Another Hole in the Head? Brain Treatment in Ancient Egyptian Mummies

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ANOTHER HOLE IN THE HEAD? BRAIN TREATMENT IN ANCIENT EGYPTIAN MUMMIES

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Introduction

Perhaps the most sensational and best-known feature of Egyptian mummification, the removal of the brain, is commonly attributed to the New Kingdom onward (e.g., [1]). Variability both within and between excerebration techniques, however, is poorly appreciated in the literature [2] and remains largely unexplored. The mummification process itself, greatly simplified, or simply absent in descriptions of mummified remains, making detailed comparative studies difficult if not impossible.

The goals of this study were to demonstrate:
- variability in mummy excerebration techniques
- temporal and status trends in brain treatment
- the limitations of the literature for large studies

This study focused on computed tomography (CT), as a non-destructive gold standard for mummified studies, in the examination of three primary treatments of the brain in mummification:
- (1) transcranial craniotomy (TNC)
- (2) transforaminal craniotomy (TFC)
- (3) the absence of excerebration

In relation to their radiological indications and their variations with time and status.

Ancient Sources

Transcranial Craniotomy (TNC)

Transcranial craniotomy (TNC) is the most widely applicable description of the best-known Egyptian excerebration process in which the task of excerebration is achieved through complete removal of the brain via a craniotomy. The technique is commonly used today in modern Western medicine as a last resort for brain removal, usually in cases of trauma or in preparation for a craniotomy.

Transforaminal Craniotomy (TFC)

Transforaminal craniotomy (TFC) involves the removal of the brain through a foramen, typically the foramen magnum, or transforaminal craniotomy (TFC). This method is often used in modern medicine to access the brainstem and lower cranial nerves.

Intact Crania

In many mummies the brain was not removed, by either the transcranial or transforaminal route, but left intact. While the possibility of mummification of the brain was questioned by early researchers, Smith [9] and Ashwin [10] report intact brains in skeletal remains stating that:

"The transcranial route undoubtedly consists of brain material which must have decayed and preserved by the operation of natural processes. The brain is preserved in this manner in the vast majority of the bodies in Egyptian cemeteries. I have seen a postmortem center containing nearly 500 bodies; in every one of which the brain was preserved..."

Since that time, intact mummified brains have been clearly identified in numerous Egyptian mummies (e.g., [26]).

Samples

Sample of 125 mummified samples described in the literature:
- 92 transcranial craniotomies (TNC)
- 18 transforaminal craniotomies (TFC)
- 9 intact brains

Discussion

Details related to the transcranial level, including side preference and trajectory, are varied and indirect damage, often go unreported in the literature. Descriptions inconsistently reported the presence of brain remnants, dural remnants, bone fragments, and packing materials. As a result, assessment of brain treatment was limited here to broad categorizations of TNC, TFC intact, and absence of excerebration.

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Literature Cited


For further information

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