

## ANTHROPOLOGY

**T.A. Chikisheva<sup>1</sup>, A.V. Zubova<sup>1</sup>, A.L. Krivoshepa<sup>2</sup>,  
V.P. Kurbatov<sup>2</sup>, P.V. Volkov<sup>1</sup>, and A.T. Titov<sup>3</sup>**

<sup>1</sup>*Institute of Archaeology and Ethnography, Siberian Branch, Russian Academy of Sciences,  
Pr. Akademika Lavrentieva 17, Novosibirsk, 630090, Russia  
E-mail: chikisheva@ngs.ru; zubova\_al@mail.ru; volkov100@yandex.ru*

<sup>2</sup>*E.N. Meshalkin Institute of Circulation Pathology, Rechnunovskaya 15, Novosibirsk, 630055, Russia  
E-mail: alkr@yandex.ru; vk73@mail.ru*

<sup>3</sup>*Institute of Geology and Mineralogy, Siberian Branch, Russian Academy of Sciences,  
Pr. Akademika Koptiyuga 3, Novosibirsk, 630090, Russia  
E-mail: titov@igm.nsc.ru*

### TREPANATION AMONG THE EARLY NOMADS OF GORNY ALTAI: A MULTIDISCIPLINARY STUDY

*Three trepanned crania from 4th–3rd century BC low-ranking burials in Gorny Altai are described. The probable motives behind such operations are discussed, their efficiency is assessed, and techniques are reconstructed using optical macroscopic examination, multi-slice computed tomography, X-ray fluorescence, and mass spectrometry of bone tissue. Trepanations were apparently medical rather than ritual. Our data support the idea that the 4th–3rd century BC inhabitants of the Altai-Sayan Highlands had enough knowledge and skills to perform complex cranial surgery. Because the instruments were made of tin bronze, and the Minusinsk Basin was the only place in southern Siberia where such bronze was smelted (by the Saragash people), at least two successful trepanations were probably performed by immigrants from that region.*

**Keywords:** *Trepanation, neurosurgery, Early Iron Age, Scythian period, Gorny Altai, Pazyryk culture, Minusinsk Basin, Tagar Culture, X-ray fluorescence analysis, mass-spectrometric analysis, traceological analysis.*

#### Introduction

The early nomads who inhabited Gorny Altai about 2500 years ago (6th – early 2nd centuries BC) were an ethnically diverse community. Archaeologically, they are represented by the Pazyryk and Kara-Koba cultures and by the Chumysh-Ishim group of sites (Kubarev, 2001; Mogilnikov, 1983a; Surazakov, 1983). The best known among these is the Pazyryk culture. Thanks to

the permafrost and ice lenses in the burial chambers of Pazyryk mounds, artifacts made of wood, leather, felt, wool, and silk as well as mummified bodies of humans and horses have been preserved. Their study has made it possible to reconstruct many aspects of Pazyryk economy, everyday life, trade relations with other cultures and states, social structure, religious beliefs, and ritual practices. The physical type and genetics of the Pazyryk people, specifically their

mitochondrial gene pool, have been examined as well. The integration of data relating to archaeology, physical anthropology, and paleogenetics along with comparative ethnographic, linguistic, and genetic data on modern groups of the Altai-Sayan Highlands and the adjacent areas of Siberia and Central Asia has provided for the reconstruction of the ethnic history of the early nomads of Gorny Altai (Molodin, 2000)\*. While data concerning other groups of nomads are less abundant, their burial rite and physical type have been examined in some detail. Importantly, the Pazyryk people played a considerable role in their ethnic history.

Although the archaeological database relating to the Altai nomads is extraordinarily large, one aspect of their culture has drawn comparatively little research attention: their medical knowledge and skills, specifically those which can be inferred from skeletal remains. By far the most impressive are signs of antemortem trepanning, performed skillfully enough to have enabled the patients to survive the operation and live for a significant period afterwards. These operations will be addressed in the present study.

### Materials and methods

In a relatively large cranial series representing the early nomads of Gorny Altai (approximately 150 specimens) we have found three specimens with antemortem trepanations. One, that of a male aged 50–60, comes from mound 3 at Bikeh III – a mound group on the right bank of the middle Katun, 6 km from Yelanda village and 17 km from Edigan village, Chamal Region, Altai Republic. V.D. Kubarev, who excavated these mounds, attributed them to the early nomadic culture of Gorny Altai (5th–4th centuries BC). He mentioned the cultural distinctness of Bikeh III and other cemeteries on the Middle Katun from Pazyryk cemeteries in both burial rite and ceramics. People buried in the former were evidently influenced by those associated with the Bolshaya Rechka culture and by the western Saka (Kubarev, 2001).

\*An overview of this vast scholarship is beyond the scope of this study; we will merely mention that the world wide fame of the Pazyryk culture results from the work of dozens of researchers. The most important monographs are those by S.I. Rudenko (1953, 1960), V.D. Kubarev (1987, 1991, 1992), N.V. Polosmak (1994, 2001); see also (Fenomen..., 2000, Naseleniye..., 2003).

Two crania with trepanation holes were found at Kyzyl-Dzhar IV mound 2, (Tomsk University registration code 2009) and Kyzyl Dzhar V mound 3 (registration code 2012). The former cranium is that of a woman aged about 30; the latter, that of a man aged 40–45. The mounds, situated in the highland valley, 7–8 km from Belytyr village, Kosh-Agach Region, Altai Republic, were excavated by V.A. Mogilnikov. All burials at Kyzyl-Dzhar IV were made in cists whereas those at Kyzyl-Dzhar V were made in graves with undercuts and in timber frames. V.D. Kubarev believed that both cemeteries date to the 4th–3rd centuries BC. The funerary rite varies, which, in his view, indicates a mixture of ethnically diverse groups – autochthonous peoples associated with the Pazyryk culture and immigrants from eastern Kazakhstan (Mogilnikov, 1983b).

Judging from the burial rite and by the number and type of burial goods, the social status of all individuals was low. The combination of physical features is suggestive of a single type, which we have termed “Southern Eurasian”\*. These features include a large braincase, wide and broad face, average proportions of transverse and longitudinal dimensions, orthognathy, horizontal facial flattening, medium nasal protrusion angle, and convex nasal bones. In our opinion, this combination marks the autochthonous nomadic populations of Gorny Altai.

The present study is based on the integration of data, our own and that of other researchers. We will examine the existing data on trepanation practiced among the early nomads of Gorny Altai and its context, evidenced by archaeological and written sources.

Specialists in several disciplines have taken part in the study. A practicing neurosurgeon and a radiologist assessed the adequacy of the operations from the standpoint of modern medicine using macroscopic examination and multi-slice computed tomography.

\*This combination occurred in many ancient groups associated with various cultures and living across the vast territories of southern Siberia and Central Asia (Chikisheva, 2012). The southern Eurasian trait combination is generally intermediate between Mongoloid and Caucasoid. In our view, this intermediacy does not evidence admixture. Rather, it indicates evolutionary conservatism and the preservation of a single population complex distributed across the central highlands and steppe regions of Eurasia such as the valleys of Gorny Altai, Sayans, Dzungarian Alatau, and the Tien Shan. Based on the available skeletal materials, the southern Eurasian complex existed from the late 4th millennium BC to the turn of the Common Era.

Download English Version:

<https://daneshyari.com/en/article/1034333>

Download Persian Version:

<https://daneshyari.com/article/1034333>

[Daneshyari.com](https://daneshyari.com)