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Review article

## Leonardo da Vinci: beauty or human suffering in the world. Notes on pathological cutaneous alterations in the 'Adoration of the Magi'

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### Abstract

The authors have individuated and evidenced in this study some of a series of very suggestive minute figures and signs of pathological conditions, including common cutaneous lesions, portrayed by Leonardo da Vinci in his famous painting 'The Adoration of the Magi' ('L'Adorazione dei Magi') which is in the Uffizi Gallery in Florence. These figures and lesions are mostly 'hidden' and become visible only by close, attentive observation of specific points extrapolated from the vision of this magnificent picture as a whole. Possible clinical interpretations are attributed to the 'lesions' evidenced, with the conviction that they were portrayed consciously by Leonardo and that they represent a confirmation of his extraordinary capacity for observation and ability to reproduce faithfully that which he saw, including the obvious signs of diseases which it is known he had ample occasion to observe. In this painting, as in others, Leonardo presents the horrors of life and sickness manifestly and skillfully disguised behind the mantle of beauty. We wonder if the monks who had commissioned the painting and then refused to take it did not recognize the ugly truth under the beautiful surface representation. © 1997 Elsevier Science B.V.

**Keywords:** Leonardo Da Vinci; Minute figures; Cutaneous lesions

### 1. Introduction

For almost five centuries the dazzling beauty of Leonardo's paintings froze the attention and critical spirit of viewers. Freud [1], in a seminal work, 'A childhood reminiscence of Leonardo da Vinci', was the first to delve into deeper levels of investigation. His analysis has been criticized in various ways, but certainly it did open new paths to an insight into Leonardo's paintings. For example, the central theme of the study refers to Leonardo's dream of a kite<sup>1</sup> that puts its tail in the mouth of a child in its cradle. Freud

saw a phallic connotation of the tail (in German 'Schwanz' means both tail and penis), but sneaked away from this interpretation by relating the hawk to motherly images in the Egyptian tradition. We represent here a figure (Fig. 1) which appeared in Freud's study and in which one can clearly distinguish (in the shaded portion) the form of a vulture, as individuated by Oskar Pfister according to Freud.

As Raymond Stites [3] comments in his 'Sublimations of Leonardo da Vinci', the verb used by Leonardo 'percuotere' (meaning to strike, to hit, to beat)

<sup>1</sup> A usually small kind of hawk; a bird of prey that also feeds on offal, thus a scavenger, that is particularly graceful in flight and which raises its tail in a position reminiscent of an erection.

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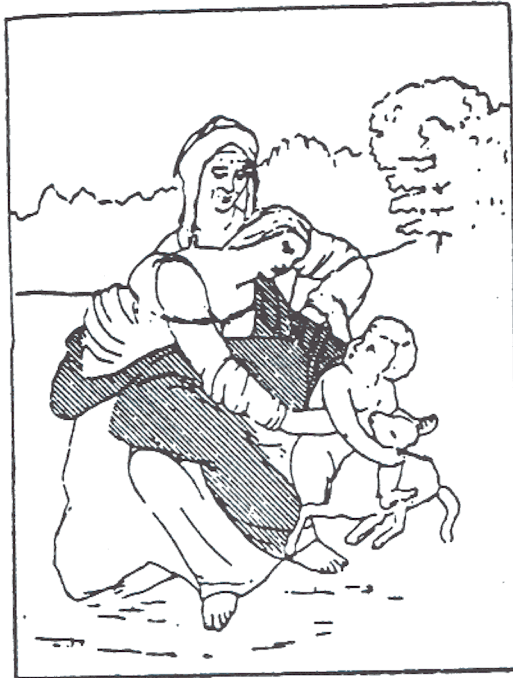


Fig. 1. Drawing, after Leonardo's 'Virgin and Child with Saint Anne' (Louvre, Paris, France), which appeared in Freud's study and in which Pfister individuated the form of a vulture (shaded portion in the figure): note that one tip of the tail appears to be touching (entering?) the child's right ear. (For the clearest view rotate the figure/page 90° to the right.)

presents an action nearer to sexual abuse than to a symbolic touching by the tail of a sacred bird. Also our studies evidence numerous indications that Leonardo was sodomized as a child (we have further studies in course on this topic), and the psychological shock left him impotent and socially maladjusted. This emerges also from analysis of lists of words registered by Leonardo in the Trivulzian Codex. Leonardo managed to express his problems and rage artistically by presenting his view of the system (life, the world) as a reluctant surface, apparently full of peace and beauty, but with ugliness, injustice, desperation and illness hidden underneath.

Leonardo was an excellent observer, and his interest in anatomy brought him into contact with hospitals, in particular that of Santa Maria Nuova, one of

the oldest and most important hospitals, then and still today, in Florence, just a stone throw from the cathedral. Santa Maria Nuova took in the incurables, many of the most desperate cases that lived in or went through the city on the pilgrimages to Rome. Thus, Leonardo had ample occasion to witness the worst horrors of illnesses like lupus, tumors, and leprosy. It would appear natural that he translated visually the tragedy of the human condition (including his own) using those horrors as a paradigm.

We have studied one of Leonardo's most famous paintings, 'The Adoration of the Magi' (Fig. 2a) at the Uffizi Gallery in Florence, from a clinical dermatological point of view. We must emphasize that the symptoms we discovered were carefully hidden by Leonardo, a master of mimetic arts. The tremendous truths are all there, but the viewer was meant to remain 'hypnotized' by the first level, superficial magnificence. Consequently one must be *particularly attentive in observing the painting*; special circumscribed observation of the figures and all details and marks painted on the picture are necessary (one must in a sense peep through the optical (and color) illusions) to reveal the hidden images. We have prepared some sketches (Figs. 2b,3b,4b,5b,6b,7b,8b,10b, and 11b) to help the reader discover the hidden details.

This painting was commissioned in 1482 by the monks of S. Donato in Scopeto, and was reputed (unconfirmed) to have been considered unfinished or, perhaps, not appropriate for their church. In fact the monks chose in its place a painting of the same size and subject by Filippino Lippi.

The art historian Giorgio Nicodemi [2] describes the painting as follows: 'The center of the picture is occupied by the figure of the Virgin, seated, her face overcome by recognizable sorrow, leaning towards her Son, who is accepting the gift being offered by the oldest of the Magi'...(and) all around, a mass of *anguished* faces struck with amazement and *anxiety*, under the high and immobile foliage of a tree'<sup>2</sup>. We note that the word 'disquieting' is used regularly in descriptions of this painting. Our study involved the

<sup>2</sup>Translated by the authors; the italics are ours.

Fig. 2. (a) The 'Adoration of the Magi' by Leonardo da Vinci, Uffizi Gallery, Florence, Italy. (b) Same as (a) with markings to show details enlarged in Figs. 3–11.



extremely detailed observation, from a clinical-morphological point of view, of the figures painted. The underlying hypothesis is that every pathological alteration evidenced was *intentionally depicted* in detail by the artist. Art historians studying Leonardo's paintings have always emphasized the extreme precision that he used always in every line and brush stroke. Our observations would fill a book, but we present here just a few examples.

As a premise, we propose that this complex and marvelous composition, Leonardo's 'Adoration of the Magi', contains a sort of atlas of dermatological pathology. We will describe some of the most interesting physical alterations, prevalently cutaneous, observed, and propose a diagnosis for each one. We note that our observations were based on high definition photographs done specifically for this study by a professional art photographer.

## 2. Discussion

First, let us examine the group of three figures to the right of the big holm-oak in the foreground (area 1 in Fig. 2b; there is the trunk of a palm tree behind the head of the central figure).

The figure on the right (Fig. 3) in this trio appears to be a girl (the head is inclined to her left, almost leaning against the trunk of the tree). She presents numerous cutaneous alterations; the most evident and recognizable are listed below with the most likely diagnosis (LD) proposed for each.

- *Eyes.* There are two raised, hemispherical lesions in the middle of the lower lid of the left eye: the most likely diagnosis (LD) is two marginated chalazia. In the nasal corner of the same eye there are three light colored round elements: LD milia lesions.  
*Head.* Along the hairline there is a roughly triangular area (base along the forehead hair-

line, vertex in the left parietal region) of alopecia, with apparently normal scalp: LD hypoplasia congenita cutis.

- *Lips.* On the right side of the lower lip there is a crusted lesion (perhaps comprising two or more elements close together) exuding a drop of pus: LD impetigo.
- *Hands.* The hands are not soft and plump, like those normally seen in a young girl, but are skeletal with scleroatrophic skin: LD sclerodactyly.

The figure in the center (Fig. 4), presumably an adolescent boy, presents various lesions.

- *Nose.* The nostrils are ulcerated (the right one is practically non-existent) and covered with blackish scabs. A blackberry-like vegetant papillomatous lesion (comprised of four or five hemispheric elements) on the left nostril, presuming a relationship (contagion?) with the female figure on his left described above, suggests a diagnosis of ulcero-vegetant pyoderma (phagedenic on the right nostril).
- *Eyes.* The boy is probably blind. The right eye is missing altogether, the left one appears fixed in a void, like a glass eye: LD (in relationship with the infectious pathology prospected above) destructive staphylococcal ophthalmia.
- *Chin.* The chin is small and the skin appears as a smooth cheloid-like mass: LD presumably the outcome of a destructive process, with a cheloid-like scar, presumably resulting from a destructive infectious (again pyogenic?) process.
- *Head.* The head has a crown of curly hair surrounding an area of alopecia with a central triangular shaped squamo-crusted mass: LD impetiginoid favus or, in consideration of the LD above, staphylococcal kerion. Obser-

Fig. 3. (a) Detail from 1 in Fig. 2. (b) Observe closely in (a) the areas marked with dotted lines in this figure: the hairless patch on the scalp, the internal corner of the left eye and the lower left eyelid, the spot below the right corner of the lower lip, the fingers.

Fig. 4. (a) Detail from 1 in Fig. 2. (b) Observe closely in (a) the areas marked here with dotted lines or shading: the hands, lower lip, upper sides of nostrils, right eye, right part of forehead, hair on left side near the ear, occipital part of head (in the latter area note also the curious feature of the nail in the head).



ving the hair area we also note on the right side of the forehead a depression with clear cut margins: LD scarring, presumably due to the tinea or the pyogenic infection that destroyed the eye on the same side.

This area also presents a particularly curious element for which we have no explanation: there is a very evident nail (with the same form as nails used today) sticking into the squamo-crusted mass in the center of the boy's head.

- *Hands.* The right hand, which is almost touching the elbow of the figure on his left, has lesions on the fingers. On the little finger we can see the shiny surface of the bones of the phalanges where the flesh is gone; and the middle finger also presents a phalange without flesh: LD mutilant lepromatous leprosy(?). The skin of the left hand and wrist presents rhomboid squamae: LD ichthyosis(?). Part of the left small finger is missing: LD mutilation through bone reabsorption, due to lepromatous leprosy(?).

Here we note another suggestive curiosity: attentive observation evidences a hidden figure, a kite biting the ear..., perhaps an allusion to the destructive capacity of disease.

The woman, the figure on the left (Fig. 5) in this trio, painted in profile looking toward the right reminds us of the figure representing Saint Anne in Leonardo's famous 'Virgin and Child with Saint Anne', which Freud found so particularly interesting.

*Cheek.* On her cheek there is a scar, presumably from a knife or other blade wound, that extends to the upper lip (which has bumps as if from irregular scarring). The lower lip is represented by a shiny button of flesh.

*Eye.* Surrounding the eye there is an irregular brown patch, seen also in the underlying malar region, with a fibromatous-verrucoid surface, perhaps with hyperkeratosis. We might hypothesize (within limits, given the context of the painting) a diagnosis of porphyria cutanea tarda. This would be supported

by the erosive, purpuric lesions which appear to be present on the back of the woman's right hand, noticeable especially on the edge.

In Fig. 5, on her *wrist* there are three raised cone-shaped lesions, with central 'punch-like' ulceration: LD, senile keratosis(?) epithelioma(?).

Now let us study some very dramatic figures in the center and right part of the painting (Fig. 2b, area 2). The area is easily identified by the clearly mutilated hand that is reaching upwards. All the figures painted present evident pathological alterations, but we will limit our discussion to three, in particular: the old man on the left with his hand on his forehead, and the two men painted in profile on the right, one (perhaps Virgil) light and in pain and the other (perhaps Dante) dark and fierce towards the old man with the mutilated hand who is looking towards the branches of the big holm-oak.

Observing Figs. 6 and 7, let us begin with the dramatic skeletal figure of the grand old man in the center. This man, represented practically by a skeletal head, is looking (he does not seem to be blind) downwards to his right toward the Child; close observation evidences numerous lesions.

The line of the *head* (Fig. 6) all skin and bone, is altered by two evident irregularities which break the line at the two extremes: LD two basal cell epitheliomas with the whitish pearls on the outside, delimiting the arc, and in the center an irregular reddish-white, ulcerated-crusty area. Another truly Leonardian vision would be to see the tumors as two small Tuscan hillside towns (Vinci?) whose walls are represented by the arcs of light pearly relief and the buildings (the castle and the church) by the pile of crusts!

Now, observe Fig. 7. The lips present numerous skin tumors: LD spinous cell epitheliomas, in the middle of the upper lip, at the right corner of the lips, in the middle of the lower lip. In the left corner of the lips there seems to be a deeper tumorous mass, presumably subcutaneous, which extends to the left mandibular-chin area: LD myoma(?) or, especially if we also consider two presumable submandibular fistulae which could be external openings of the tumor, a tubercular process involving the bone and/or glands, such as scrofuloderma(?).

- *Nose and cheeks.* On the left cheek in the area between the nasal fold and the zygoma there

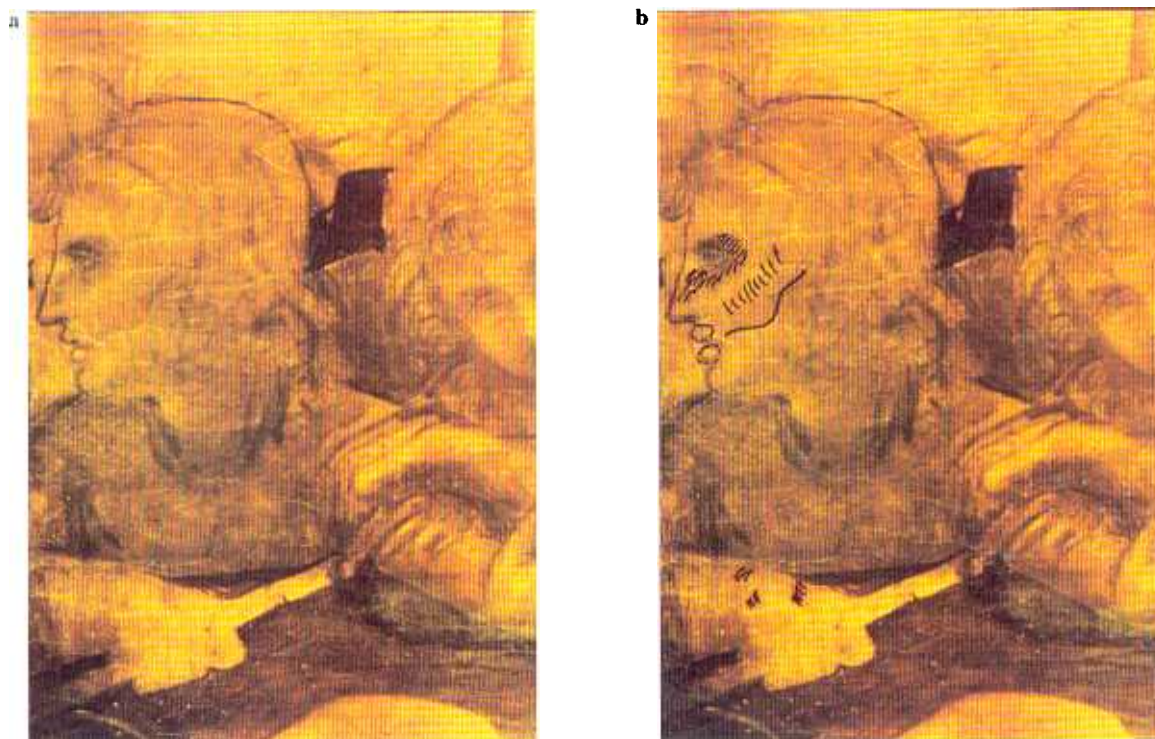


Fig. 5. (a) Detail from 1 in Fig. 2. (b) Observe closely in (a) the areas marked here with dotted lines or shading: marks on the hand, lips, cheek, and peri-orbital area.

is an ulcerated tumor: LD basal cell tumor(?), an *ulcus rodens*(?). Slightly above there is a raised lesion: LD a seborrheic wart (there are presumably many more in the area below the left eye, on the nose, and one, particularly noticeable, on the right lower eyelid). There is also an evident raised lesion in the right zygomatic area: LD a keratoacanthoma(?) or a spinous cell epithelioma(?). We could probably group all these alterations on the face together in a single hypothesis: LD discoid lupus erythematosus, where the presumed *ulcus rodens* on the left side might be, instead, an area with atrophic scarring, supported by the almost total lack of the left nostril, eaten

away by the 'voracious' wolf(!)<sup>3</sup>, together with the fleshy part of the nose. In fact the nose has the typical appearance of a 'beak nose' (atrophic), perhaps also erythematous, with erythema up as far as the glabella on the same side and with such severe atrophy due to scarring on the ear that the pinna is almost completely destroyed ('devoured' by the 'voracitas' of the wolf). A third possible interpretation is: from the corner of the eye and nose towards the zygomatic area there seems to be a vast crater (with blackish lacriminae?) (the snails so often found in hidden Leonardian iconography?): LD a destructive bone process, gumma due to syphilis(?).

<sup>3</sup> 'Lupus' is Latin for wolf. Actually 'lupus vorax' is part of the clinical picture of lupus vulgaris, a typically tubercular process; in the past lupus vulgaris and DLE were considered a single disease.

And a curiosity, in one of the cracks in the crater there is a figure resembling a tapir, or, why not, a variant of the kite seems to be sticking its beak into

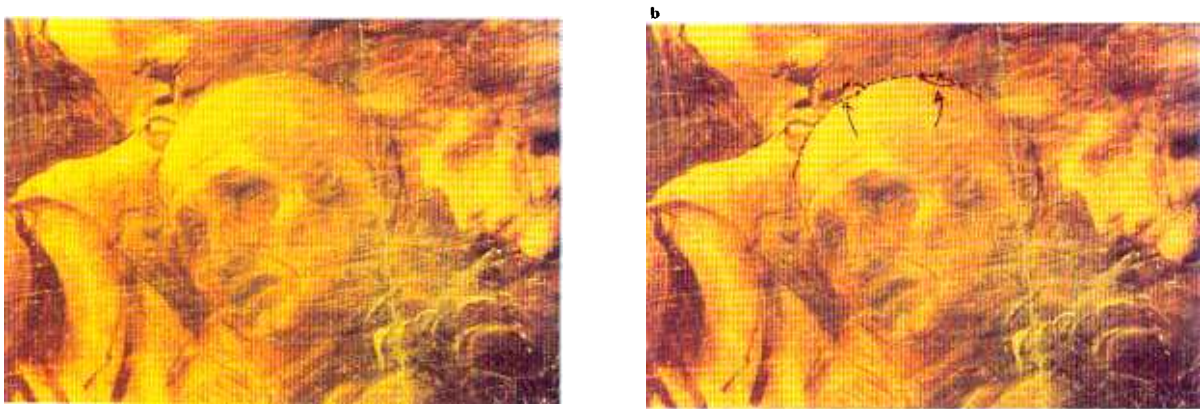


Fig. 6. (a) Detail from 2 in Fig. 2. (b) Observe closely in (a) the margin of the top of the head (marked here with dotted lines).



Fig. 7. (a) Detail from 2 in Fig. 2 (same subject as Fig. 6 but enlarged). (b) Observe closely in (a) the areas marked here with dotted lines: chin, lips, cheeks, nose and ear.



Fig. 8. (a) Detail from 2 in Fig. 2. (b) Observe closely in (a) the areas marked on the subject on the right with dotted lines or shading: lips, outer part of cheek, lower outside corner of eye.



Fig. 9. Detail from 2 in Fig. 2: note the hand with the very obviously maimed fingers.

the nose...

Fig. 8 shows the lighter-colored figure, representing Virgil, according to some art historians, who is look-



ing toward the right like the grand old man, but lower down.

- *Lips and cheek.* We note the raised mass involving the entire upper lip: LD Melkersson–Rosenthal syndrome(?) or, considering that there appears to be a Quincke edema (thus, very transient) extending to the corner of the mouth and the lower lip or, even, suggested by some spoked creasing, manifestations of perioral atopic dermatitis. On the zygoma there is a LD keratoacanthoma (a non-pathological interpretation would be: a narcissus, a flower seen often in Leonardo's paintings).
- *Eyes.* In the outside corner of the left eye (conjunctiva and lids) there is an evident LD *ulcus rodens*.

The third figure (Figs. 9 and 10) of this group at the top center is the one with the scleroatrophic *hand* (Fig. 9) with flesh missing and mutilated fingers with ulcerations so severe the bones can be seen: LD mutilant lepromatous leprosy(?).

Then, in Fig. 10, note on the *neck* the light colored mass in the parotid region: LD, mixed tumor of the parotid(?).

There is also a 'curiosity' to be seen in Fig. 10. The hypothetical tumoral mass appears to be being 'attacked' and 'nibbled' by an insect (or, a kite, again?): the creature appears to have a sort of tail(?) partially inserted in hole or crack.

Furthermore, also this subject presents a vast area



Fig. 10. (a) Detail from 2 in Fig. 2. (b) Observe closely in (a) the area marked here with dotted lines and shading on the area that goes from the edge of the face down onto the neck.



Fig. 11. (a) Detail from 3 in Fig. 2. (b) Note in (a) the dark areas on the Virgin's face and neck outlined here with dotted lines and shading.

of alopecia LD cicatricial(?): all that remains is a tuft of hair in the front massed in large curls (that resemble snails, as mentioned above).

These are some of the many figures and suggestions we have found in Leonardo da Vinci's 'Adoration of the Magi'.

One of the questions which the reader might ask is: have the 'holy' personages, the Virgin and the Child, been spared involvement in the half-hidden pathology that affects suffering humanity? The answer is no. We present a single dramatic example of the many possible. The attentive observer will discover in the beautiful sorrowful face of the Virgin (Fig. 11), with the typical physiognomic lines of Leonardo's miraculous art, a figurate asymmetric deep red patch with distinct margins that extends from the left eye over the cheek down to the chin which appears to be grasped by two ramifications with claws: LD a large superficial flat angioma(?), naevus flammeus(?). Looking at the figure upside down one can distinguish that the red patch

has the shape of a sort of devil clawing at the throat of the Virgin!

### 3. Considerations and comments

The interpretation of the works of a genius has no end, and Leonardo's drawings and, especially, paintings are full of cryptograms, symbols, and references to the mysteries of his own life and that of all mankind.

We have presented numerous examples of pathological conditions, especially skin affections, depicted by Leonardo, albeit very ably mimetized, on the human figures in his paintings, in particular in 'The Adoration of the Magi'. We think that it is not that the picture was unfinished, but that it is, instead, full of details, and was intended to be exactly as it is. One thing is certain, Leonardo could not establish diagnoses, that we have dared to propose, for the altera-

tions that he, such an acute observer, saw (and memorized) on the corpses and bodies of the sick whom he examined in the hospices and hospitals, principally the Hospital of Santa Maria Nuova in Florence which he attended for a long period, and where one of us works and teaches dermatology.

We have suggested one possibility for the deep motivations which urged him to fill his paintings with partially hidden cryptic figures of miniscule dimensions, pathological alterations, more or less obsessive messages. One must remember that the Renaissance was an era that wanted, gave, bought, required beauty, beauty which Leonardo da Vinci knew how to create to perfection, but it was also an era of extreme misery, human suffering, competition and violence, which he was unable to ignore.

### Acknowledgements

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