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Letters to the Editor

Difficulties for cardiovascular retrospective diagnosis on mummified foetal remains

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We read with great interest the recent article by Séguéla et al,[1] which raises the problem of long-term conservation and retrospective diagnosis on foetal mummified bodies. Indeed, some incertitude exists with regard to the methods and results, needing further data from both forensic anthropology and radio-pathology points of view.

First, organs are very mobile within a mummy – regardless of its archaeological or forensic origin – and images of organs within their cavities can vary from one position of the body to another.[2] Therefore, the right-sided position of the "heart" observed on computed tomography-scan images is not necessary the real intra-vitam one. The authors assess that "it was a primary dextrocardia rather than a simple displacement of the heart" (p. 3). What about the aorta? Is a flattening visible on the right anterior part of the lower thoracic and upper lumbar vertebras, as currently seen in that case?[3] The aorta is an anatomical structured fixed to the vertebra – and subject to a much less risk of post-mortem displacement, and thus it may help in confirming the diagnosis.

Second, the crushing of the skull as a consequence of a forceps extraction is not so clear. Forceps are not attested in the Egyptian antiquity,[4] but existed during the Ptolemaic period (4th to 1st century BC), corresponding to the datation of these remains.[5] In all cases, the use of such material for so tiny remains – foetal body at 15 weeks of gestation – seems unclear. Maybe the crushing of the skull vault is merely due to post-mortem changes such as maceration of the foetus,[6] or any embalming process – such as wrapping, for example).

Furthermore, the nature of the "heart" is very dubious, and this is really a limit of non-destructive methods such as post-mortem computed tomography-scan. Full-density screening – measure of Hounsfield Unit for each internal structure – is the rule, and may confirm – or not? – the exact nature of the organ.[7] What about the liver and other visceral organs? As seen in Figure 1d (p. 2), no isolate organ can be determined, but rather a homogenised entity. Does it correspond to altered organs after initial decomposition process? Or to linen packs following an embalming, as we know it was carried out even on foetuses?[8] The same with the so-called "heart": "supposed cardiac structure" appears very long (extended on almost 10 thoracic vertebral bodies (unfortunately, there is no scale on the images), which is very long for a foetal heart. In addition, no ventricular and/or auricular cavity is visible. Identification of the spleen is also very dubious. The only way of being sure would be to perform an autopsy with further histological/microscopic examination, that is, a destructive method that cannot be carried out for museum reasons.

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