

Anatomy lessons in the Michelangelo's works?

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Abstract

Michelangelo Bounarroti born in Italy and lived between 1475 and 1564. He had a vast knowledge in anatomy and it is confirmed by the perfection in which human is represented in his works. This fact draws the attention of scholars from a variety of areas concerning the study of human body to be interested in his art works. We discuss the possible presence of the representation of anatomical structures included in the works of Michelangelo presented by several authors.

Keywords: Michelangelo, anatomy, medicine, art, culture.

1 Introduction

1.1 Renaissance, Michelangelo and anatomy

The renaissance period was an epoch of vast scientific and cultural production which occurred mainly on Europe nations. A substantial number of art works as well as scientific and medical treaties were produced in this period, leading to an increased number of studies in human anatomy since cadaver dissections was not suffering major restrictions from society (LYDIATT and BUCHER, 2011). It is not an easy task to classify or separate the renaissance exponents by their occupation due to the fact that many of them practiced more than one activity in an excellent way, as in the case of the sculptor, poet and painter Michelangelo Bounarroti, born in Italy and lived between 1475 and 1564 (STRAUSS and MARZO-ORTEGA, 2002).

Michelangelo had a vast knowledge in anatomy, what was relatively common among renaissance sculptors and painters (PALUZZI, BELLI, BAIN et al., 2007; EKNOYAN, 2000), and it is confirmed by the perfection in which human figure is represented in his works. This fact draws the attention of scholars from a variety of areas concerning the study of human body to be interested in his art works, promoting great discussions about the meaning of each work, be it in historical or in religious and scientific aspects (STRAUSS and MARZO-ORTEGA, 2002).

Among the main art works of Michelangelo, those painted on the Sistine Chapel ceiling, on Vatican, are one of the most known in the world. Michelangelo carried out his work between the years of 1508 and 1512, all by himself, by request of Pope Julius II. There are some discussions around the fresco painted on the ceiling to know if they were painted in accordance to the church orientations and the meaning of what those frescos should transmit (MESHBERGER,

1990). Among these works the most widely known probably is “*Creation of Adam*”.

In the context previously presented, we discuss the presence of anatomical structures in Michelangelo's art works, taking into consideration their meanings, importance and if these anatomical structures are not just imaginative interpretations from scholars.

2 Material and methods

For the preparation of this paper were consulted scientific articles published in English. The articles were accessed from a basic search in the *PubMed* database (<http://www.ncbi.nlm.nih.gov/pubmed/>), using terms like “Michelangelo”, “anatomy” and “medicine”. Much of the discussion of this work was based on a book published in Brazil by Barreto and Oliveira (2004) who addressed the issue extensively, as well as the work of Kickhöfel (2004) who criticized the book, available in the *SciELO* database (<http://www.scielo.org/php/index.php>).

3 Results

3.1 Anatomical structures in Michelangelo's art

The encephalon perhaps is the most cited organ among the few studies that carried out this sort of connection. In the year of 1990, Meshberger presented a discussion about the figure of encephalon inserted on the fresco “*Creation of Adam*”, which shows Adam about to touch God through the contact of their fingertips. Yet, the same author described that Michelangelo was looking for a God representation delivering the intellect to Adam, once the image in which God is involved resembles very much

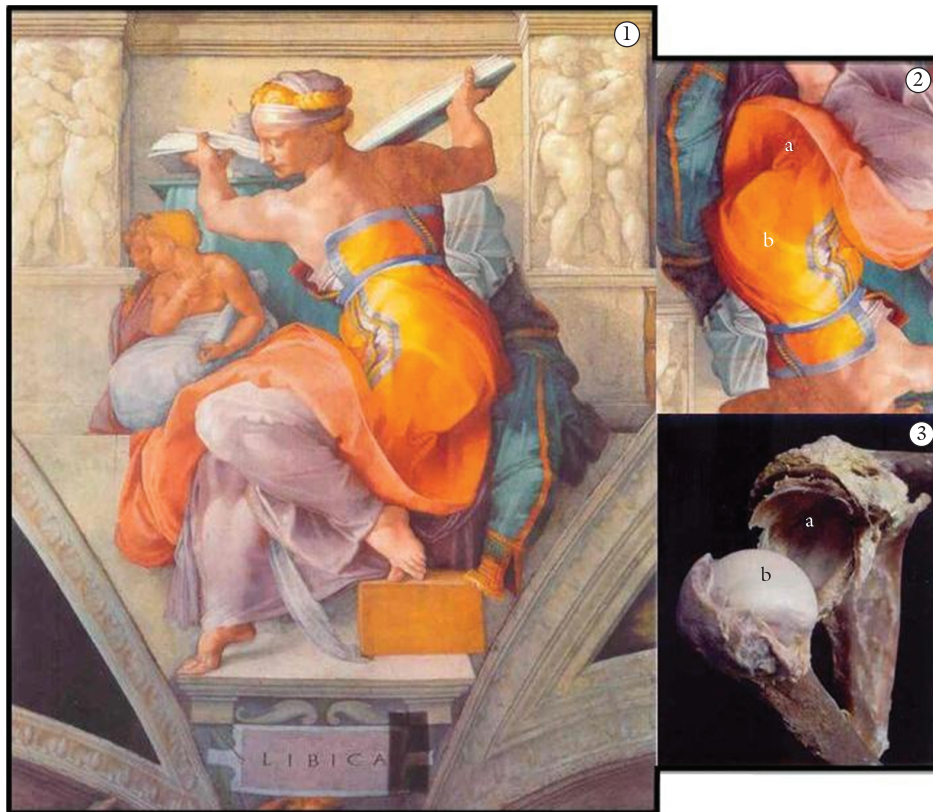


Figure 1. 1) “*Libyan Sibyl*”. 2) Details of the garment of pings in an inverted position. 3) Photo of the shoulder joint. In these two tables detail the association of image with the glenoid cavity is done by the letter “a” and the humeral head by the letter “b”. (Adapted from Barreto and Oliveira (2004)).

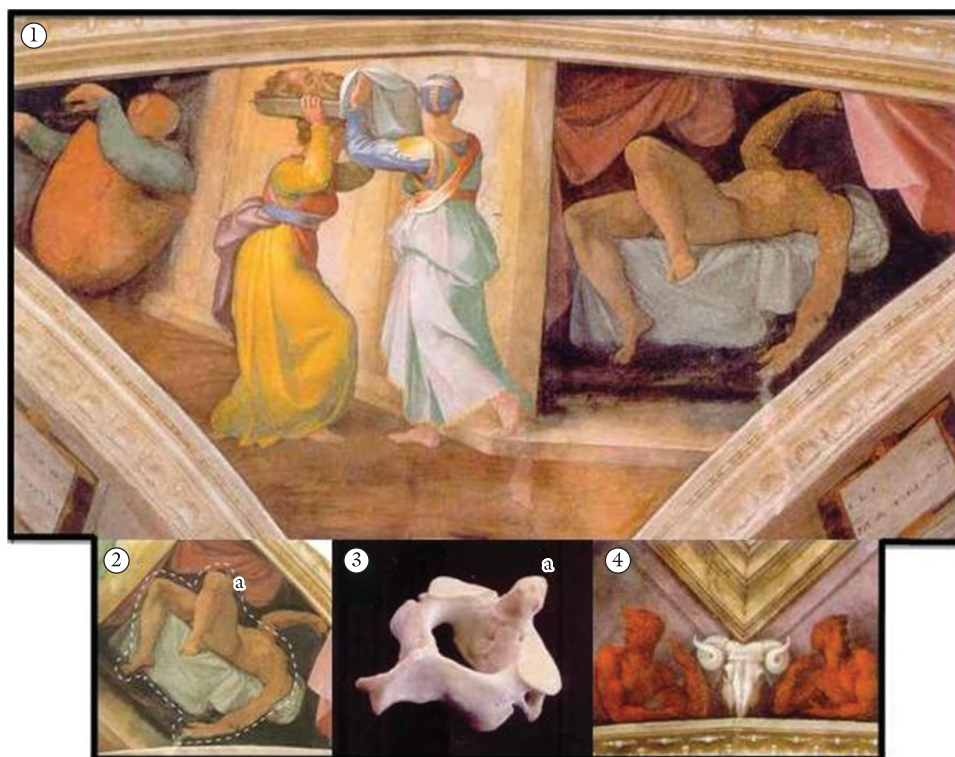


Figure 2. 1) “*Judith and Holofernes*”. 2) Detail of the body of Holofernes. 3) Photo of the axis vertebra. The letter “a” appears in both frames the figure associated with the odontoid process. 4) Detail of work that presents two slaves pointing to the neck. (Adapted from Barreto and Oliveira (2004)).

with a brain. Recently, a study conducted by Paluzzi, Belli, Bain et al. (2007) has also discussed the presence of brain not only in Michelangelo's art works, but also in Rafael Sanzio and Gerard David, other important renaissance artists.

Other anatomical structures and details in Michelangelo's art works created some discussion about their presence and meanings. The sculpture known as "David" created by the artist between 1501 and 1504, brings speculation and curiosity on why the man which is represented in the sculpture is not circumcised, whereas in "The Night" located above the tomb of Giuliano de' Medici (1526-1531) provokes interest about the presence of some androgynous traits in the sculpted body, apart from discussions generated around an anomaly in one of the mammae, which could be a representation of a mammary carcinoma (PALUZZI,

BELLI, BAIN et al., 2007). This same fact was also discussed by Stark and Nelson (2000).

Bondeson and Bondeson (2003) suggests that the Creator, represented in "Separation of light from darkness" presents some traits of a person who suffers from multinodular goiter. On the other hand, the same image is interpreted by others (SUK and TAMARGO, 2010) not as signs of some pathological disorder, but as a representation of the encephalic trunk. These contradictory facts makes us think about the influence of interpretations of the images by different researchers, pointing out the importance in having caution and prudence concerning the statements and interpretations done by the authors whose studies are in discussion.

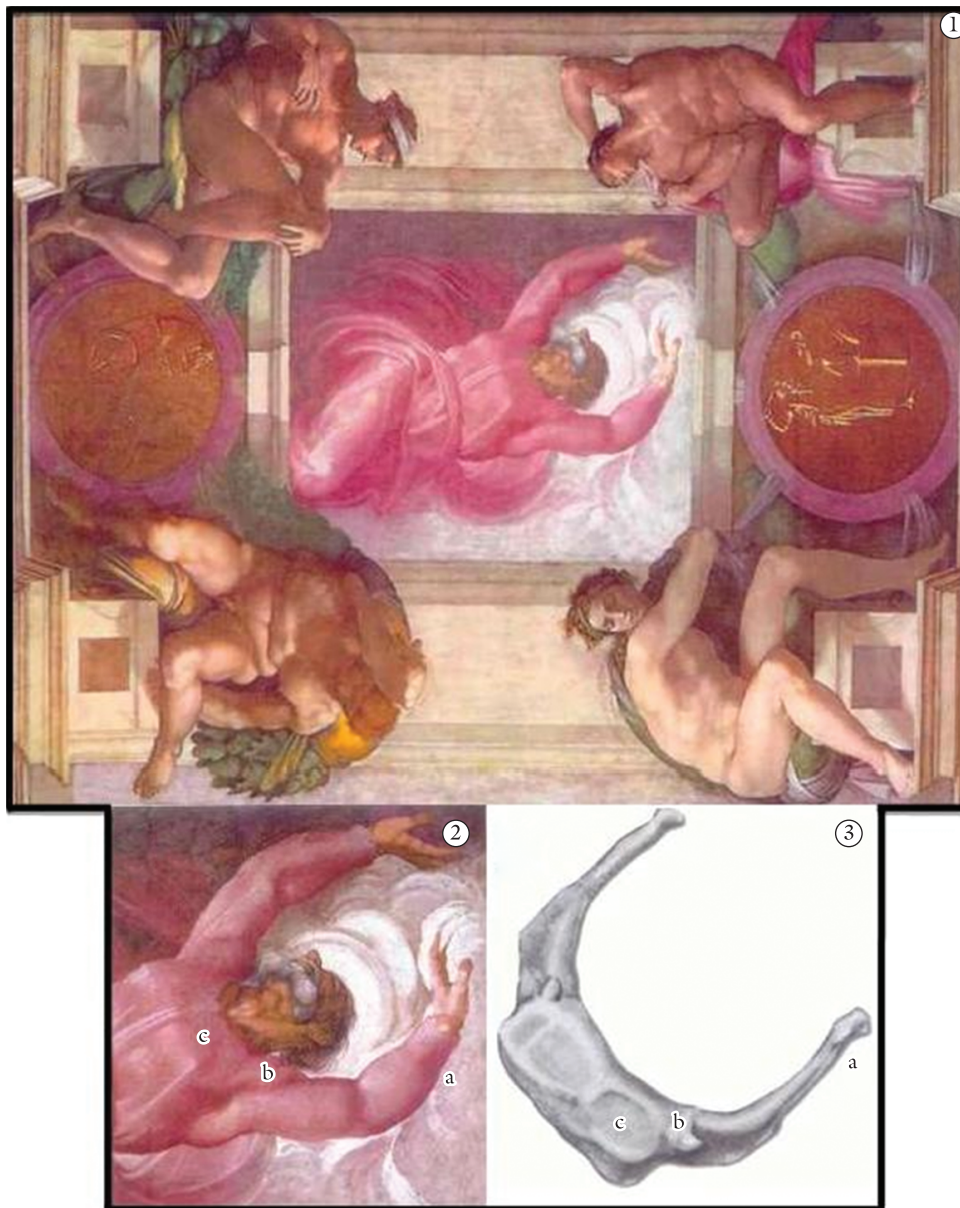


Figure 3. 1) "Separation of light from darkness". 2) Detail of the position of the Creator. 3) Representation of the hyoid bone. Watching these two tables is possible to associate the position of the Creator with the greater cornu (a), lesser cornu (b) and the body of the hyoid bone (c). (Adapted from Barreto and Oliveira (2004)).

The presence of the kidney image in Michelangelo's works was extensively discussed by Eknoyan (2000). According to the evidences presented in his study, the artist suffered from renal complications, being quite intriguing the inclusion of the kidney figure in "*Earth's waters separation*". As reported by the author, the use of kidney image in this work represents the separation of liquids (water) from solids (earth), which suggests that Michelangelo knew about the function and anatomy of this organ in the manner it was understood at the time he made the work.

Also intriguing are the many possible presences of figures from organs and bony structures in the paintings made by Michelangelo at the Sistine Chapel ceiling, suggested by Barreto and Oliveira (2004) on the book "*A arte secreta de Michelangelo: uma lição de anatomia na Capela Sistina*" published in Brazil. In this book, the authors carried out and discussed many anatomical structures associations inserted on Michelangelo paintings, as in "*Libyan sibyl*", "*Judith and Holofernes*", "*Separation of light from darkness*", "*Salman, Booz and Obeth*" and "*Creation of Eve*". Works that we think deserves to be mentioned.

According to Barreto and Oliveira (2004), in the "*Libyan sibyl*" painting (Figure 1, frame 1), when the vestment which covers the Sybil is inverted (Figure 1, frame 2), it is possible to notice a huge resemblance between the shoulder articulation with the glenoid cavity (a) and the humeral head (b) (Figure 1, frames 2 and 3). On frame 1 (Figure 1)

it is also possible to realize that the highlighted cherub points to his own shoulder as well as the *putti*, who besides pointing to their own shoulders stare and examine them. The left shoulder of Sybil it is highlighted in the image too.

In "*Judith and Holofernes*" (Figure 2, frame 1), a painting with a biblical theme in which Judith seduces general Holofernes and then behead him, it is interesting to note that Holofernes is represented with his right arm upwards and his left thigh flexed (Figure 2, frame 2). The Holofernes body position it is comparable with the second vertebrae, named axis (Figure 2, frame 3).

The comparison of image with odontoid process is represented by letter "a" in both frames. Still on frame 1 (Figure 2) it is possible to notice on the image Judith's nape, disposed in the middle, and in the top of the painting – portion of the work presented only on detail – it is observed two slaves pointing their forefingers exactly to their nape, where axis is precisely located (Figure 2, frame 4).

It is possible to notice the representation of hyoid bone on "*Separation of light from darkness*" (Figure 3, frame 1). In the center of image it is noticed that the position of the arms of Creator is showed in a manner which resembles to the bone in question. Barreto and Oliveira (2004) draw the attention to the position of Creator, which is represented with a stretched neck evidencing the location of hyoid bone. They also described that three of four *ignudi* appear on image hiding their necks, excepting for one showing his neck

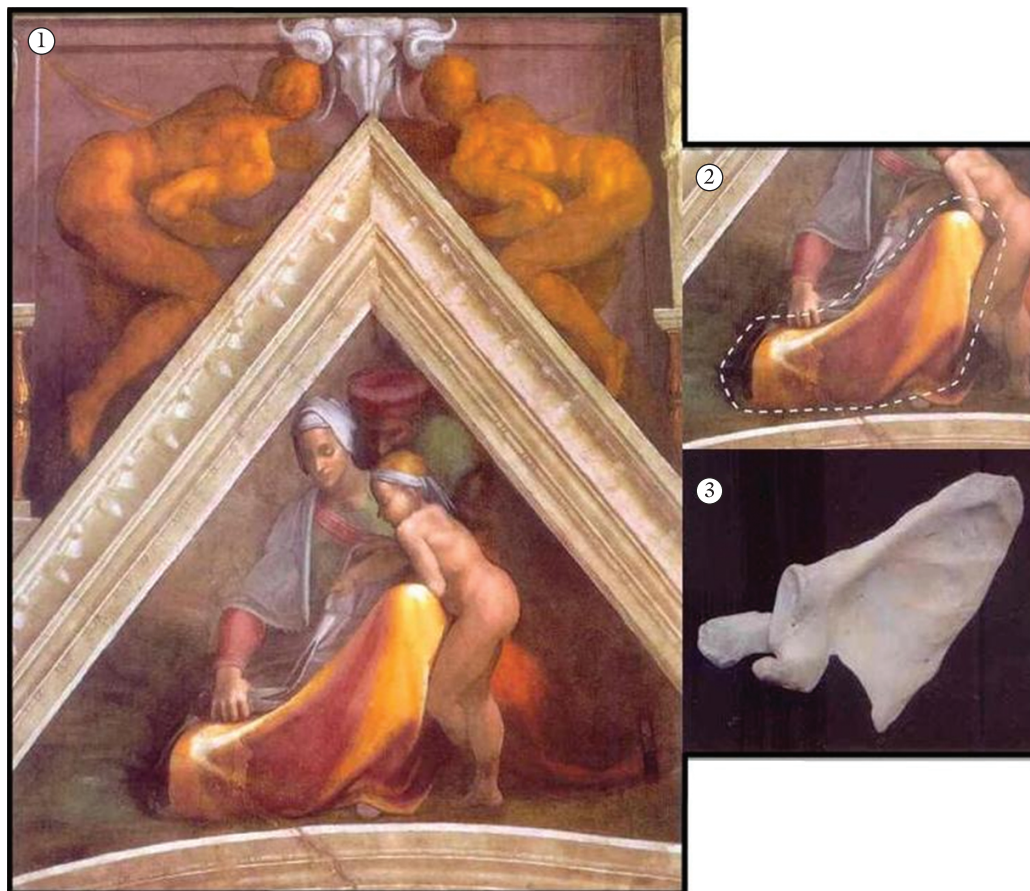


Figure 4. 1) "*Salman, Booz and Obeth*". 2) The scapula as seen from above, can be associated with the garment shown the female figure. 3) Photograph of a scapula. (Adapted from Barreto and Oliveira (2004)).

and pointing to the position of the bone. The bony structure as well as the arms of Creator resemble very much with U-shaped form. In frames 2 and 3 (Figure 3) it is possible to realize the similarity between the image and the structures of the bone: the greater cornu (a), the lesser cornu (b), and the body of hyoid (c).

In “*Salman, Booz and Obeth*” (Figure 4, frame 1) it is possible to notice that the vestment of female figure represented on image resembles very much with a scapula (Figure 4, frames 2 and 3), being quite intriguing the position of the child and also of the slaves in the top of the painting, since they are exhibiting the scapular region (Figure 4, frame 1).

Still, we consider relevant to show the associations made by the authors in “*Creation of Eve*” (Figure 5, frame 1). On this image the robe which covers God is shown disproportional in relation to its feet and it is possible to realize that the shape of robe is very similar to the lateral view of the left lung

(Figure 5, frames 2 and 3). In the same painting, Barreto and Oliveira (2004) also made the association between a trunk of a dry tree (Figure 5, frame 1) – which they concluded to be unusual in a painting that shows the paradise – and a trifurcated segment of the bronchial tree (Figure 5, frame 4).

All the associations made by Barreto and Oliveira (2004) presented in this study stimulate the curiosity of those who analyze these art works, and some of these might seem undeniable. However, this point of view is not shared by some researchers. The associations made by authors are strongly criticized by Kickhöfel (2004). In a deep review of the book, Kickhöfel argued that the associations are unsustainable after a detailed analysis and that Barreto and Oliveira (2004) do not possess the proper academic formation to fulfill this sort of work (Barreto is Physician and Oliveira is Chemist), and concludes that the book “[...] cooperate for the nescience of the common sense related to science and to the strict methods of historical investigation [...]” (2004, p. 442).

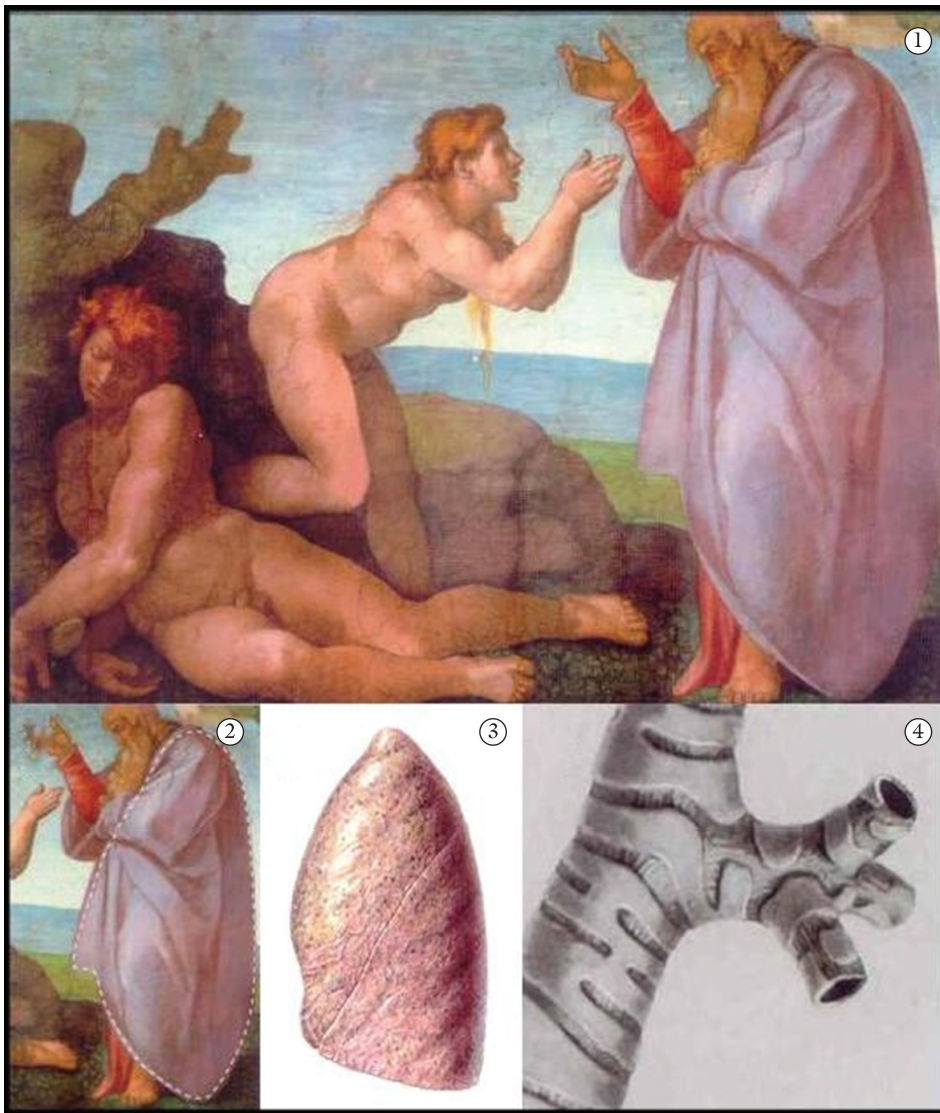


Figure 5. 1) “*Creation of Eve*”. 2) Details of the mantle of the Creator that matches the shape of the left lung. 3) Drawing of the left lung in lateral view. 4) Representation segment had three divisions of the bronchial tree. (Adapted from Barreto and Oliveira (2004)).

4 Conclusion

The associations made in this work, both those carried out by Barreto and Oliveira (2004) such as those already made by other authors, promote discussions around their legitimacy and their scientific, historic and artistic importance. These associations are truthful for some, and make us try to elucidate what is the importance of it in Michelangelo's works and put in question the reasons that lead the artist to create them. On the other hand some people believe that the same associations might be just the creativity of the researchers that was put to work, or even results of the lack of knowledge of those who execute this kind of analysis. But, true or false, the associations presented here seem to be curious and after all emphasize the geniality and beautifulness of Michelangelo's art works, which is unarguable.

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