

The depiction of lungs and cardiac silhouette in the Saint Francis of Assisi with Angels by Sandro Botticelli (1445-1510)

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To the Editor,

The appreciation of pulmonary anatomy by the genius renaissance artist Sandro Botticelli in *The Primavera* and *The Birth of Venus* have been described by Davide Lazzeri (1). It is increasingly recognized that prominent renaissance artists did have a drive to better understand and study gross anatomy as a means to enhance their artistic outputs. Botticelli may have not been considered anatomically expert amongst his peers at the time and was less acknowledged in his later years; having been 're-found' by the Pre-Raphaelite movement. However, there is now increasing evidence of Botticelli's deep anatomical expertise whose insights contributed to some of his greatest works and who anatomical message may have been purposefully presented in a format accessible to only a handful of fellow virtuosos.

On studying *Saint Francis of Assisi with Angels*, only recently attributed to Botticelli in 2002, I notice that the Assisi figure is surrounded by heart-faced angels in the direct fashion of the cardio-pulmonary silhouette with the angel wings further representing the fuller body of the lung with lobes. Here the Assisi's cross (and head) also corresponds to the direction and geometry of the aortic arch and furthermore approximates the anatomical crossing of the great vessels (aortic arch and pulmonary artery branches that form an anatomical cross). The five angels on each side correspond to cross-sectional hilar constituents that depending on the level of dissection could be the five components of one pulmonary artery, two pulmonary veins and 2 bronchi.

When studying other Botticelli works, it is increasingly clear of his appreciation of both pulmonary

and cardiac anatomy in his masterpieces, such as the concealed image of the heart in the *Madonna of the Pomegranate* (2). These works of art were all completed in the late 1470s and maybe considered a particularly prodigious time for the artist and re-emphasize his luminary status. Together, these anatomical findings add to the virtuosity and brilliance of Botticelli in depicting accurate human anatomy in his paintings and highlight the role of topographical sciences and studying the human form for the presentation of both anatomical and abstract ideas in renaissance art.

References

1. Lazzeri D. Concealed lung anatomy in botticelli's masterpieces the primavera and the birth of venus. *Acta Biomedica*. 2017;88(4):502-9.
2. Lazzeri D, Al-Mousawi A, Nicoli F. Sandro Botticelli's *Madonna of the Pomegranate*: The hidden cardiac anatomy. *Interactive Cardiovascular and Thoracic Surgery*. 2019 Apr 1;28(4):619-21.

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