

# Children's Cranial Lesions from Neolithic

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**Abstract:** In skeletal material from the neolithic settlement at Makotřasy, county Kladno, were analysed two children's craniums (identification numbers Ao 8218 and Ao 4184) with pathological cases. Case 1 (Object 127, Ao 8218) is the individual about 4 to 5 years old. There is oval aperture with the diameter  $25 \times 20$  mm in the area of anthropometrical point bregma, with vertical, multiple knurled edges. Bevelled and rounded segment in the left frontal part of the aperture with diameter 10 mm is imitating healing process. We suggest this case is the trephination with the marks of the healing process in the period of 1 to 2 weeks after the surgery took over.

Case 2 (Pit 25, Ao 4184) is child with age determined about 4 years old. Cranium was found buried separately. There is oval defect located at os occipitale and os parietale sin. and goes through sutura lambdoidea. Caudal part of defect is missing. The edge of the defect is sharp and inward bevelled with exposed diploe. Traces of any vital reaction were not identified. Diameter is around 50 mm. Perimortal trephination leading to death, or postmortal taking of the trephinal amulet must be considered. There were several pathological lesions on the same skull. Defect of oval shape sized  $8 \times 12$  mm is located at the os parietale dex. Defect interferes mostly with lamina externa and less with lamina interna. Exposed diploe is without any vital reaction.

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### Introduction

Neolithic archaeological site Makotřasy, county Kladno, has been already known since the thirties of 20th century from the research of K. Žebera. But the most extensive research began in 1961 by Emilie Pleslová-Štiková and Antonín Knor, first as the rescue research, then from 1973 as systematic research. During building new road from Prague to Slaný several neolithic objects, which seemed to be very significant were ruined. The discovery was identified as the flat settlement with square fortification of the Baalberg period of the Funnel Beaker Culture (3.500 B.C.). Significance of the settlement lies in the discovery of the ovens, which brings the proof of the oldest metal manufacturing in the Czech territory. Outside of the settlement regular skeletal burials were found, inside of the objects and pits ritually buried skeletons in the crouched position, bodies or their parts abandoned in the pits and in a few cases separately buried craniums were found [1].

### Material and Methods

During the study of the skeletal material, which comes from the settlement of the Funnel Beaker Culture from Makotřasy, county Kladno, we were firstly looking for the marks of the decapitation on the basis of separately buried skulls, and on the cervical vertebrae, which were found without the skulls. Due to the poorly preserved material we were not able to confirm the theory of decapitation, sacrifice or other violent death of the individuals. However the signs of decapitation were not found either at poorly preserved or well-preserved, separately buried, craniums. Nevertheless we came across a few pathological cases, which were good for further analysis.



Figure 1 – Cranium Ao 8218 from Object 127. Frontal view.

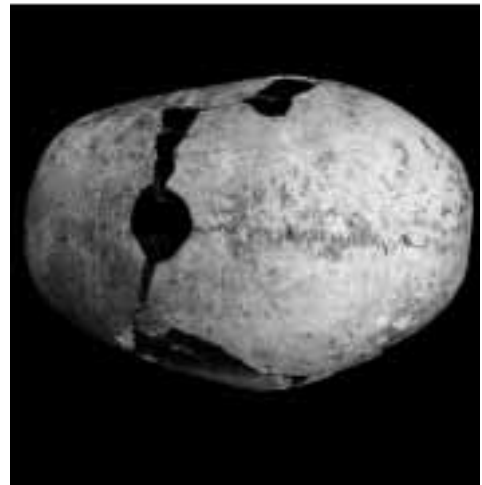


Figure 2 – Cranium Ao 8218 from Object 127. Upper view.

Skeletal material was anthropologically evaluated by Dr. Jaromír Chochol from the Institute of Archaeology of the Czechoslovak Academy of Sciences and a few times published [2, 3].

Interested craniums (Ao 8218 and Ao 4184) are deposited at the Anthropological Department of National museum in Prague.

Case 1 (identification no. Ao 8218 from Object 127) is the most interesting finding (Figure 1). Postcranial skeleton has not been found. The individual was 4–5 years old, the age was determined according to Ubelaker's dental



Figure 3 – Cranium Ao 8218 from Object 127. Close-up pathology.

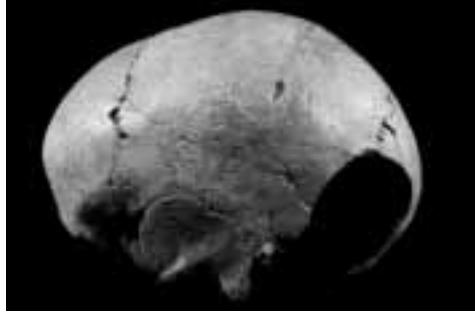


Figure 4 – Cranium Ao 4184 from Pit 25. Left-side view at the first defect.

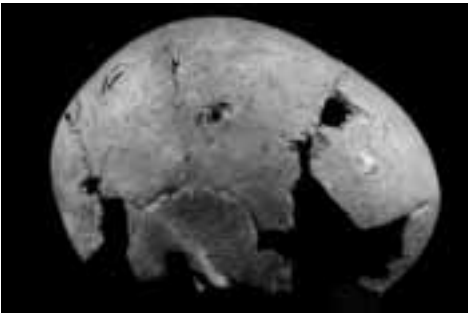


Figure 5 – Cranium Ao 4184 from Pit 25. Right-side view at the second defect.



Figure 6 – Cranium Ao 4184 from Pit 25. Close-up of the first defect.



Figure 7 – Cranium Ao 4184 from Pit 25. Close-up of the second defect.

identification [4]. Pathological lesion (Figure 2) is an oval-shape aperture with diameter  $25 \times 20$  mm located in the area of the anthropometric point bregma. It is vertical, with multiple knurled edges. In the left frontal part of the aperture there is 10 mm bevelled and rounded segment, imitating the healing process (Figure 3).

Case 2 (Figures 4 and 5) is (Ao 4184 from Pit 25). Age of the individual was determined to about 4 years by Chochol [5]. The cranium was found separately buried. Postcranial skeleton has not been found, or has not been assigned yet. The oval pathological lesion is located at the os occipitale and os parietale sin. and it goes through sutura lambdoidea (Figure 6). Caudal part of the lesion is missing. The edge is sharp and inward bevelled with exposed diploe. Traces of any vital reaction were not identified. Diameter is about 50 mm. There are several pathological lesions (Figure 7). For example at the same skull at the os parietale dex. there is defect of oval shape sized  $8 \times 12$  mm. Defect interferes mostly with lamina externa and diploe, less with lamina interna. It is sized there 4 mm in diameter. Exposed diploe is without any vital reaction.

### Discussion and Conclusion

During the study of pathologies at the skeletal material at the case 1 individual (Ao 8218) from Makotřasy, It is necessary to draw a differential diagnosis which could lead to other possibilities and causes of the mutilation. In light of this we had to think about so called pseudopathologies. At first sight the aperture could be eaten out by a rodent. Multiple vertical curling at the edge of aperture could also contribute this diagnosis. But this possibility was eliminated for too regular shape and angle of striae. The second possibility was the postmortal trephination by religion reason, so called rondel. But the healing process does not indicate it. And also the fact that the rondel would be on an unsuitable place according to sutures. According to available facts, which we have found till now, we suggest that the pathological lesion could be a trephination with the marks of the healing process in the period of 1 to 2 weeks after the surgery. We can not exclude the possibility, that the cause of the child's death is related to the trephination. Main, till now described, method of trephination is a technique of grooving, scraping, a circle of small holes [6]. We also know that mostly trephination took place at ossa frontalia or parietalia and with avoiding suturae where the danger of damaging the rhexis was large [7]. According to non healed edges it could be a technique of grooving by using of modiol or filing perpendicular to the skull surface. This technique is neither considerate nor safe. The edges of the aperture evidence rather artificial origin by using the sharp item, probably hornstone. Almost for a certainty we can eliminate the death caused by heavy artical. List of trephinations from the Czech territory contains 51 trephinations and 8 cases of rondels. The oldest find comes from the Corded Pottery Culture from the end of neolith. The youngest individual with the trephination is from Prague-Bubeneč at age of 20 to 30 years old. They were usually in age of 40 to 60 years [8]. In the south Moravia there where found even

older skulls with trephination from early neolith, precisely Linear Pottery Culture, it means from the period of 5.500 to 4.900 B.C. from Hluboké Mašůvky, where non healed trephination of the skull was found and from the grave no. 15 from Vedrovice [1]. So the trephination had been already done before the Funnel Beaker Culture. But if we confirm the diagnosis of the trephination by the skull Ao 8218 with healing process, it will be probably the youngest individual in our territory. The fact, that the possible trephination is in the area of anthropometrical point bregma with surgical accuracy, has no comparison in the history of the trephinations. Through that the most trephinations were found avoiding the suturae, we can find few cases, where the surgery took right over the sutura, mainly on sutura sagitalis, coronalis, or lambdoidea, but never at the place we can see at the skull (Ao 8218 from Object 127). Also from this point of view this case is special.

At the skull Case 2 (Ao 4184 from Pit 25) two pathological lesions were found. First was an oval defect located at os occipitale and os parietale sin. and it goes through sutura lambdoidea. Caudal part of the defect is missing. The edge of the defect is sharp and inward bevelled with exposed diploe. Traces of vital reaction were not identified. Diameter is around 50 mm. According to absence of any cracks around the defect and due its regularity, it is probably not caused by postmortal or excavational mechanisms. Bone had to be taken (cut) when it was still elastic. It could be caused by the perimortal trephination leading to death or postmortal trephination of a rondel. Second lesion was an oval-shaped defect sized  $8 \times 12$  mm. Defect interferes mostly with lamina externa and diploe, less with lamina interna. It is 4 mm in diameter. Exposed diploe is without any vital reaction. Jaroslav Chochol evaluated this defect as a result of traumatic defect with the possibility of surgery [5]. From the differential diagnostic point of view we can think about trephination or a tumour of unrecognized kind (osteolythic tumour).

Differentiation of necropolises out of human settlements took place during all neolithic. Much frequented were burials at the settlement, both ritual burials in the pits or objects, and non-ritual burials of the bodies or their parts. A big amount of mass graves inside of the fortified settlements or moats appeared during neolithic. At some cases they could easily be the remains of exterminated inhabitants or the remains of epidemics. Many human remains carry marks of wounds and violent deaths [9]. Special groups of burials in the settlement were children's graves. For example we can mention five burials of children younger than 7 years in the objects in Vedrovice of the Linear Pottery Culture [10], or from the settlement in Žádovce of the same culture as Vedrovice [11], or findings of Josef Unger from Mikulov, where 3 children were buried in one object [12] and other examples from Stroked Pottery Culture or Moravian Painted Ware Culture. In the late neolithic animal and human skeletons in the granaries at the settlement could be often found. In the range of the Funnel Beaker Culture there were often placed the cattle and dogs in the granary, together with a man (child). For example in Hostivice-Litovice in Bohemia there were found three pits, in one of them

a children skeleton and other human bones were found. Unusual finding was done in Třebestovice, county Nymburk, Bohemia where in the basis of a granary skeletons of 5–6 children were found [13]. In Stará Kouřim a children burial in the crouched position was found at the fireplace [9]. Mass graves or bizarre burials of one or more individuals together with human skulls and other animal bones remained in existence.

Children skeletal burials, or solitary craniums all around the Czech territory, same as in Makotřasy, were not the result of war conflicts. Our cases show the evidence of unusual or ritual position of the children. And if the theory of the trephination of the skull (Ao 8218 from object 127) is confirmed, we can also assume it as an effort to cure. Whether the skulls were broken by the stroke can not be confirmed with sure. After exploration of all available skeletal material from Makotřasy no marks of decapitation at the craniums or at the postcranial skeletons were found. Most of the cuts seem to be more likely pseudopathologies caused by root system or later when periost lost its elastic nature.

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