

The “Mummy in the dress” of the Museum of Anthropology and Ethnography of the University of Turin

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Abstract

The “Mummy in the Dress” belongs to the Egyptian Collection Giovanni Marro of the Museum of Anthropology and Ethnography of the University of Turin. It was recovered in Gebelein during an excavation campaign carried out at the beginning at the XX century by the Missione Archeologica Italiana under the leadership of its founder, E. Schiaparelli, Director of the Egyptian Museum of Turin. The mummy wore a pleated dress over its bandages. The body lies in a natural position, resting on its left side, on the remains of a wooden coffin. A team of anthropologists, chemists, Egyptologists and radiologists is studying the mummy with the aim of determining sex, age, embalming techniques and date of deposition. CT scans and 3D reconstruction of the mummy were carried out to enable the researchers to ascertain its sex and age, to verify what clothes enshrouded the body, to investigate its state of preservation and to learn more about the ancient techniques employed to assemble the wooden coffin.

Introduction

The “Mummy in the dress” belongs to the “Giovanni Marro” Egyptian Collection of the Museum of Anthropology and Ethnography of the University of Turin (Fig. 1). It was

discovered in Gebelein in 1920 during excavations of the “Missione Archeologica Italiana” led by its founder, Professor Ernesto Schiaparelli, Director of the Egyptian Museum of Turin, with the participation of Professor Giovanni Marro as anthropologist (Marro, 1929; Schiaparelli, 1920).

The body lies in a natural position, resting on its left side, on the remains of a wooden coffin; the head lies on a wooden headrest.

The mummy wears a pleated dress over its bandages; the body is wrapped on the upper part while there is no



Fig. 1 - Picture of “The Mummy in the dress”.

evidence of wrappings on the lower limbs. The dress is not entirely observable since a shroud covers most of it.

Material and Methods

The research began with observations of the mummy by the Egyptologists, who examined its position, dress and funerary equipment (coffin and headrest) to determine the date of deposition.

Subsequently, chemists at the School of Chemistry, Bristol University, U.K., analysed 9 tissue samples from the head, right forearm and right leg, a textile bandage from underneath the dress in the trunk area, and small dust samples (< 0,1 g) from the wooden coffin. The analyses were carried out by gas chromatography with mass spectrometry (GC-MS), which facilitates the molecular separation and identification of lipid biomarker compounds. The aim of these analyses was to

determine whether the body was naturally mummified or if it had undergone an embalming treatment with resins and oils. The Oxford University Radiocarbon Accelerator Unit, U.K., performed AMS radiocarbon dating of the textile bandage sample from the trunk area.

In addition, a whole body spiral CT scan was performed at the Molinette Hospital of Turin with a multidetector spiral CT (Light Speed 16 Pro, GE Health Care, Milwaukee, WI USA), providing 1229 2.5-mm thick slices with reconstruction interval of 1.25 mm. All images were transferred to the Vitrea 2.5 workstation (Vital Images, USA) for post-processing. The single slices were evaluated and multiplanar and 3D reconstructions were performed to ascertain the mummy's sex and age, to determine the type of clothes enshrouding the body, to investigate the body's state of preservation and to learn more about the ancient techniques used to construct the wooden coffin.

Results

The 3D reconstruction results indicate that the body belonged to a young woman, 154 cm tall and likely 19-21 years old at the time of death (Fig. 2). The assessment of age at death was confirmed by the following observations: the cranial sutures are open, the iliac crests are not fused, and the proximal and distal epiphyseal lines of both femora and tibiae are observable.

Regarding the body's state of preservation, there is complete dislocation of all the skeletal structures and internal organs. We assume that a violent post-mortem blow occurred, causing this dislocation as well as luxation of the right mandibular condyle and the loss of several teeth from both maxilla and mandible. The teeth are in good condition and there is no evidence of wear, caries or abscesses. No bone fractures associated with repair or congenital malformations were observed. Both humeri show the perforation of the olecranon.

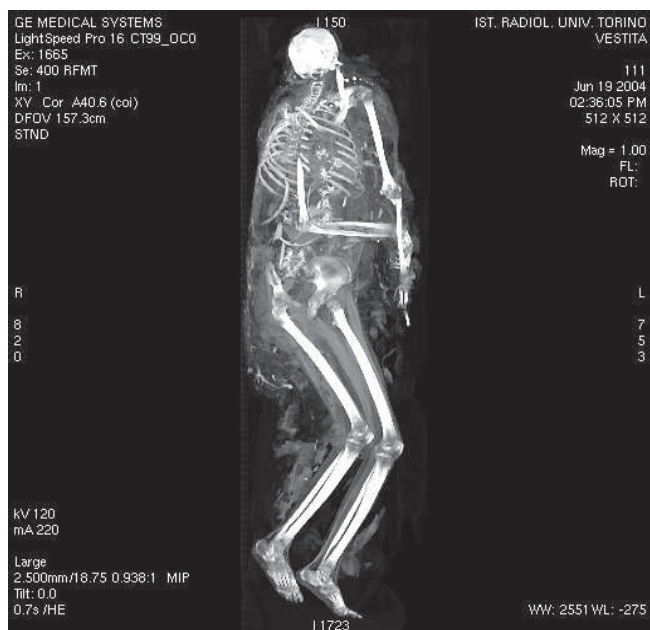


Fig. 2 - 3D reconstruction results.

The corpse appears to have undergone natural mummification, as shown by dehydration of brain material in the occipital area and of the internal organs. Axial and multiplanar reconstructions enabled us to identify the trachea, mediastinal structures, roots of the major blood vessels, dehydrated pericardium and pulmonary parenchyma. The diaphragm and the peritoneal sheets are clearly observable.

A structure with volume and parenchymatous density similar to that of the liver is observable on the left side of the body. The altered position of the liver is probably due to the dislocation occurring after the post-mortem blow. The chemical analyses of the skin, textile bandage and dust samples confirmed that little or no embalming was performed, not even cutaneously.

The gas chromatograms shown are typical of the distribution obtained from the tissues and bandage taken from this mummy. Compared to the chromatograms shown earlier, they are very simple and show that the tissue and bandage contain only the major C16:0 and C18:0 fatty acids and a low abundance of their oxidation products. The low abundance of C18:0 might be interpreted as evidence of plant oils. However, human body fats can also be low in this component. Hence, other techniques are needed to confirm this source and we are conducting further analyses to try to distinguish the endogenous and exogenous fats.

Interestingly, this is one of the earliest mummies investigated thus far for evidence of embalming (Buckley and Evershed, 2001).

The wooden headrest that supports the mummy's head is a characteristic piece of funerary equipment and it is another important indicator of the date of burial, whose context is unknown (Petrie, 1927; Fischer, 1980). Its slightly splayed shape is entirely different from the more common examples with curved neck-rest. The headrest is 19 cm high and has an upper width of 10,5 cm and a lower width of 31 cm. Headrests such as this have been found in funerary contexts dating to the 5th Dynasty. The hypothesis that the object was made of two branches cut at the point where they divide from the main bough was fully confirmed by CT scans. The neck-rest shows the remains of textile.

The only surviving piece of the rectangular wooden coffin is the bottom on which the mummy lays; it is 171 cm long and has an upper width of 42.5 cm and a lower width of 34 cm (Donadoni Roveri, 1969; Lapp, 1984). The CT scan shows that it was originally made out of at least 6 rough boards fastened by about 20 rectangular wooden tenons inserted in mortises bored horizontally into the boards' thickness; the boards are about 5-7.5 cm thick (Fig. 3). The wavy shape of the board is the result of a widespread ancient Egyptian technique of cutting wood. The trunk, rather sinuous in this case, was sliced vertically to economize on the use of this rare material (Killen, 1991). The sinuous boards, probably acacia wood, were arranged side by side, joined by tenons and finally cut along the sides to obtain a rectangular shape. Plaster was applied to the surface to make it smooth.

Like other wooden coffins belonging to commoners and dating to the end of the Old Kingdom, a lid and lateral panels

(here fixed to the bottom with vertical mortises and tenons) would have completed it. The sequence of CT scans allows us to appreciate the high level of skill of Egyptian carpenters in these early times.

The modest funerary equipment included two vessels and two small wooden boxes; one of the boxes is still in good condition and has a sliding lid.

The observable part of the dress indicates that it is similar to approximately thirty long-sleeved linen tunics with horizontal pleating housed in several museums around the world. Three of them belong to the Egyptian Museum of Turin: one is from Gebelein and dates to the 6th Dynasty (Inv. I4087) (Hall and Pedrini, 1984), while the other two come from Assiut and date to the end of the Old Kingdom – beginning of the First Intermediate Period (Suppl. 7932) (Pedrini, 1989).



Fig. 3 - The wooden coffin.

The tunics are components of modest funerary contexts of women who lived between the 5th and 11th Dynasties (about 2464 –2065 BC). One of them was found in Tarkan, near the Fayum area. A first C14 test dated it to the 1st Dynasty, although a further test dated it to the 5th Dynasty; the latter dating is the more likely (Landi and Hall, 1979). Some of these dresses were found in unsexed burials, but there is no reason to doubt that they belonged to women. Only in the late New Kingdom did men and women occasionally wear the same clothing (Riefstahl, 1970). This kind of garment shows identical recto and verso and is made out of three pieces of material joined together by seams. The upper part of the dress, the yoke, is made out of two equal-sized pieces of material formed to cover the chest and the shoulders and extending laterally into the sleeves. The two sides of the yoke are juxtaposed at the centre to form a V-shaped neckline on both the front and back of the garment. From one side of both openings, a fringe issues from the selvage.

The lower part of the dress is made out of a single piece of material sewn along the two shorter sides. It was clearly pleated horizontally after having been folded vertically in four to give the four separate panels that are now evident, with the pleats opening alternately downwards and upwards. The three points of convergence, the different directions and the relative depth of the pleats prevented them from opening and collapsing under the weight of the fabric.

The garments were usually pleated by hand, with straight, regular and horizontal pleats. The pleats could differ in height and depth but usually had the same dimensions in the upper and lower part of the garments (Pedrini, 1989).

In the dress described here, however, the pleats of the yoke are much smaller (5/6 mm high – 2 mm deep) than those of the skirt (15 mm high – 5 mm deep) and make a rather

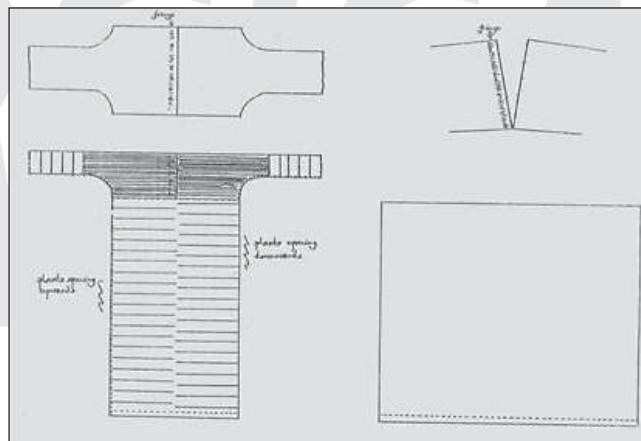


Fig. 4 - The pleated dress.

clumsy transition to the vertical at the elbow, where they have the same size as those of the skirt (Fig. 4).

The same technique was used in a similar dress coming from Naga ed-Deir, dated to the 6th Dynasty, housed in the Museum of Fine Arts, Boston (Riefstahl, 1970).

These dresses do not provide any information about the women who wore them, except that they had humble origins. Some of them show signs of usage and thus were not merely "grave goods". They also did not have magical or religious significance, and did not have any ancestors or descendants. In addition, these dresses never appeared in the Egyptian iconography, most likely because they were considered unattractive or at least not sufficiently important to be portrayed.

The radiocarbon age of the textile bandage was 3843 ± 34 BP. To obtain the true age, the radiocarbon age was converted to a calendar date using a calibration curve. The calibration curve is the wiggly pair of lines in the figure shown here. This curve consists of precisely measured radiocarbon dates of tree rings of known age, and shows the variations in C14 abundance through time as a result of varying cosmic ray intensity.

The calibration tells us that there is a multi-modal distribution of ages that correspond to the date of 3843 ± 34 BP. For the 95% probability range, there is an 87% probability that the age is between 2407 and 2199 BC, while there is a 7.5% probability that the age is between 2458 and 2417 BC (Bronk Ramsey and Hedges, 1999; Bronk Ramsey et al., 2000). Thus the most probable true age is 2407-2199 BC.

The results of the AMS radiocarbon dating agree with the age assessment given by the Egyptologists, i.e. V-VI Dynasty. Moreover, the fact that the mummy appears to be treated simply, in terms of the balms applied, confirms that it is most likely of an early date.

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