



Do we really need new medical information about the Turin Shroud?



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ABSTRACT

Image processing of the Turin Shroud (TS) shows that the Man represented in it has undergone an under glenoidal dislocation of the humerus on the right side and lowering of the shoulder, and has a flattened hand and enophthalmos; conditions that have not been described before, despite several studies on the subject.

These injuries indicate that the Man suffered a violent blunt trauma to the neck, chest and shoulder from behind, causing neuromuscular damage and lesions of the entire brachial plexus. The posture of the left claw-hand is indicative of an injury of the lower brachial plexus, as is the crossing of the hands on the pubis, not above the pubis as it would normally be, and are related to traction of the limbs as a result of the nailing to the patibulum. The disappearance of the thumbprints is because of entrainment of the flexor pollicis longus tendons while the nails were driven through the wrists.

The blunt chest trauma, which resulted in the body falling forwards, was the direct cause of a lung contusion and haemothorax, confirmed by the post-mortem leakage of clots and serum from the chest caused by the stabbing with the spear, and was a likely cause of cardiac contusion.

All the evidence is in favour of the hypothesis that the TS Man is Jesus of Nazareth.

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Some information from the Turin Shroud

The TS¹ is a linen cloth, 4.4 m long and 1.1 m wide, which enveloped a dead body with evident rigour mortis^{2,3} of a scourged, thorn-crowned man who was crucified and stabbed in the side with a spear. The TS is the most important Relic of Christianity and has generated more controversy than any other relic.⁴ For example, the veracity of the TS has been strongly challenged by multicentre radiocarbon research (USA, UK, Switzerland), which attributed the manufacture to the late Middle Ages, dating between 1260 and 1390 AD.⁵ The results of radiocarbon research relevant to that time frame, however, are now considered invalid, having been affected by systematic errors.⁶

The characteristics of the image are unique and at present they cannot be reproduced all together even though the most reliable and probable hypothesis of the formation of the image is based on the "Corona Discharge".⁴

Edwards et al.⁷ have historically and medically reconstructed in an accurate way the Passion of Jesus of Nazareth with clear evidence on the TS; however, many aspects remain unclear. For example, they do not explain thoroughly the posture of the hands or the point of penetration of the nails in the hands. They also do not completely explain the immediate cause of death of the TS Man because the diagnosis of asphyxia and/or severe cardiovascular collapse is inconsistent with the Gospel, which states that Jesus had the strength to cry out immediately before his death. Therefore, circulatory shock and respiratory failure would not be so severe as to be fatal at that time and should only be considered as accelerating factors in the course of the Passion.

We undertook a cross-disciplinary study involving medical and engineering research of certain aspects of the TS that have so far been neglected, or only superficially explored. We could detect additional pathophysiological factors of the Passion of Jesus, bringing new clues about the authenticity of the TS and the veracity of the same Christian Tradition. In particular we have studied:

- the absence of the thumbs;
- the crossing of the hands on the pubis;
- the position of the right hand that touches the outer edge of the left thigh;

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- the right shoulder lowering;
- the right eye retraction;
- the posture of the right hand II, III, IV, V fingers: the extended fingers;
- the posture of the left hand II, III, IV, V fingers: the flexed last phalanges;
- the significance of the large stain of blood clots and serum from the right chest stabbed by the spear.

Findings and deductions

The retracted thumbs

The nailing occurred through the wrist.^{7–9} Various authors have suggested that iron nails were driven between the radius and the carpals or between the two rows of carpal bones, either proximally to, or through, the strong band-like flexor retinaculum and the various intercarpal ligaments.⁷

Superimposition of a semi-transparent TS-like cloth with a 3-D model of the Man indicates that the driving of the nail by the crucifiers occurred in a very accessible point, precisely between the prominences of the tendons for the flexor carpi radialis and palmaris longus muscles at the level of the middle skin fold of the wrist, near the scaphoid tubercle. Therefore, the nails pierced the space between the radial, scaphoid and lunate bones and between and under the tendons for the flexor carpi radialis and palmaris longus muscles, then passed the median nerve and the flexor pollicis longus tendon.

The lack of thumbprints of both hands on the TS is related not only to a lesion of the median nerve that causes only a slight flexion of the thumb, but also, particularly, to the fact that the nail driven into the wrist has pulled or injured the flexor pollicis longus tendon causing its dragging in the hole and the complete retraction of the thumb.

We have tested and documented this phenomenon radiologically using an amputated limb and an iron nail 10 cm long with a square base 1 cm across.

The crossing of the hands on the pubis

The TS clearly shows that the fingers of the right hand almost reach the outer edge of the left thigh. The left hand crosses the right hand at the pubis level, covering it.

The position of the right hand is not normal for the following reasons:

- it is inconsistent with a hyperextended, rigid body and hyperexpanded chest, as occurs in a crucified subject and as is observed in the TS;
- it is inconsistent with a healthy, long-limbed leptosome man with long arms (but this is not the case of the Man of TS, with a normal structure, robust, about 175 ± 2 cm tall¹⁰ and then normal in weight) because the left wrist, that is identified from the nail hole, is located as usual in the middle third of the groin but not on the pubis like in the slender-limbed subject.

We must conclude, therefore, that the arms had been almost disarticulated during the nailing and even more during the suspension on the cross, and so remained in this position after their arrangement and winding in the TS.

The right hand touches the outer edge of the left thigh

Anthropometrical measurements have been made on the frontal and dorsal body image of the TS^{11,12} to verify the compatibility of the frontal and dorsal images with a human body.¹³ Starting from these works, the authors studied the position of arms and shoulders and, in addition, having as a landmark the hole located on the radius end, then measured the various segments: radio-carpal/metacarpus-phalangeal, radio-carpus/elbow (assuming the intersection of the radial segment with the segment humeral), shoulder end/neck root.

The following information was taken into consideration during the analysis: 1. A symmetric inclination of the shoulders on the dorsal image of the TS. 2. Position of arms and hands on the TS frontal image that are not easy to obtain in a normal human body without using ties because the raised arms tend to fall laterally. This posture is instead easier if the arms are dislocated. 3. Lengths of radius and humerus, right and left independently obtained^{11,12} from studies of photographs of the TS. 4. Standard anthropometric Radius-Humeral Index, equal to 0.75.

The results of this study, based on kinematic analysis of the pivotal points A–H, depicted in Fig. 1 are reported in Table 1 and demonstrate that the right humerus was subjected to an underglenoidal dislocation. The space between humerus and right shoulder is 3.5 ± 1.0 cm, and this is a sign of humerus dislocation.

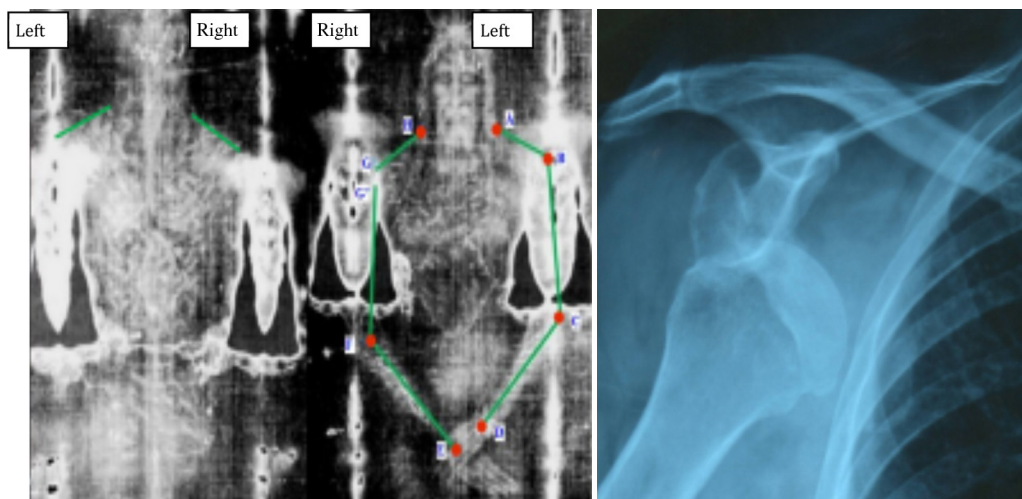


Fig. 1. On the left: position of shoulder and arms on the frontal and dorsal body image of the TS with positions of the pivotal points measured in Table 1. On the right: radiography of an underglenoidal dislocation.

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