

## TRANS-PERINEAL EVISCERATION. DOES HERODOTUS HELP?

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**Abstract.** Herodotus in his description of ancient Egyptian embalming/mummification techniques mentions the use of a “corrosive” enema in his “middle way”, the “most costly way” being evisceration via a left flank incision. However, the use of such a technique presents practical difficulties relating to control of the chemical action. The perineal route is, also, found in cases where there has been an accompanying Left Flank incision

(specifically excluded in Herodotus’ description).

This study examines the findings in twenty CT scans of ancient Egyptian mummies with evidence of perineal absence or damage from various locations and eras and assessed to determine what evidence there is to support or refute the description given by Herodotus. The question being “is perineal evisceration a “surgical” or “chemical” technique?”

**Keywords.** Perineal. Evisceration. Herodotus. Enema. Incision.

Evisceration is one of the main three components of embalming ancient Egyptian bodies (that is prior to the application of unguents and wrapping - the application of bandages) along with excerebration and, most importantly, desiccation. Whilst contemporary records of mummification practices & techniques are absent the first coherent description is recognised as that by Herodotus in Book 2 Chap-

ters 86-88 in the 5<sup>th</sup> century BC. He mentions evisceration via a left flank incision or (for less expense) via a corrosive enema.

In his work, *The Scientific Study of Mummies*, Arthur Aufderheide, does describe the perineal route as well as the left flank incision.

The question to be discussed, therefore, remains as to whether this route produces evisceration as the result of a chemical or a surgical process.

One point to mention here is the specific detail of Herodotus's description of what he refers to as "the middle way" i.e. the use of a corrosive enema. Chapter 87 states as follows:

*87. Thus they deal with the corpses which are prepared in the most costly way; but for those who desire the middle way and wish to avoid great cost they prepare the corpse as follows:*

*—having filled their syringes with the oil which is got from cedar-wood, with this they forthwith fill the belly of the corpse, and this they do **without having either cut it open** or taken out the bowels, but they inject the oil by the breech, and having stopped the drench from returning back they keep it then the appointed number of days for embalming, and on the last of the days they let the cedar oil come out from the belly, which they before put in; and it has such power that it brings out with it the bowels and interior organs of the body dissolved; and the natron dissolves the flesh, so that there is left of the corpse only the skin and the bones. When they have done this, they give back the corpse at once in that condition without working upon it any more.*

Whilst the words may change very slightly from translation to translation (this one from Macauley in 1890), the specific mention of NOT making a cut is constant.

The practicality of such a treatment deserves discussion as the consequences of leaving a sufficiently corrosive substance within the abdominal cavity for about 30 days cannot be quantified or controlled by the "operator i.e. the embalmer".

Furthermore, the concept of being able to introduce a sufficient volume of fluid into the lower (large) bowel to "corrode/lyse" the contents of the abdomen and thorax is difficult to understand or accept. Learning from the therapeutic process of administering an enema it is clear that a maximum of 3 litres of fluid are able to be introduced into the large bowel. If introducing therapeutic fluid into the peritoneal cavity it is expected that a further 3 litres can be used. This of course does not account for the volume of the viscera themselves. Add to this the volume of the thorax – being more than the total lung capacity of 6 litres - and one can

see that the initial 3 litres of enema (maximum!) will have a great deal of difficulty in dissolving all the organs - that is even if the body is continuously rotated to re-distribute the fluid. Of course, that "rotation" would not be practical if the body was buried in natron for 30 days!

Now referring to the experimental work of Salima Ikram on rabbits this indicates that when an enema of rectified turpentine was used (rabbit 5) for a period of thirty-five days certain observations indicated a problem. Namely that after three days turpentine had started to seep through the pores and had "eaten away" part of the hind leg. By the ninth day the dissolved abdominal viscera had started to drain via this hole in the leg. This would indicate the lack of control over the effects of the corrosive substance – as mentioned before. It would, therefore, be reasonable to expect that this effect would be visible in human mummies treated in a similar way.

To investigate this theme further, an analysis of twenty mummies who have evidence of trans-perineal or to put it more succinctly perineal evisceration, was analysed to determine what evidence there was to answer the question of which type of procedure was used. These were contained within a total series of 96 mummies.

The cohort under consideration consisted of the mummies in Table I.

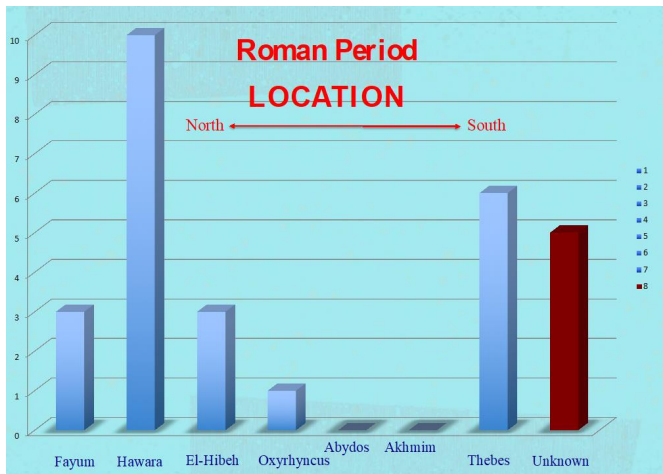
As can be seen, the eras in which perineal evisceration was performed vary widely from D2I to the Roman Period. Furthermore, the sites in which it was practiced extend from the north of the Nile valley – Hawara & Memphis - to the south in Thebes & Akhmim.

There is, therefore, no obviously consistent pattern to the use of this technique. This comment can also be applied to the sex distribution of the technique – there being examples in 11 males and 9 females – there being NO bias towards one sex or the other.

Having said that there is no obvious constant pattern it is interesting that of the twenty cases 5 come from the Ptolemaic Period and 9 from the Roman Period – suggesting a much greater use / increase in popularity in later years. There is, also, a trend towards its use the further south one goes. In case there is a question about the possible connection with location being linked to era, Fig. 1 shows the distribution of Roman Period mummies relating to location. This part of the study includes 30 Roman Period mummies from that series of 96. As can be seen there is no link between location and the Roman Period – for example. There is, however, an interesting link between the Roman Period mummies and their wrapping style.

**Table I.** Mummies with perineal Evisceration.

MUMMY ID	MUSEUM	ORIGIN	ERA
56.22.79a	Liverpool	Akhmim	Ptolemaic
MI 3997a	Liverpool	Unknown	Roman
MI 4048	Liverpool	Thebes	Roman
00/2	Bern	Unknown	Unknown
MY3775	Yverdon	Akhmim	Ptolemaic
BSAE1030	Basel	El Hibeh	Roman
KI0352	Lenzburg	Akhmim	Roman
Shepenese	St. Gallen	Thebes	D26
C3530	St. Gallen	Thebes	D21
9480	Turin	Assiut	Ptolemaic
MMI766	Manchester	Hawara	Roman
MMI976.51a	Manchester	Thebes	D25
EA6704	British Museum	Unknown	Roman
E.63.1903	Fitzwilliam, Cambridge	El Hibeh	Roman
Tahemaa	Bournemouth	Thebes	D26
AMM25	Leiden	Thebes	Roman
MI 3996a	Liverpool	Abydos	Ptolemaic
Ankh-Hapi	Hildesheim	Akhmim	Ptolemaic
1911.217	Belfast	Thebes	D25
1894.001	Cazanovia, USA	Heilouan, Memphis	Ptol/Roman



**Fig. I.** Origin of Roman Period Mummies.

**Table II.** Wrapping Style of Roman Period Mummies.

MUMMY ID	ORIGIN	STYLE
MI 3997a	Unknown	Free Limb
MI 4048	Thebes	Free Limb
BSAEI 030	El-Hibeh	Red Shroud
KI 0352	Unknown	Shroud
MMI 766	Hawara	Shroud
EA 6704	Unknown	Free Limb
E.63.1903	El-Hibeh	Red Shroud
AMM25	Thebes	Free Limb

Of the 8 mummies 4 are “Free Limb” mummies and 2 are Red Shroud mummies. Also, there is no representation from those Roman Period mummies wrapped in the Rhombic style – and they represent a significant proportion of mummies from this era.

Moving now to the main topic – that of distinguishing the methods of perineal evisceration from one another. If the viscera have been “dissolved” it would be expected that little or no evidence of them would remain.

Now to consider the floor of the pelvis, the perineum, the proximity of this to the point of introduction of the corrosive substance should put it at risk of significant damage. Add to these factors the statement of Herodotus regarding an abdominal incision (or lack of it), it does make sense to accept that there is no reason to create such a portal if the motive is to simplify and cheapen the process of evisceration.

Accepting these parameters let us first look at those mummies with an abdominal incision and eliminate them from the cohort. If this rule is applied only 4 of the original 20 remain. Table III. They are shown here along with their place of origin and era. Also note that the pelvic floor is completely absent in 3 out of 4 of the cases and that evisceration was incomplete in 3 of the 4 cases. Contrast this with the absence of the pelvic floor in 8 of the remaining 16 cases where a left flank incision was also used. In this latter group, it was also noted that in 2 cases the perineum was present and almost complete with evidence of preservation of sufficient tissue to allow “overlap” of the tissues in one case.

Looking now at the return of viscera in canopic packages – no canopic packages are used in the mummies where a perineal route has been used exclusively but

**Table III.** Mummies with Perineal Evisceration only.

MUMMY ID	ORIGIN	STYLE	PELVIC FLOOR	EVISCERATION
MMI766	Hawara	Roman	Absent	COMPLETE
BSAE1030	El Hibe	Roman Red Shroud	Absent	POOR
E.63.1903	El Hibe	Roman Red Shroud	Partial	INCOMPLETE
9480	Assiut	Ptolemaic	Partial	INCOMPLETE

that such an inclusion is used in 11 of the 16 where a left flank incision has also been used - the exceptions in the most part being in mummies prepared in Thebes in and adjacent to the Third Intermediate Period – i.e. in D21; D25 and D26 and one from the Roman Period – from Akhmim.

Those mummies with perineal evisceration exclusively also have evidence of some remaining viscera on the posterior wall of the trunk or – as in one case – remains of bowel contents e.g. faecoliths. Another mummy has evidence of reasonably well-preserved viscera (desiccated) in the thorax with less well-defined structures in the abdomen and a clear "void" in the pelvis.

The picture or pattern which emerges is one of a surgical process in the mummies where a left flank incision was used in conjunction with the perineal route. This is not unexpected as the logical use of an abdominal – left flank – incision would NOT be to enhance a chemical evisceration. The exclusively perineal route MAY be related in some cases to the use of a corrosive enema. It also – conveniently – conforms to Herodotus' description of "the middle way". All be it that his description was given in the Late Period. It is interesting that the only examples of the possible "chemical" method – if it exists – are from the Ptolemaic and Roman Period – that is some 200 – 400 years later and are few in number. However, to reiterate, the use of a combined approach of left flank and perineum seems to be a "surgical" rather than a chemical manifestation.

Considering, once more, the remaining 4 cases (Table III) – of use of the perineal approach alone – what evidence is there of the use of chemicals rather than "the knife"? The first mummy in the table exhibited signs of complete evisceration which would make a corrosive enema unlikely. The next 2 in the table are Red Shroud mummies from the Roman Period. It has been shown by Corcoran & Svoboda that the pigment used to produce the red colour was Red Lead imported from Spain. The implication from the use of this chemical and its origin (indicating significant expense) points to the mummies probably being of

high status (Loynes). This would be at odds with the concept of a “cheap” embalming process.

It seems, therefore, that the evidence points to the fact that perineal evisceration does not necessarily equate with the use of an enema as described by Herodotus. No doubt his description was derived from “facts” he was given – probably by priests and scribes of his day – but may have represented only a very small proportion of the population of mummies prepared.

There is another explanation and that is that the evidence presented to Herodotus was genuinely believed but was based on empirical observation with the assumption that the “voided material” represented the bowels and solid viscera but, in fact, was the “return” from an oil enema which had been acting for 30 days – thus being only bowel content. Obviously, there would have been no further investigation of the interior of the trunk to verify the removal of the viscera.

Clearly the caveat has to be noted that this conclusion is reached having analysed a relatively small number of examples. As the cohort expands further clarity may be achieved.

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