

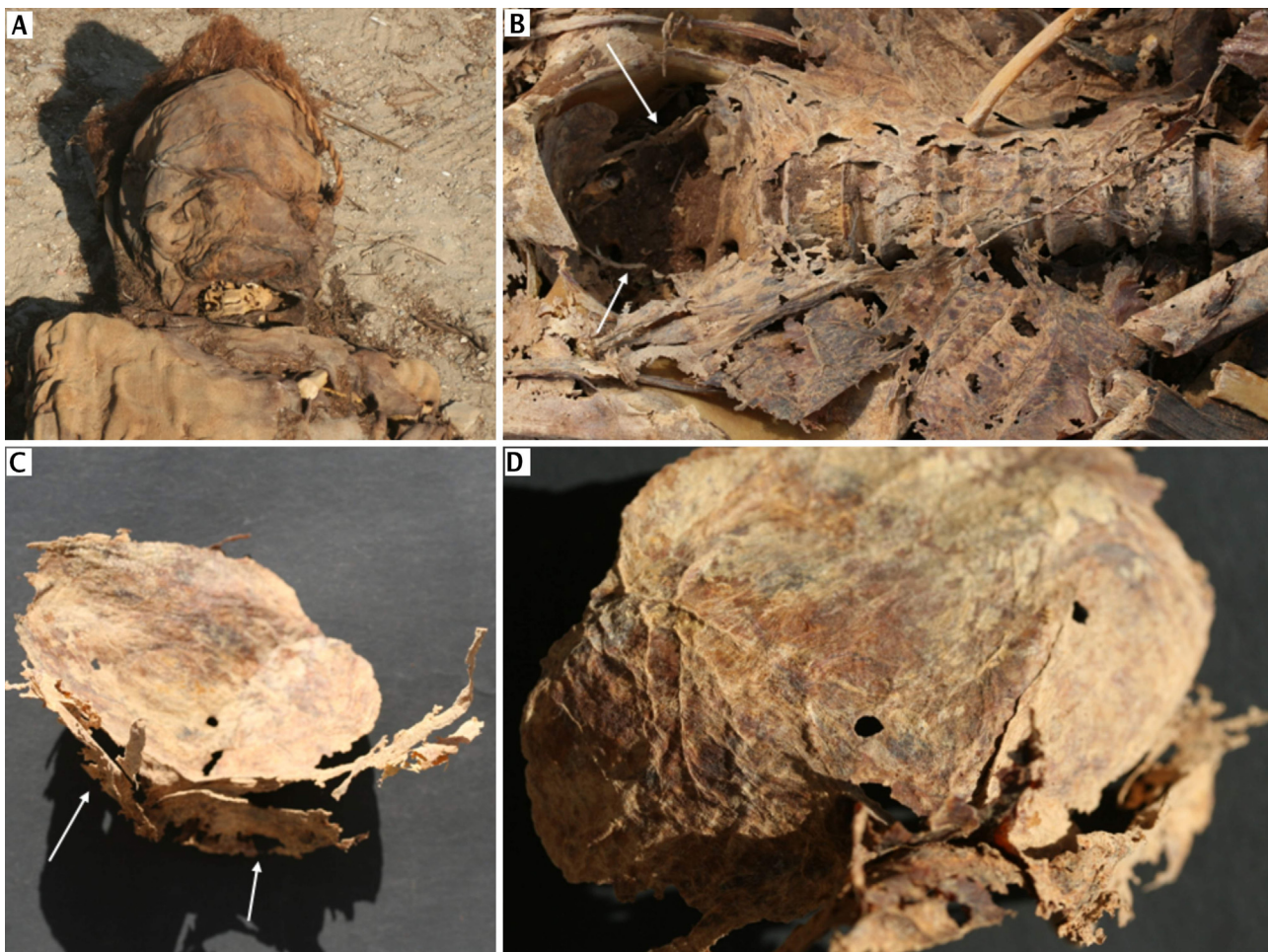
## Letter to the Editor NOT referring to a recent journal article

### Mummification of the Lower Urinary System in a Coptic Individual from Ancient Egypt

Mummification of the lower urinary system is uncommon and seldom shows anatomic morphology.

In this paper, we present a mummified individual of the Coptic period (4th to 8th centuries) from the necropolis of Qarara (Middle Egypt), 200 km south of Cairo, Egypt. The Q.445-12 (“Moses”) individual was a male between 25 yr

and 35 yr of age. This necropolis, surrounded by new buildings of the nearby settlement—each year closer to the archaeological site—has revealed 65 individuals (including 13 children) that have been totally or partially mummified and that have been studied. The necropolis is located at the base of a cliff 5 km east of the Nile river. Bodies had been buried at 1–3 m below the surface. In contrast with other Coptic mummies from Middle Egypt, we did not find preservative substances between the inner layers or directly over the bodies.



**Fig. 1** – (A) Coptic mummy (Q.442, 4th to 8th centuries) from Qarara, Egypt (Middle Egypt); (B) abdominal-pelvic area, urinary bladder inferiorly and two ureters (arrows); (C) posterior view of the urinary bladder with two ureters and the seminal vesicles (arrows); (D) posterior urinary bladder and vessels.

Owing to the requirements of the authorities, an “in situ” autopsy was performed to analyse textiles, to accomplish an anthropological study, and to detect possible diseases. After evidence supported the good level of preservation of the whole skin, a longitudinal incision was made in the left side from the iliac spine to the upper ribs. Inside the pelvic area was found an oval-flattened structure compatible with the urinary bladder (UB) and, attached to it, two tubular structures corresponding to the two ureters. In the ventral side, there was a structure with a septum compatible with the proximal urethra. At the base of the bladder was a flat bilateral structure that might correspond to the seminal vesicles. The inferior side of the UB external wall showed clear vascularisation.

The paleopathologic literature describes some cases of urinary disease. Ruffer, in 1910, found unilateral hypoplasia in a XVIIth to XXth dynasty Egyptian mummy and, the same year, calcified ova of *schistosoma* were found in the kidneys of two mummies of the XXth dynasty [1]. In 1921, Ruffer described bilateral kidney abscesses. In 1931, arteriosclerosis was described in the kidneys of the “Lady Teye” mummy (XXIst dynasty) [2]. With regard to the upper urinary tract, polycystic renal disease was described in a young male from the north of Chile (AD 300) [3], and endocarditis probably leading to renal failure (tubular necrosis on kidneys) was described in a mummy from Utqiagvik, Greenland [4].

The UB and the seminal vesicles have very low rates of preservation in mummies from ancient Egypt. However, multidisciplinary autopsies of Egyptian mummies in which deep analysis of any individual mummy is performed have revealed the UB in a female from the VIIth dynasty (PUM II, University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia, PA, USA) and a hollow structure corresponding to the UB in ROM I (Royal Ontario Museum, Toronto, Ontario, Canada). One case of hydroureter has also been described in an 18-yr-old mummy from northern Chile (AD 450–800) [5]. To our knowledge, no mention of

mummified seminal vesicle has been found in specialized literature. Our report adds to these cases, but the rare nature of this finding makes it hard to compare the urinary diseases of that time with those of modern life (Fig. 1).

**Conflicts of interest:** The authors have nothing to disclose.

## References

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