

# Cranio-facial deformity in the Botticelli's "Portrait of a Young Man" (NG626)

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## Proceedings

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## Abstract

The Author report on the cranio-facial features he observed in the tempera and oil on wood "Portrait of a Young Man" that Sandro di Mariano Filipepi (1445-1510), known as Botticelli, painted in Florence in 1483, presently housed in London, at the National Gallery (NG626) (Fig. 1). As for the Author opinion, the painting shows a cranio-facial asymmetry associated with a right-convex facial scoliosis. The proposed conjecture is that the young man of Botticelli may exhibit the evidence of the long-term outcome of a mild to moderate non-synostotic cranio-facial deformation. From the clinical point of view, this condition is known as "positional plagiocephaly". Some questions are raised on the realistic depiction of the facial deformity of the young men. It may be interpreted as an emphatic description of the personal history and character of the sitter. As an alternative, it could represent the individual, deliberated choice of the Painter, who artistically dramatized perspective and proportions to amplify the emotional effect of the portrait. The clinical and functional features of non-synostotic cranio-facial deformations will be discussed, together with the diagnostic criteria, the natural history and the acknowledged treatment protocols to be applied as best practice on real patients.

## Keywords

Botticelli, *Portrait of a Young Man*, medical diagnosis, cranio-facial asymmetry, facial scoliosis, positional plagiocephaly.

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## Introduction

During the second half of the XV<sup>th</sup> century, the Artists of the Italian Renaissance were urged by the desire to master the representation of human body. All of them, especially the scholars grown in the cultural medium of Florentine "bottegas", developed an authoritative skill in portraying the human physiognomy. Their ability to reproduce the likeness, liveness, harmony and proportion of the human face was so mysteriously perfect that Leonardo da Vinci himself sustained: "*we [painters] by our art may be called the grandson of God*" [1].

Botticelli was one of those Artists able to portrait faces that speech and breath, that seem alive but lack only the voice. His technical skills were "*the pinnacle of what is draughtsmanship*" [2]. Sandro Botticelli was "*...the greatest artist of linear design Europe has ever had*" [3] and should have been considered within the "*grandsons of God*".

In his career, Botticelli painted a number of portraits. Many of them are idealized paintings, probably not representing a specific individual subject. In all the portraits Botticelli used to reproduce the physiognomic peculiarities of the sitters, should they be real people, with the details needed to guarantee their clear detectability, or part of a "*stock vocabulary of feature types and subtypes*" [4].

In the present paper we describe the physiognomic cranio-facial features depicted by Sandro Botticelli in the "*Portrait of a Young Man*" tempera and oil on wood, housed at the National Gallery in London, UK (NG626) (**Fig. 1**). In our opinion, it is possible to recognize in the portrait the evidence of cranio-facial anomalies consistent



**Figure 1.** Sandro Botticelli: "*Portrait of a Young Man*". Tempera and oil on wood, 1480-1485, National Gallery (NG626), London, UK.

with the long-term outcome of an untreated mild to moderate non-synostotic cranio-facial deformation (positional plagiocephaly).

## **Portrait of a Young Man**

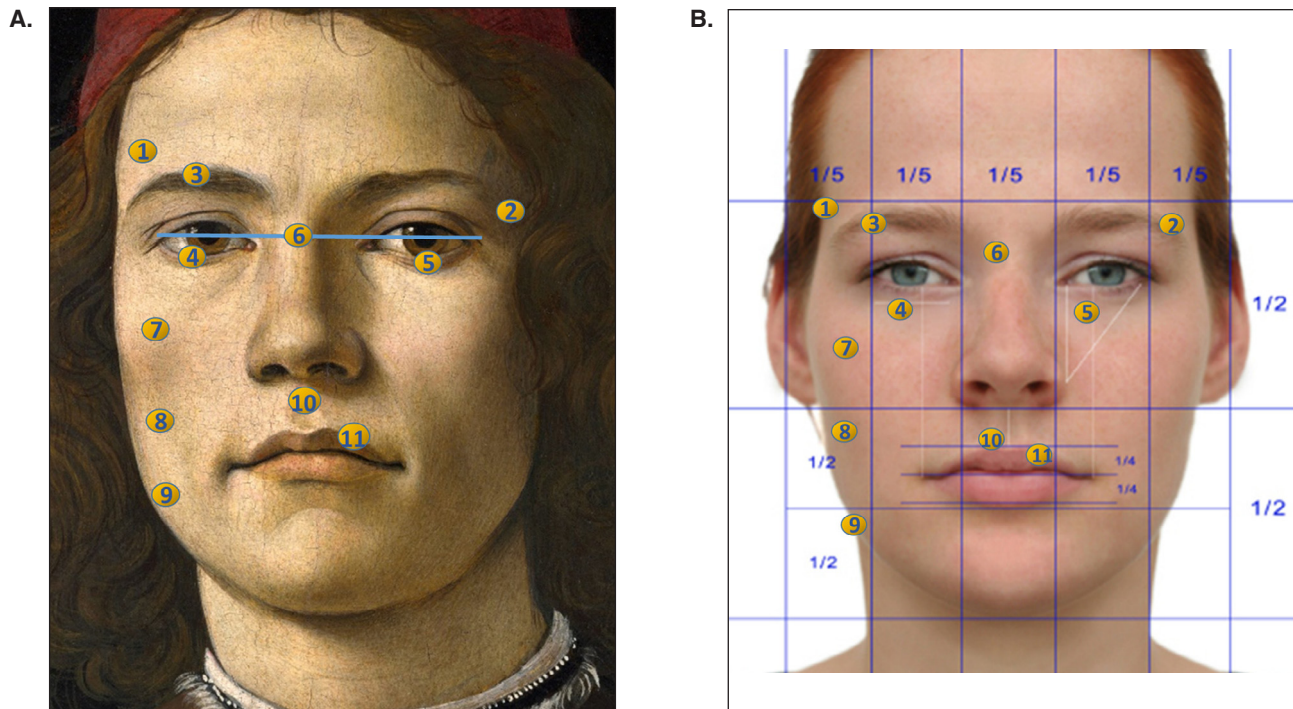
The tempera and oil on wood NG626, housed at the National Gallery in London, UK, represents the "*Portrait of a Young Man*" painted in 1483 by Sandro di Mariano Filipepi (1445-1510), known as Botticelli (**Fig. 1**).

This artwork exhibit the brittle portrait of a young man standing out from a black background. He is slightly less than life-size, has brown eyes that stare challenging to the crowd and wears a tunic of a color that matches his eyes, together with a red hat, known as a 'beretta'.

The body of the sitter is symmetric, the torax and the shoulders are standing straight, the head and the sight are directed forwardly, far away along an imaginary midline.

On the contrary, the forehead and the face show striking asymmetries (**Fig. 2**):

1. the bow of the frontal bandeau is irregular, for a more prominent bulging on the right side,



**Figure 2.** Morphologic features describing facial asymmetries observed in the Botticelli's "Portrait of a Young Man" (A) compared with a normally symmetric facial appearance (B).

1. The bow of the frontal bandeau is irregular, for a more prominent bulging on the right side.
2. The left pterional region appears more prominent than the contralateral.
3. The right orbital rim is displaced anteriorly, compared to the left one.
4. The right eyeball is more prominent than the left one.
5. The left eyeball is displaced downwardly and backwardly compared to the right one.
6. The interpupillary line is bending downwardly on the left side.
7. The right zygomatic process is more prominent than the left one.
8. The right maxillary region is more prominent than the left one.
9. The right emi-mandibular bone is more arcuate than the left one, that appears flatter with a posteriorly displaced mandibular angle.
10. The philtrum and both right and left philtral columns are directed toward left.
11. The left upper lip is elongated outwardly, as well as the upper vermilion border.

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Due to all these cranio-facial asymmetries the facial midline (a line connecting the midline interfrontal point, the glabella, the nasion, the nasal bridge, the columella, and the philtrum with the mental protuberance) describes a bowed line with right convexity, typical of the facial scoliosis (Fig. 3).

Considering all these features, together with the age of the model and his general healthy complexion, we could suppose that the man portrayed by Botticelli shows the signs of a cranio-facial deformity.

Undoubtedly, we need to consider the possibility that Botticelli did not produce a wholly accurate portrait, and his picture cannot claim photographic accuracy. Obviously, there may be a risk of misinterpreting artistic choices as facial deformities.

The safest way to overcome this risk of misinterpretation would have been, obviously, to let the young man undergo a proper and complete clinical evaluation, including multilateral



**Figure 3.** The facial features expressed by Sandro Botticelli's "Portrait of a Young Man" are typical for facial scoliosis. The segments connecting the midline interfrontal point, the glabella, the nasion, the nasal bridge, the columella and the philtrum with the mental protuberance describe a right convex arch.

observations. The limit is clearly represented by the availability of a single frontal image portrayed by Botticelli, who did not care to produce a complete set of images as for the portfolio to be included in the clinical chart of a real patient.

With this aim of obtaining a more complete analysis of the physiognomy of the young man featuring in the portrait, we decided to produce a digital 3D reconstruction of his face. The goal was to artefactually observe the cranio-facial anomalies from different standpoints, as usually performed in the clinical diagnostic process in real patients. To reach this complex target we decided to take advantage from the system developed and published by Aaron S. Jackson and coll. [5].

Typically, 3D face reconstruction poses extraordinary difficulties, as it requires multiple images.

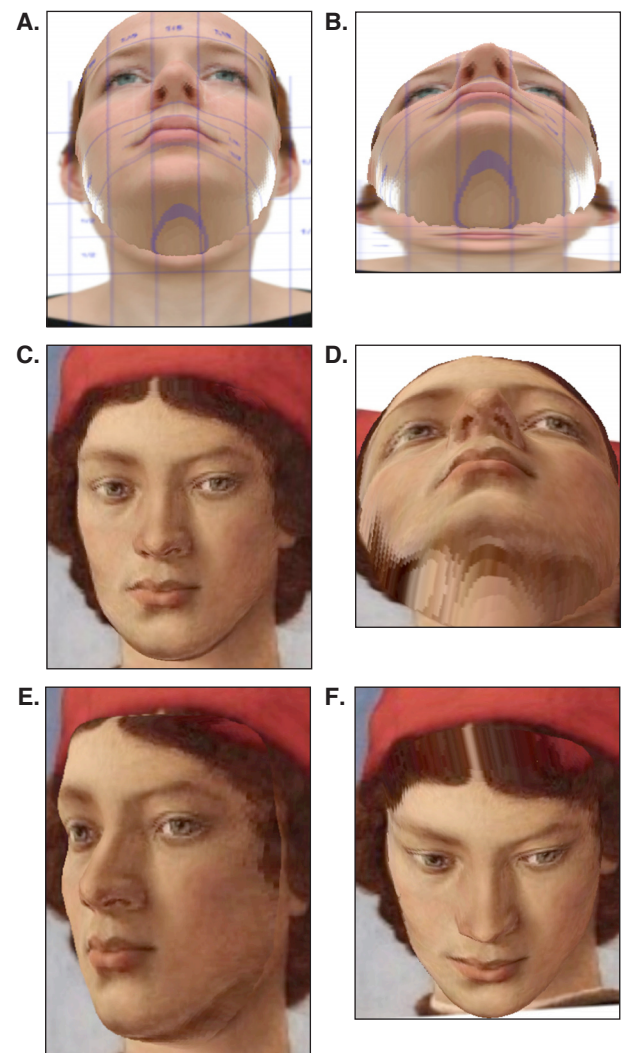
To overcome some of the challenges of 3D face reconstruction the Researchers have developed a system that relies on a convolutional neural network (CNN).

The network may learn how to map a face from pixels to 3D coordinates, and essentially works with any picture of a face. By training a neural network on a dataset of both 2D images and 3D facial models or scans, the algorithm can reconstruct the entire

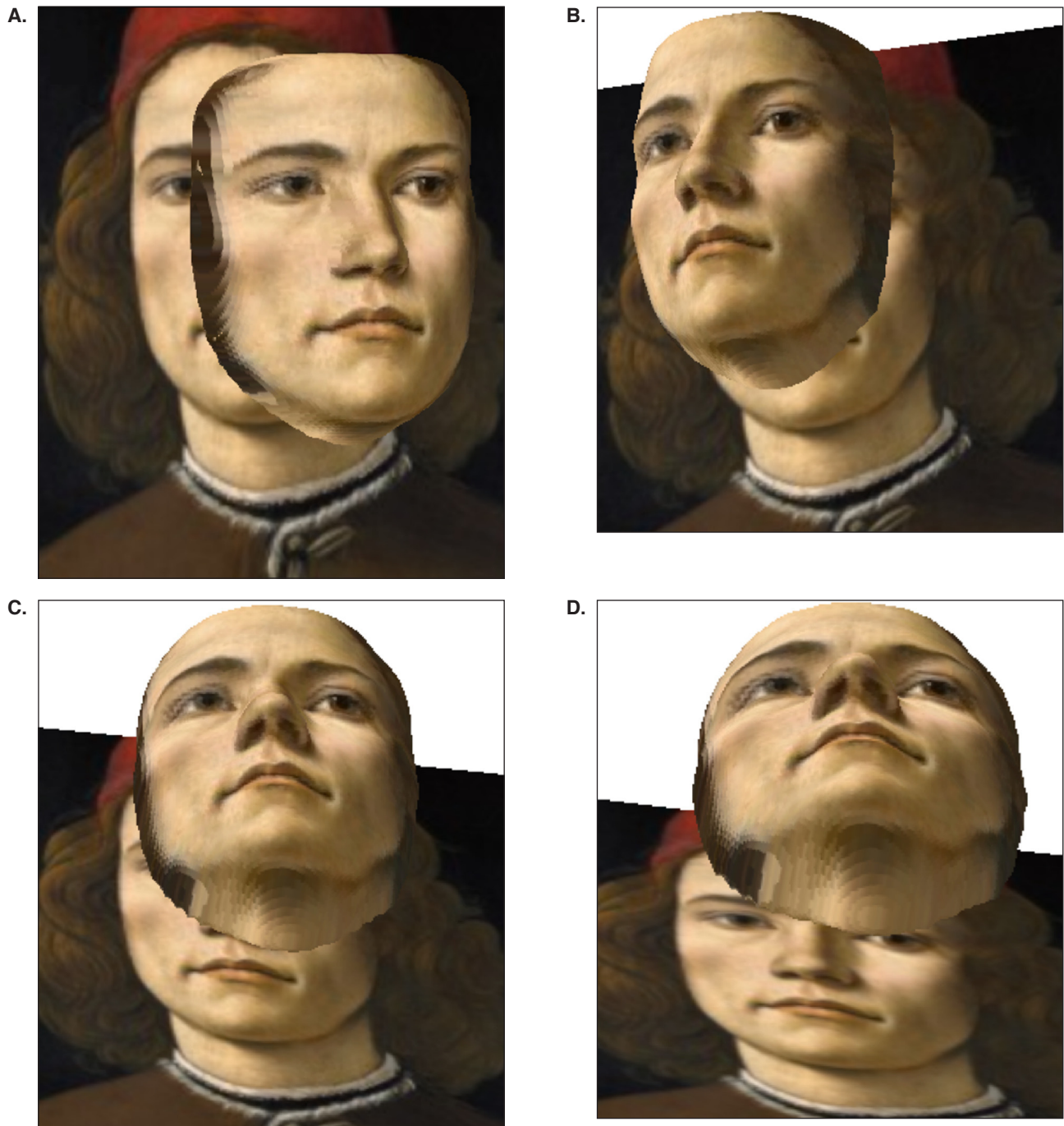
face, even adding in parts that might not have been visible in the photo.

The algorithm can also create a 3D model of the face just by looking at a single image, using a frontal photo, or as close to this as possible, as is the case of the Botticelli painting, with the advantage of suffering negligible spatial and volumetric artifacts (**Fig. 4**).

The observation of the planar images of the "Young Man" depicted by Botticelli, together with their tridimensional volumetric reconstruction (**Fig. 5**), allows the clear definition of a cranio-facial deformity characterized by an "en block" torsional advancement of the right skull and face, that seems



**Figure 4.** The algorithm proposed by Aaron S. Jackson and coll. [5] allows to create a 3D model of the face just by looking at a single frontal image. The advantage of suffering negligible spatial and volumetric artifacts is demonstrated as an example (**A, B**) in the application on the same model's face shown in **Fig. 2B** as well as in Filippino Lippi's "Portrait of a Youth" (National Gallery of Art, Washington DC, USA) (**C, D, E, F**).



**Figure 5.** The digital 3D volumetric reconstruction of the Sandro Botticelli's "Portrait of a Young Man", obtained by the convolutional neural network proposed by Aaron S. Jackson and coll. [5], allows the clear definition of a facial scoliosis, characterized by an "en block" torsional advancement of the right skull and face. The cranio-facial structure of the young man appears pivoted leftward around the median vertical axis.

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### Differential diagnosis

Should we aim at a possible and reasonable nosographic identification of the dysmorphic conditions expressed in the portrait by Botticelli, we

cannot disregard the analysis of all the causes that may determine a lateral deviation of the mandible.

According to the data obtained from the magisterial work by Henry K. Kawamoto and al. [6], we may straightforwardly rule out any genetic (cranio-facial synostosis, hemifacial microsomia, hemifacial hyperplasia) or idiopathic disorder (condylar hyperplasia, condylar arthritis,

hemimandibular hyperplasia, Parry-Romberg syndrome) as well as any consequence of a facial traumatic lesion (facial, mandibular or condylar fractures).

Conversely, the diagnosis of deformational plagiocephaly (whether associated or not to a muscular torticollis) seems to be the most likely.

Deformational (nonsynostotic) plagiocephaly is a common condition affecting the pediatric population. Its prevalence is increasing after the 1992 Back to Sleep Campaign [7] aimed at having children sleep in the supine position to prevent sudden infant death syndrome. In the growing cranium of the infant, consistently sleeping in one particular head position can lead to further flattening of that posterior head region. Facial asymmetries may be observed in moderate to severe cases [8].

Untreated deformational plagiocephaly may lead to head tilt and limited range of neck motion. A parallelogram distortion of the cranium and the cranial base can be seen in both deformational plagiocephaly and torticollis. This is characterized by anterior displacement of the ear, frontal bossing, and occipital flatness on the side of posterior force from supine positioning. The distortion at the base of the cranium leads to a secondary malposition of the mandibular condyle. The mandible is deviated contralaterally to the side of the occipital flattening. On the ipsilateral side, the mandibular volume and body length may be increased, whereas the ramal height may be decreased [6].

As for the latest clinical criteria, deformational plagiocephalies benefit of a fairly substantive body of non-randomized evidence (*Congress of the Neurological Surgeons Systematic Review and Evidence-Based Guideline on the Management of Patients with Positional Plagiocephaly*) that underline the advantages to the patients due to an early diagnosis associated to:

- physical therapy [9]:
  - physical therapy is recommended over repositioning education alone for reducing prevalence of infantile positional plagiocephaly in infants 7 weeks of age,
  - physical therapy is effective for the treatment of positional plagiocephaly and recommended over the use of a positioning pillow in order to ensure a safe sleeping environment and comply with American Academy of Pediatrics recommendations;
- orthotic therapy [10]:
  - helmet therapy is recommended for infants with persistent moderate to severe

plagiocephaly after a course of conservative treatment (repositioning and/or physical therapy).

The conclusion that the young man of Botticelli may exhibit the evidence of the long-term outcome of an untreated mild to moderate non-synostotic cranio-facial deformation (positional plagiocephaly) appears the most stimulating. From a clinical point of view, in our time, it would have been classified as “type IV”, according to the classification proposed by Louis Argenta in 2004 [11].

## Discussion

Sandro Botticelli was born in Florence in 1445, in Borgo Ognissanti, where he spent all his life and where he was buried in 1510 [12, 13].

He was the youngest of four children of a well-known Florentine tanner named Mariano. The name “Botticelli” (which means a small wine cask in Italian) was acquired from his eldest brother Giovanni, a leather merchant who was nicknamed “Botticello” as a reference to the barrel that was a sign of his shop.

Giorgio Vasari reported [13] that Botticelli was initially trained as a goldsmith. Sandro started his artistic career when he was about fourteen years old with an apprenticeship in the workshop of Fra Filippo del Carmine (Filippo Lippi) in Florence, described as “*a most excellent painter of that time*” [14], one of the top Florentine painters of the day, often patronized by the Medici. Filippo Lippi taught him a solid technique in painting and drawing.

In the second half of the 15<sup>th</sup> century the city-state of Florence was ruled out as a republic governed by the Signoria. The Citizens elected a council consisting of eight Priors and the Gonfaloniere (Standard Bearer) of Justice, a position that changed hands every two months. By controlling elections, the Medici family dominated power from 1434 to 1494, starting with Cosimo the Elder (Florence 1389-1464), succeeded first by his son Piero il Gottoso (Florence 1416-1469), and then by Lorenzo il Magnifico (Florence 1449-1492).

Being in favor with the Medici was essential in politics and business as well as in the awarding of public and private art commissions.

Filippo Lippi and Andrea del Verrocchio were within the group of artists leading a “bottega” enjoying the valuable patronage of the Medici family. At the start of his career, Sandro Botticelli was merged with the experience of these versatile studios, oriented at the satisfaction of the most

demanding requests from their Florentine contractors (that included the wealthy and powerful Rucellai and Vespucci families). Sculptors, goldsmiths and painters (like the young Leonardo da Vinci) were apprenticed in those “bottegas”.

Botticelli was most active in those years, opening his own workshop by 1470, which by 1472 included the young Filippino Lippi, son of his master. He had patrons in the highest circles. In the aftermath of the Pazzi conspiracy in 1478, when over 70 Florentines were executed for plotting against the Medici, he was hired to portray on the facade of the Palace of Justice the ringleaders’ hanged bodies.

Botticelli paintings allude to Neo-Platonist theories circulating at the Medici court [12, 15]. He was influenced by the Neo-Platonic teachings of Marsilio Ficino (a humanist philosopher) and Poliziano (an Italian classical scholar and poet) in the Medici entourage. He employed “*a new mature style that was inspired by a combination of the typical elegant courtly style of painting and the hallmarks derived from the investigation and analysis of classical templates. The consequence of this melting was a style that was simultaneously nuovo (new) and antico (old), which was depicted for the first time in The Primavera (The Spring, c. 1478; Uffizi Museum, Florence) and reached a highpoint in The Birth of Venus (c. 1484; Uffizi Museum, Florence)*” [16].

In 1481, Pope Sixtus IV summoned Botticelli and other prominent Florentine and Umbrian artists to fresco the walls of the newly completed Sistine Chapel.

Botticelli returned from Rome in 1482 with a reputation considerably enhanced by his work there.

He obtained many religious commissions, larger and more rewarding than before [16]. Clearly influenced by the monumentality of Masaccio’s painting, Botticelli learned a more intimate and detailed manner of painting from Lippi. “*Even at this early date, his work was characterized by a conception of the figure as if seen in low relief, drawn with clear contours, and minimizing strong contrasts of light and shadow, which would indicate fully modelled forms. Lippi’s synthesis of the new control of three-dimensional forms, tender expressiveness in face and gesture, and decorative details inherited from the late Gothic style were the strongest influences on Botticelli*” [17].

The artist’s performance and inspiration faded implacably in the last two decades of his life, and by the time of his death, his reputation had already vanished. Overshadowed by the establishment

of Michelangelo’s and Raphael’s style in the High Renaissance period, which Vasari renamed “*The modern manner*” [13], Sandro Botticelli’s reputation and contribution virtually melted away until his rediscovery in the 1890s. At the end of the 19<sup>th</sup> century, he was greatly acclaimed, especially in England, by the Pre-Raphaelites, who found that he legitimized their style, combining sensuality and immateriality [18].

Coming back from Rome, Botticelli painted as well several portraits. They were usually small panel portraits and show the sitter to the torso or the bottom of the rib cage. Women were normally in full profile, or just a little turned. Men were normally represented in a “three-quarters” pose, almost never completely frontal. Even when the head is facing more or less straight ahead, a difference between the sides of the face was created and enhanced through a skillful creative lighting. Backgrounds were in most cases monochromatic and undecorated. Only a few have developed landscape backgrounds. When they do, as through an open window, usually just a patch of sky is visible, without any particularly detailed backdrop.

The humanistic culture of Italian Renaissance focused the representation of human physiognomy in idealistic forms, neglecting the realistic evidence of anatomic features. Rather than rendering the actual aspect, the issues related to a generic typicality were privileged, thereby ruling out the likeness and the specificity in portraying the sitter. This attitude has determined the exiguous occasions in which anomalies of the human figure, yet more of skull and face, were depicted, at least as long as Neo-Platonism dominated the artistic scene in Southern Europe.

Likewise, many of the portraits of Sandro Botticelli represent idealized characters and do not necessarily represent a specific individual person. In all his portraits, however, the Artist used to reproduce the physiognomic peculiarities of the sitters, should they be real people or part of a “*stock vocabulary of feature types and subtypes*” [4], with the details needed to guarantee their clear realistic detectability.

In the “*Portrait of Giuliano de’ Medici*” (in three versions: National Gallery of Washington; Accademie Carrara, Bergamo; Gemäldegalerie, Berlin), Giuliano is depicted by three-quarters, the head slightly turned toward right, giving the sitter an almost profile position. His facial features are clearly identified: the deep groove crossing the forehead of Giuliano is distinctly depicted, as well

as the pointed nose, the thick curly hair, the weak chin, the thin upper lip in contrast with the full lower lip.

The identity of the young man portrayed in the tempera on panel housed at the Uffizi in Florence “Portrait of a Man with the Medal of Cosimo de’ Medici the Elder” has never been agreed. However, the art historian George Noble Plunkett describes the physiognomic features of the young man and identifies whom he believed the sitter portrayed: “... one realizes painfully that this is the Piero who has left an indelible stain on the Medici family by his betrayal of Florence. The small covetous eyes, the ignoble nose, the pursed animal mouth, with only the restraint of selfishness on it, the very manner in which he holds up the memorial of his house’s founder, as though it were his badge of honor!” [19]. The “Piero” identified by Plunkett was Piero di Cosimo de’ Medici, later called Piero “il Gottoso” or “the Gouty”. He was the son and successor of Cosimo de’ Medici.

Sandro Botticelli painted the “Portrait of a Young Man”, No. 626 in the National Gallery, London, most probably while in Florence, around 1483/1484, during his years of high popularity, just coming back from the summoning of Pope Sixtus IV. Due to the sculptural and heroic style of the painting, the Botticelli authorship has been debated, as the portrait was originally attributed to the more famous Giorgione, Filippino Lippi or Masaccio. Indeed, Botticelli was scarcely known after his death. J.P. Richter, in his “Italian Art in the National Gallery” [20], first pointed out that the portrait was by Botticelli. It is only within the crossing of the XX<sup>th</sup> century that the name of its real author has been substituted for the name of Masaccio. His sublime art was re-evaluated by John Ruskin [21], Dante Gabriel Rossetti [2] and Walter Pater [22]. The painting has been later re-attributed to Botticelli in 1922 by Berenson [2]. Finally, the attribution was further confirmed by Fry and Mesnil in 1967 [23].

The portrait represents the head and shoulders of a young man, with a “mazzo” of reddish brown hair, seen in full face, against a dark background. He wears a red “beretta” or cap, and a brown tunic edged with fur, and tied at the throat with a lace [24].

The painting was possibly part of his private commitments from wealthy merchant families in Florence.

At that time, most portraits made in Florence and elsewhere in Italy were profile views. This one present an unusual almost complete frontal view. In

fact, this is the only known “en face” portrait by Botticelli. Even its format is unusual, as the painting may have originally been larger.

*“The idea of the portrait was revolutionary when this was painted. Botticelli was one of the first Italian painters to depict anyone face-on: earlier portraits such as Pisanello’s Leonello d’Este were in profile. Perhaps this isn’t even a portrait so much as a delineation of the ideal. In Renaissance Florence the male form was celebrated as heroic and noble. He doesn’t wear courtly clothes, just something simple. He’s proud of his good looks, that flowing hair – like the hair Botticelli gives the god Mars in his Venus and Mars. His brown eyes fix us, giving nothing away, yet challenging us to understand. He’s slightly less than lifesize, a strange effect”* [25].

The portrait was displayed in the Northwick Collection at Thirlestane House, Cheltenham, Gloucestershire, UK where it passed as a portrait of Masaccio, and as such, it was exhibited at the Art Treasures Exhibition, held at Manchester in 1857. “At the sale of the Northwick Collection, at Thirlestane House, in 1859, the picture was bought for the National Gallery (Lot 11 27) for £ 108 3s” [24].

As for the personal information obtained directly from Caroline Campbell (The Jacob Rothschild Head of the Curatorial Department at The National Gallery, London) and Alexander Roestel (Simon Sainsbury Curatorial Fellow – Paintings before 1500 – The National Gallery, London) we learned that: “...the earliest record we have informs us that Lord Northwick acquired the portrait at a Christie’s auction in 1804. The copy of the auction catalogue to which I had access contains a note identifying the previous owner as Colonel Matthew Smith about whom little is known beyond his naval career and role as the Major of the Tower of London. I am currently trying to find out more about Colonel Matthew Smith in order to ascertain whether we may be able to trace the provenance of the painting back even further” [25].

With the exception of the early and much damaged head of one of the Medici, in the Gallery of the Uffizi, No. 1 154, this is the only portrait on panel by Botticelli’s hand which has come down to us. It is “...admirable as are some of the heads in the Sistine frescoes, we possess no finer example of his art as a portrait-painter. In its direct and unaffected endeavor to present those outward lineaments, which reveal character and temperament, no less than in the simplicity of its means, this admirable



head is comparable to the portraits of the great northern masters. Those who think that bizarre traits of invention, an exotic sentiment or a strain of profound melancholy, are invariable qualities of Botticelli's manner, would do well to take this, one of the finest Florentine portraits of the fifteenth century, as the touchstone of what Botticelli was able to achieve in the region of purely humanistic art" [26].

Unfortunately, we do not know anything about the identity of the sitter, not to mention the original context of the painting.

The absence of a "cartiglio" with the arms and the family name on the portrait of this not "universally known character" let us to suspect that the young man Botticelli decided to represent was not the heir of a prominent Florentine noblest lineage, ready to get into politics. As an alternative, Botticelli may have been required to depict the young son of a wealthy merchant family, leaving for a war campaign, or just dead and never come back. This being the case, the striking and naturalistic representation of the facial deformity was functional to the remembrance of the loved ones.

We may also agree with Jones that "... the plain, work-a-day dress, the frank, disingenuous air and Tuscan head of the youth, suggest that it may be a portrait of some 'discepolo'" [24].

Furthermore, finally yet importantly, the character represented in the portrait may be a scholastic exercise, a master example of human physiognomy to be adopted by the pupils in the "bottega". Indeed, analyzing the Botticelli's style adopted for the commitments contemporary to the depiction of the "Young Man" in the London portrait, we should consider the series of four furniture panels with stories from the "Decameron" of Boccaccio. These are the earliest paintings designed, if not executed, by Botticelli after his return to Florence in 1482, to which a date can be assigned with any certainty. Vasari, in one of the passages inserted into the life of Botticelli, describes four pictures of little figures illustrating the Boccaccio's novel of "Nastagio degli Onesti" (the eighth novel of the fifth day): "In casa Pucci fece di figure piccole la nouella del Boccaccio di Nastagio degl'Honesti, in quattro quadri di pittura molto vaga, e bella." (In the Pucci's residence, he recolled with small figures the novel by Boccaccio about Nastagio degli Onesti, in four tableau painted in a faint and beautiful way) [14].

These pictures were painted to celebrate the marriage of Giannozzo Pucci with his second wife,

Lucrezia, the daughter of Piero di Giovanni Bini, in 1483. Each of them measures about 83 cm in height by 142 cm in width and probably formed the panels of the "spalliera" or panelled back, of a "lettuccio" or bench, fixed against a wall. All the four panels were certainly designed by Botticelli himself, although their execution appears to have been almost entirely carried out by assistants, and not, perhaps, in every case from a cartoon by the master. "These paintings remained in the possession of the Pucci family, in their palace in the Via de' Pucci, until 1868, when they were sold for a hundred thousand francs (about £ 4,000) to Mr. Alexander Barker, an English gentleman of London" [24]. Presently the first three panels are preserved in the Prado Museum in Madrid, while the fourth one (*The Marriage Feast*) is owned in a private collection at the Palazzo Pucci in Florence.

The story disclosed in the four panel paintings tells about Nastagio, who has been rejected by the woman he loves and has considered suicide. In the midst of his reverie, a knight on a horse, chasing a woman, appears. This rider did commit suicide, and the love of his life, the woman who had rejected him, rejoiced. Both were sentenced to repeat this chase over and over again, a chase which ends in the knight stabbing his beloved in her back, ripping out her heart and feeding it to dogs. The first two panels give details of the reverie and the lady lying on the ground with her body split open. The last two panels depict a feast. In the third, the setting is still that of the dreamed story, with the forest landscape and the knight chasing the woman. In the fourth panel, columns have replaced trees, tables and people create two strong recessional lines leading to a double arched opening in the background and a view of the sky through the arches. The decorative branches of trees hanging in the loggia and the loggia itself symbolized the two families united by Pucci's marriage. The overall meaning of the four paintings was that marriage was capable of bringing order to social disorder.

The last course of the banquet being brought to table, the linen table-cloths are strewn with roses and other flowers. Before each guest is laid a two-pronged fork, and a "tazza" or bowl, for the wine, "trebbiano" or "vermiglio". To the extreme left of the picture, four pages in hose and tunic bring in various dishes, filled with cakes ("berlingozzi"), rolled wafers ("cialdoni") and various fruits. On the other side, four other pages bring in other dishes full of cakes, "zuccherini" or sweetmeats of various kinds.

As Crowe and Cavalcaselle have noted in their *“History of Painting in Italy”* [27], although the fourth panel of the series is, perhaps, the most splendid in design, it appears certainly the feeblest of the series in execution, probably because of the much suffering due to retouching. Nonetheless, the hand of the master Botticelli manifests substantially, at least in the design of the cartoon.

Among this complex scenery, it is worth observing the pages in the foreground on the extreme right side of the painting. Relating to our analysis, the most medial of the group, carrying on the right hand a big dish full of sweet delights, seems the most interesting to us. His character appears well designed and thoroughly detailed. He shows an elegant posture and gives the idea to proceed in a well-balanced dance step. As for his physiognomy, his facial appearance, with his handsome square and masculine proportions and his brown, crispy hairline, strikingly features the Londoner *“Young Man”*.

In the light of these tentative observations, the character represented in the painting of the *“Young Man”* (housed in London, National Gallery) and the one represented in the fourth wood panel of the *“Story of Nastagio degli Onesti”* (Palazzo Pucci, Florence, Private Collection) may have some historic and artistic connections. Both of them, realized in the same geographic location, and more than that, in a unique personal and artistic phase of Botticelli’s life, could both be part of a *“stock vocabulary of feature types and subtypes”* [4] to be included in further, bigger and more complex painting scenarios.

A question remains about the reasons why Botticelli decided to depict in one of his painting a young man with the striking evidence of a facial deformity.

Lorne Campbell, in his essential contribution on the Renaissance portraiture published in 1990, underlined the distortions he observed in the *“Young Man”* portrait as the result of a multi-angle perspective, aimed at representing the most striking likeness. *“Different areas of the face are seen from different angles, for the artist has looked straight into the eyes and at the eyelids and lower lips but has chosen to view from below the chin, upper lip and nose, the areas between the eyelids and the eyebrows and the forehead. The eyes are so different in shape and the mouth is so completely asymmetrical that it can be stated with every confidence that Botticelli has exaggerated the irregularities of his sitter’s features”* [28]. A

just as much convincing opinion was expressed by Simona Di Nepi in 2008. *“The painter depicts his ideal of male beauty: the fair complexion, high forehead, fleshy lips and long chestnut curls. This physiognomic type recurs in many angels, gods and onlookers that populate Botticelli’s frescoes and panel paintings... But, unlike most of these unflawed figures, his lineaments reveal slight imperfections, such as the asymmetrical lips, differently shaped eyes and rebellious strands of hair that escape from beneath his cap. These irregularities contribute to a greater degree of individualization, ultimately convincing the beholder that this is a truthful likeness”* [29].

Obviously, the unbalanced facial feature of the *“Young Man”* from London may not be straightforwardly considered the result of a faulty technique, as Botticelli was credited at the highest level of the Renaissance draftsmanship. Instead, the historical transition in the cultural and political orientation in the late XV<sup>th</sup> century, the evolution in the pattern of the main institutional contractors, as well as in the requests of the sporadic and individual market players, may have acted as the trigger for an all-European artistic evolution.

Since the beginning of its history, the Western figurative art has privileged the representation of beauty, perfection and strength, together with the supremacy of deified heroes over the rest of humanity as well as over all living entities. The depiction of all human emotions, love, passion, compassion, modesty, anger, along with the cruelty of terror, violence and death completed the array of the ambiguous alliance between humankind and divinity. Based on the classic Egyptian, Greek, Roman and Byzantine contributions, during the Italian Renaissance, the canons of beauty dominated the expressive approaches and pictorial techniques addressed to the representation of human physiognomy. Proportions, symmetry and harmony ruled its value. The golden ratio, the Fibonacci sequence, the numerical rules given by Piero della Francesca in *“De Prospectiva Pigendi”* were the formulas to express the beauty of a divinized humanity.

During the late XV<sup>th</sup> century, new groups of contractors flowered, mainly in the Northern European countries. With the complicity of the reformist sentiment harboring in those wealthy bourgeois and merchants central European classes, a search for a less idealistic naturalism was favored. In Florence, the innovative and revolutionary Flemish style paralleled and even replaced the

emphatic Neo-Platonic style of the old commitments ordered by the Roman Church and the old noble Italian families. Extensive documentary evidence testifies that Flemish portraits were highly esteemed during the fifteenth century, commissioned by pre-eminent families and merchants trading with Bruges. Therefore, the objective representation of “imperfect” humanity and flawed settings gained dignity. Hence, portraying imperfect bodies or human deformities was no longer considered an oxymoron. The harmony of beauty was manifestly perceived even within imperfections and asymmetry. As for the major artists of the Italian Renaissance, celebrated for their heavenly technical skill and their extensive expertise on geometry and perspective, instances of pictorial “imperfections” where extremely rare (Domenico Ghirlandaio, “Portrait of an Old Man and his Grandson”, 1490, Musée du Louvre, Paris; Raffaello Sanzio, “Portrait of Fedra Inghirami”, 1514, Galleria Palatina, Florence). Even Antonello da Messina, prominent ambassador of the Flemish style in Italy, never completely abandoned idealistic naturalism, which he, rather, masterly melted with aspects of the European descriptive realism (“Portrait of a man – Condottiere”, 1475, Louvre Museum, Paris; “Portrait of a man (Trivulzio)”, 1476, Museo Civico d’Arte Antica, Turin).

Yet, according to the related Literature, the “Portrait of a Young Man” housed in London is not the single occasion in which a body anomaly or the evidence of a disease have been depicted by Botticelli in his paintings.

R. Alarcon-Segovia [30] described the “... swelling at the wrist, metacarpophalangeal and proximal interphalangeal joints on the one hand that is portrayed in ‘Portrait of a Young Man’”, a tempera on panel painted in 1483 and presently preserved at the National Gallery of Art in Washington, D.C., USA. The Author pointed out that, in his opinion, “...a review of all Botticelli paintings revealed that these changes could not be attributed to stylistic traits” [30]. The same Author spotted a clear evidence of arthritis in the fingers of the Saint in the fresco “Saint Augustinus in His Studio” that Botticelli painted in the parish Church of Ognissanti in Florence, the Church in which he was baptized and where he was buried in 1510. J. Dequeker, a leading Belgian rheumatologist, had already authored an interesting paper on the evidence of rheumatoid diseases in the Renaissance Flemish paintings [31]. Following the report of Alarcon-Segovia, he revealed in an interview to Ann

Waldron, an American writer based on Princeton N.J. (U.S.A.) that, in his opinion, also the model of “The Birth of Venus” in the Uffizi Gallery in Florence did show the evidence of rheumatoid arthritis. “The fingers of the right hand were deformed by swollen joints. Her wrist was slightly swollen and the little finger twisted. On the left hand, the index finger was swollen. It was what we call a ‘sausage finger’ in arthritic patients” [30]. Historical sources reveal that the 16-year-old model, Simonetta Vespucci, died from tuberculosis two years after Botticelli did the painting. “It is not at all impossible that she suffered from reactive arthritis associated with tuberculosis” [32].

## Conclusions

Almost nothing is known about the subject represented by Sandro Botticelli in the “Portrait of a Young Man”, saved at the National Gallery of London, UK. We do not know whether he was the heir of a prominent Florentine family opening his political career, or he was just dead or leaving for a war campaign. Rather, he possibly was an impersonal representative of a type of humanity upon which Botticelli was exercising for a future use in a big tableau.

Undoubtedly, we need to consider the possibility that Botticelli did not produce a wholly accurate portrait, and his portrait cannot claim photographic accuracy. Obviously, there may be a risk of misinterpreting artistic choices as facial deformities. The realistic depiction of the facial deformity of the young men may be interpreted as an emphatic description of the personal history and character of the sitter. As an alternative, it could represent the individual, deliberated choice of the Painter, who artistically dramatized perspective and proportions to amplify the emotional effect of the portrait.

The cranio-facial irregularities of this proud and good-looking young man have been already endorsed by knowledgeable art expert [28, 29]. In this paper, a medical approach to the physiognomic features represented by the artist leads us to the opinion that this Botticelli’s portrait may exhibit the evidence of the long-term outcome of a mild to moderate non-synostotic cranio-facial anomaly. This condition is known, from a clinical point of view, as “positional (or deformational) plagiocephaly”. In our time, it would have been classified as “type IV”, according to the classification proposed by Louis Argenta in 2004 [11].

## Declaration of interest

The Author declares that there is no conflict of interest.

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