

Dr. Tulp's Anatomy Lesson by Rembrandt: The Third Day Hypothesis

Arnon Afek MD MHA^{1*}, Tal Friedman MD^{2*}, Chen Kugel MD³, Iris Barshack MD¹ and Doron J. Lurie PhD^{4**}

¹Department of Pathology, Sheba Medical Center, Tel Hashomer, Israel

²Department of Plastic Surgery, Assaf Harofeh Medical Center, Zerifin, Israel

³Sackler Faculty of Medicine, Tel Aviv University, Ramat Aviv, Israel

⁴Tel Aviv Museum of Art, Tel Aviv, Israel

ABSTRACT: An autopsy was an important event in 17th century Holland. Autopsies were held in an 'anatomy theater' and performed according to a fixed protocol that often took up to 3 days to complete. Of the five group portraits painted by Rembrandt over the course of his career, two were anatomy lessons given by Dr. Tulp and Dr. Deyman. An examination of Rembrandt's painting *Dr. Tulp's Anatomy Lesson* (1632) and an X-ray image of the painting, as compared to other paintings of anatomy lessons from the same period, reveal interesting differences, such as positioning, and light and shadow. Not only was the autopsy not performed according to the usual protocol, but in this painting Rembrandt created a unique dramatic scene in his effort to tell a story. We suggest that Dr. Tulp and Rembrandt "modified" the painting of Dr. Tulp's anatomy lesson to emphasize Dr. Tulp's position as the greatest anatomist of his era – "Vesalius of Amsterdam," and as a way of demonstrating God's greatness by highlighting the hand as a symbol of the most glorious of God's creations.

IMAJ 2009;11:389–392

KEY WORDS: Rembrandt, anatomy lesson, art

In the 17th century, annual public anatomy lessons were considered not only educational but also social and cultural events. These autopsies, i.e., anatomy lessons, were held every year as a live demonstration accompanied by explanations. They were open to everyone – students and the general public alike – and were performed as a theatrical event in every sense. These lessons were always scheduled during the winter season when the weather remained cold enough to preserve the cadaver. Dr. Tulp's lesson began on 31 January 1632 and would have normally lasted 3 to 5 days [1,2].

An autopsy also had religious significance. Prayers were

said at the beginning, and at the end a minute of silence was observed. The human being was considered to be a divine creation, proof of God's greatness. Studying God's creation, therefore, would enable man to better understand God and bring man closer to him. The anatomy lesson served to remind man of his own mortality (*Memento mori*) and just how fleeting life is. It is also interesting to note that body weight measured before death and postmortem differed by a few grams. This difference was attributed to the soul having left the body. The fact that the bodies being autopsied were criminals who had been sentenced to death was taken as evidence that good can come from evil [3-5].

The Surgeon's Guild was founded in Amsterdam in 1552, approximately 80 years before Rembrandt painted *Dr. Tulp's Anatomy Lesson*, at the time that the surgeons withdrew from the Wooden Shoe and Ice Skate Manufacturers Guild. In 17th century Holland, surgeons were considered to be physicians, but before that they were considered craftsmen. They received their 'clients', examined them, and performed surgeries in small shops located in the towns. Concepts such as hygiene and infectious agents (and the relationship connecting them) were as yet unknown. Some surgeons even offered haircuts, shaves and bloodletting [1,2]. The Surgeon's Guild in Amsterdam accumulated five group portraits of anatomy lessons: A. Pieterz (1601–1603), T. De Keyser (1619), N. Elias (1625), and two by Rembrandt (1632 and 1656). The primary reason for these paintings was the immortalization of the personages. Since it was also seen as a status symbol, the guild members wanted to be represented clearly, attractively, with dignity, and as prominently as possible. Obviously, they did not want to be the victim of an artist experimenting with new ideas and techniques (such as novel approaches to composition, light and shadow). The Guild, for its part, wanted paintings to be respectful, dignified and unique. Moreover, the Guild members paid out of their own pockets to be included in the paintings even though the paintings remained the property of the Guild [2-5].

In Holland, the tradition of painting group portraits began in the 15th century. These first portraits, however, merely

* The first two authors contributed equally to this article

** Senior curator of 16th to 19th Century Art, and Chief Conservator, Tel Aviv Museum of Art

Figure 1. *Dr. Tulp's Anatomy Lesson* – Rembrandt (1632)



depicted figures lined up, one next to the other, expressionless and motionless and without any sense of interaction among the figures – like soldiers standing at attention. Although this concept of group portraits began to soften in the 16th century, Rembrandt was the only one to dare to portray a sense of drama in his group portraits [5-8].

We evaluated Rembrandt's painting of *Dr. Tulp's Anatomy Lesson* with emphasis on the autopsy in comparison to other paintings on the same subject. Our intention was to discover how Rembrandt was able to create human drama in the painting of a postmortem autopsy. By studying the composition on one hand, and the autopsy protocol on the other, we attempted to penetrate the world of our professional forefathers.

OUR STUDY

Of the five group portraits painted by Rembrandt Van Rijn during his lifetime (1606–1669) we examined the two depicting anatomy lessons: *Dr. Tulp's* (1632) and *Dr. Deyman's* (1656), the latter of which was severely burned in the large fire that later engulfed the Surgeon's Guild building. Other paintings of anatomy lessons that belong to the Amsterdam Surgeon's Guild were carefully examined as well (by A. Pieterz, T. De Keyser and N. Elias) [1-8]. [Rembrandt painted three additional group portraits: *The Night Watch* (1642), *The Syndics of the Draper's Guild* (1662), and a *Family Portrait* (around 1665), although these were not included in this study.] We augmented the basis of our research on the basis of X-ray films of the painting and on the medical and art literature available on the subject.

The following components of the painting were analyzed: a) the positioning of Dr. Tulp and his students; b) use of light and shadow (*chiaro scuro*); c) the position of the cadaver, its form and color; and d) the body organs, which were shown to have been autopsied in relation to the 3 day protocol (discussed later).

OUR FINDINGS

Examination of the painting *Dr. Tulp's Anatomy Lesson* (dimensions 216.5 x 169.5 cm) reveals nine figures – eight men and one cadaver – all portrayed in life size [Figure 1]. Dr. Tulp is the most important figure in the painting and the only one on the right. He appears to be lecturing and the remaining figures to be listening. The cadaver is painted diagonally in the foreground, giving it a dominant position, and a book (presumably an anatomy book) lies open at the feet of the cadaver. Rembrandt chose to paint the scene predominantly in tones of black and white.

The body being autopsied is that of Adriaen Adrianson (alias Aris het Kint), who achieved infamy by virtue of his being the cadaver shown in this painting. Because of his police record he was condemned to death and hung on 31 January 1632, even though the last arrest was for merely stealing a coat. His body serves as a focal point and is highlighted in the painting, despite the fact that he was the only person present not to have paid for his portrait [2-4].

At first glance the cadaver appears intact except for its left arm, but on closer inspection several abnormal deviations are visible. His right arm is significantly shorter than his left arm, and the fingertips of his right hand do not reach his loins. The head is portrayed to the right above the chest cavity, rather than aligned with the center of the body, and the neck is not portrayed at all. The chest cavity bulges prominently at the anterolateral aspect, so much so that the cadaver appears to have a 'barrel chest'.

The most significant difference between the autopsy in *Dr. Tulp's Anatomy Lesson* and other paintings of anatomy lessons is the fact that it does not conform to the accepted protocol. According to this protocol the abdominal and chest cavities should have been autopsied on the first day, the head on the second day, and the limbs on the third. At first glance of *Dr. Tulp's Anatomy Lesson*, with the exception of the autopsied left arm (last day protocol), all other body parts (head, chest, and abdominal cavity) seem to be intact [2,7,9,10].

A close inspection of the X-ray taken of the painting shows a number of modifications – or stages – in the painting of the picture [Figure 2]. The most significant change is the addition of a figure on the lower left side that is not included in the triangular composition of the figures in the picture. Another change noted is that the hat on the head of a student in the left upper corner has been painted over, so that Dr. Tulp, in

keeping with his status, is the only one shown to be wearing a hat. The X-ray also shows the right arm of the cadaver to be significantly shorter than the left, with a round stump above the hand [2].

Examination of both the painting and the X-ray reveals that the cadaver is represented without a neck and the head is positioned lateral and parallel to the body's central line. The right edge of the head is lined up with the outside edge of the right hand, and the head is separated from the body by a clear horizontal line. A page held by one of the students shows a list of the attending student's names written on the top of a drawing of an arm.

The second anatomy lesson painted by Rembrandt in 1656 was a large oil painting on canvas, of a lesson given by Dr. Joan Deyman. In contrast to the painting of Dr. Tulp's anatomy lesson, the composition of this painting is symmetrical: the physician-coroner and the cadaver are placed at the exact center of the painting with four people standing on each side. The physician has peeled back the scalp, removed the top of the skull and is lecturing about the brain's structure. One can clearly observe that the abdomen has already been examined and the organs removed from the abdominal cavity (first day protocol). This would indicate that the painting depicts the standard surgical protocol used on the second day of an autopsy.

INTERPRETATIONS

For this study we examined Rembrandt's painting of *Dr. Tulp's Anatomy Lesson* (1632). This painting differs from the second anatomy lesson, given by Dr. Deyman (1656) that Rembrandt painted, and differs as well from other anatomy lessons painted by his contemporaries.

In painting individual portraits, Rembrandt demonstrated his extraordinary ability to perceive and reveal the soul and mood of his subjects. He also infused his group portraits with emotional drama, creating a new set of values and standards that transformed stiff compositions into a theatrical scene. Through his use of light and shadow (*chiaro scuro*) and the positioning of the surgeon, students and cadaver, Rembrandt's group portrait tells us, his viewers, a story; as if we were attending a theatrical performance.

The body being autopsied is given status by its shiny hue, its position in the foreground of the scene and by Rembrandt's use of his *chiaro scuro* technique. The physician autopsied the corpse's left hand, but the chest, abdomen and head look intact. Although the head appears not to have been examined, its position lateral to the central axis of the body seems unnatural. The chest cavity protrudes at the anteroposterior aspect [3]. The right hand is significantly shorter than the left and X-ray reveals a round stump over which a hand has been painted [2,10].

Figure 2. X-ray of *Dr. Tulp's Anatomy Lesson* (arrow points at the cadaver's stump)



The question arises whether this is indeed a painting of an actual autopsy that Rembrandt observed and painted, or whether it was proposed to him as an ideal, symbolic concept by Dr. Tulp. This question is pertinent from both medical and artistic aspects. From the medical point of view: if this was, indeed, an actual lesson, did Rembrandt paint it realistically, logically and factually? From the artistic viewpoint: with what genre can the painting be identified? Can it be considered a group portrait with the cadaver used only as a symbol, or is it simply an illustration of the subjects who commissioned the painting? Is this painting, dramatized to the utmost, meant to "tell a story" (subject painting)?

We suggest that Rembrandt and Dr. Tulp used the anatomy lesson as an expression of symbolic meanings, primarily the greatness of God and that of Dr. Tulp. They manipulated the painting in order to emphasize certain details while hiding others, so the attention of the viewers will not be distracted. Rembrandt made sure that the changes were well hidden in order not to cause objections by the Guild and the students who had paid to be included for posterity and expected to be portrayed at their best.

Rembrandt and Dr. Tulp chose to focus on the dissection of the arm as a deliberate diversion from the accepted protocol used for postmortem examination. Rembrandt shows us only the exposed hand, while the chest and head are seemingly untouched. In all the other anatomy lessons, including Rembrandt's own *Dr. Deyman's Anatomy Lesson*, the autopsy corresponds to the accepted protocol.

What made Rembrandt focus on the autopsy of the arm? William Heckscher [5] maintained that focusing on the hand,

especially when autopsying the muscles that govern finger movement (flexos digitorum), is intentional. The anatomist Andreas Vesalius, a physician of Flemish-German origin who lived in the 16th century, was recognized as one of the greatest surgeons of his generation. Dr. Tulp was a student of Peter Paauw, who had been one of Vesalius' students, and thus Dr. Tulp can be seen as the great Vesalius' metaphysical grandchild. In addition, Dr. Tulp was known in Holland as the "Vesalius of Amsterdam." It is possible that Rembrandt's painting was primarily meant to portray Tulp as worthy of holding this title (which was, indeed, meant to be a compliment) [9].

According to Schupbach [11] and the members of the Rembrandt Research Group [4], the painting of Dr. Tulp's anatomy lesson demonstrates four stages or components, centered on the hands of the protagonists. With his right hand Dr. Tulp reveals the corpse's wrist and the muscles that move the fingers, while his left hand indicates the expected movement of the fingers. While doing so, his face is shining with a blissful expression – he has successfully demonstrated the greatness of God through the wonder of creation – the complexity of the human hand. The fourth, final, stage evinces the students' acceptance of this as truth.

The concept of dramatization by the anticipation of the hand's movement was used by Rembrandt in his painting *Balshazzar's Feast* (1635), in which X-ray revealed a repainting of God's hand in order to cover the last character in the mysterious sentence. This partial cover-up creates anticipation of the full appearance of God's message [7].

Beyond the changes that have, in our opinion, been made to the cadaver's hands, the cadaver's head, as we noted previously, is in an unnatural position. This could have been due to the fact that the cadaver originally seen by Rembrandt portrayed the *last day* of the autopsy. In this stage, the head would have been operated on and even severed to enable autopsy of the brain (second day) the chest and abdominal cavities would have been opened and the viscera removed and examined (first day).

It is possible that Rembrandt and Dr. Tulp may have decided to 'reverse time' or 'manipulate' the anatomy lesson by painting over the surgical scars made on the first and second day of the autopsy and retain only the autopsy of the left hand (according to the third day protocol). The head was 'reattached' in the painting to the shoulders (although lateral to the natural position); the open chest, autopsied on the first day, was covered over with muscle and skin creating a swollen appearance at the anterolateral aspect (barrel chest) [4,5]. The distal area of the right hand, possibly resected during the last day of the autopsy (the stump), was also covered over despite the fact that as a result one hand appears shorter than the other. So too does the left hand appear in an unnatural position, as if severed during the

autopsy and attached again for the painting. There are two possible reasons for this diversion from protocol: it may have been Dr. Tulp and Rembrandt's desire that the picture be aesthetic, not crude or macabre; secondly, it would help the spectator to focus only on Dr. Tulp's hand rather than on the criminal's autopsied hand. It is interesting to note that the famous British painter Joshua Reynolds who visited the Guild house in 1781 said that the reason for the operation of the hand only is aesthetic and that the anatomy lesson not be unbearable to watch [4].

We propose that in the painting Dr. Tulp and Rembrandt chose to focus on the autopsy of the hand as a way of emphasizing Dr. Tulp's status as the "Vesalius of Amsterdam" and as a way of demonstrating God's greatness by highlighting the hand as a symbol of the most glorious of God's creations. If the theory that Dr. Tulp and Rembrandt recreated the painting of the cadaver's autopsy is correct, then the supposition is strengthened that this painting has a plot and is meant to tell a dramatic story with Dr. Tulp at its center. Whatever the motives behind the decision not to paint the autopsy according to protocol – either the wish to be likened to Vesalius, or to glorify the power of God, the creator – the results are impressive. And we are grateful for the opportunity to be witness to the past through this remarkable portrait.

Correspondence:

Dr. A. Afek

Dept. of Pathology, Sheba Medical Center, Tel Hashomer 52621, Israel

Phone: (972-3) 530-3132

Fax: (972-3) 530-5380

email: Arnon.afek@sheba.health.gov.il

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