult male by incision method, on the right parietal bone near the sagittal and coronal sutures. The trepanation hole is rectangular, measuring 45 mm anteroposteriorly and a maximum of 5mm mediolaterally. A right parietal bone from Dolmen da Capela (Figueira da Foz) also exhibits a curved incision that despite being incomplete is similar to the present case⁶.

According to Silva's⁶ survey about trepanation in late Neolithic, Chalcolithic and early Bronze age periods from Portugal, the parietal bone was the most frequently trepanned skull element (85%) being incision and scraping methods the two more used methods. A high rate of survival after the operation is also observed in the Portuguese cases.

Due to the fragmentary nature of the right parietal bone here analyse, it is impossible to infer about the correlation of the described injuries. Nevertheless, the possibility that they are linked can't be excluded. In 2003, Gama and Cunha⁷ described a trepanation in the left frontal bone of a male died in his late fifties from Covão de Almeida (Eira Pedrinha, Portugal). The observation of a callous osseous on the endocranium of this bone leads these authors to interpret this ovoid/elliptical shape trepanation as a therapeutic treatment to relieve pressure. In sum, a case of trepanation after a traumatic injury, an interpretation that can also be proposed for the case now discussed.

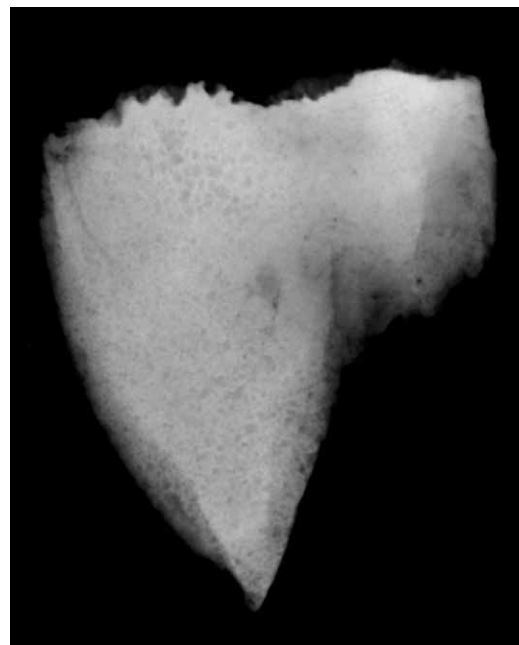


Fig. 2. Radiological examination of the right adult parietal bone of Samarra (Portugal) displaying signs of bone remodelling along the incision margins.

Conclusion

A fragment of an adult right parietal bone recovered from the collective burial of Praia da Samarra exhibits signs of trauma. Differential diagnoses are proposed and discussed. Two of these alterations are probably due to depressed skull fractures. The incisions are more difficult to interpret. Trauma due to a sharp force and trepanation are proposed. Despite the fragmentary and incompleteness of the analysed cranial bone fragment of Praia da Samarra, the features of the incisions, namely when comparing with other Portuguese findings⁶, make the hypothesis of trepanation more possible. The association of the describe trauma was also proposed, namely that

the surgical treatment – trepanation – was performed after an earlier trauma – the depressed fractures.

Acknowledgements

Rui Marques and Sónia Codinha from Departamento de Antropologia, Universidade de Coimbra, Portugal. José Cardim Ribeiro and Teresa Simões from Museu Arqueológico de São Miguel de Odrinhas (Sintra). Instituto Ambiente e Vida and Centro de Investigação Antropologia e Saúde. We also thank the three anonymous reviewers for their useful comments.

REFERENCES

1. SILVA AM, CODINHA S, FERREIRA MT, Praia da Samarra. Estudo antropológico dos restos ósseos depositados no Museu Arqueológico de São Miguel de Odrinhas (Sintra) (Departamento de Antropologia da FCTUC, Coimbra, 2005). Unpublished report — 2. NEHLICH AG, PESCHEL O, ZINK A, RÖSING F, The pathology of trepanation: differential diagnosis, healing and dry bone appearance in modern cases. In: ARNOTT R, FINGER S, SMITH CUM (Eds) Trepanation. History – Discovery – Theory. (Swets & Zeitlinger Publishers, Lisse, 2003). — 3. SILVA AM, Antropologia Funerária e Paleobiologia das populações portuguesas (litorais) do Neolítico final/Calcolítico. PhD thesis. (Departamento de Antropologia, FCTUC, Coimbra, 2002). Not published. — 4. SILVA AM, A Neolithic skull lesion probably caused by an arrowhead. *Antropologia Portuguesa*, 19 (2002) 139. — 5. SILVA AM, Human remains from the artificial cave of São Pedro do Estoril II (Cascais, Portugal). *Hum Evol*, 14/3 (1999) 199. — 6. SILVA AM, Trepanation in the Portuguese Late Neolithic, Chalcolithic and Early Bronze Age Man. In: ARNOTT R, FINGER S, SMITH CUM (Eds) Trepanation. History – Discovery – Theory. (Swets & Zeitlinger Publishers, Lisse, 2003) 117. — 7. GAMA P, CUNHA E, A Neolithic case of trepanation (Eira Pedrinha, Portugal). In: ARNOTT R, FINGER S, SMITH CUM (Eds) Trepanation. History – Discovery – Theory. (Swets & Zeitlinger Publishers, Lisse, 2003) 131.

A. M. Silva

Department of Anthropology, University of Coimbra, 3000–056 Coimbra, Portugal
e-mail: amgsilva@antrop.uc.pt

ZNAKOVI TRAUME NA PARIJETALNOJ KOSTI ODRASLE OSOBE ISKOPANOJ IZ PORTUGALSKOG PRETPOVIJESNOG KOLEKTIVNOG UKOPA

S A Ž E T A K

Fragment parijetalne kosti odrasle osobe nepoznatog spola, iskopan iz kolektivnog ukopa Praia da Samarra (Sintra, Portugal) i datiran na kraj neolitika, ima znakove različitih vrsta traume. To uključuje stanjivanje luka lubanje i tragove incizije (urezivanja). Razmotrene su različite dijagnoze za ovu vrstu promjena: uzrok udubljene lubanje najvjerojatnije je fraktura. Za incizije se pretpostavlja trepanacija (vjerojatnije) i trauma uzrokovana oštrom silom. Ove hipoteze se također raspravljaju u odnosu na druge slične nalaze iz istovremenih kolektivnih ukopa u Portugalu.