

Leonardo da Vinci's Mona Lisa: Medical Differentials and Primary Biliary Cholangitis

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To the Editor,

The Mona Lisa or La Gioconda is considered the most celebrated; most revered and most visited art piece in the world. Studying the image from the Louvre, it is clear that the subject's left eye clearly depicts a lesion consistent with a left eye xanthelasma. Other elements have also been considered including the fact that there are no eyebrows or eyelashes which may represent madarosis (Greek madao 'fall off') with a myriad of autoimmune, systemic and dermatological causes. Additional autoimmune possibilities include underlying hypothyroidism as there are also 'puffy eyes'. The issue of madarosis is generally discounted as spectrographic imaging[1] of the piece does reveal that eyebrows did exist on the original painting and were likely chemically deleted during painting maintenance. Some authors have suggested the possibility of a right eye or hand lipoma although this is not fully clear when assessing the image. The longstanding suggestion of Bell's palsy is difficult to ratify in the context of a normal smile.

There is general historical consensus that the likely subject of the work (Lisa de Giocondo) was pregnant at the time of the painting and likely aged 24 (she died aged 63). Essential hyperlipidaemia has previously been suggested although typically xanthelasma in this setting presents in middle-age. Homozygous familial hypercholesterolaemia would be unlikely as Lisa lived well beyond the early death of these patients, whilst heterozygous familial hypercholesterolaemia typically reveals xanthelasmas in patients thirties to middle age rather than in their twenties. Once prominent possibility would include Primary Biliary Cholangitis (PBC), this diagnosis could account for early xanthelasmas and Lisa's survival into her 60s. In this condition a notable paradox exists[2] where patients which severe hypercholesterolaemia and symptoms (such as Xanthelasmas) suffer fewer cardiovascular events than those with non-symptomatic hypercholesterolaemia. Additionally the 'yellow tinge' of Leonardo's great work might represent jaundice accurately. The noticeable erythematous digits could be the hyperpigmentation of PBC liver disease. The images of the peri-orbital lesions and erythematous digits may also originate from PBC's association with peri-orbital calcinosis and sclerodactyly

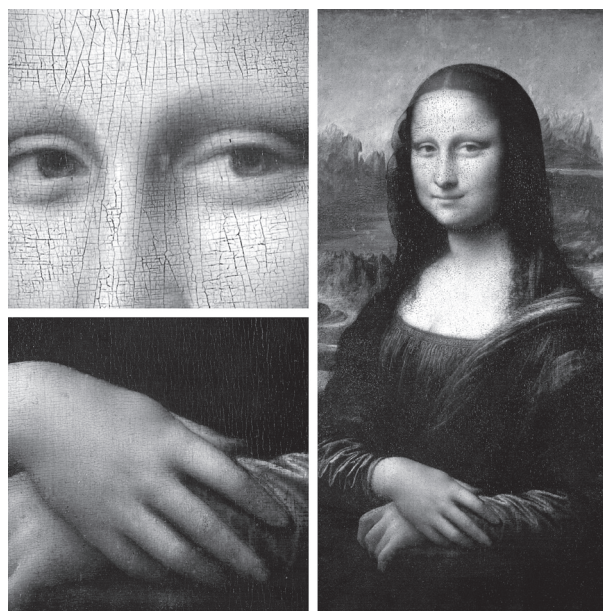


Fig. 1. — The eyes, peri-orbital lesion (likely xanthelasma), and fingers in the Mona Lisa © The Louvre, Paris

of the CREST syndrome, which typically occurs before middle age.

If the subject of Leonardo's image did suffer from PBC and was pregnant during the time of painting, this may have been favorable as approximately 70% of pregnant PBC patients demonstrate a clinical reduction or stability in disease and biochemical severity, although they also suffer from worsening pruritis[3] which may in itself have been a contributory factor to the Mona Lisa's enigmatic expression. The description of 'puffy eyes' and the possibility of hypothyroidism further supports the diagnosis of autoimmune liver disease in view of the established association between PBC and hypothyroidism.

:Submission date : 08/03/2016
Acceptance date : 05/04/2016

Acta Gastro-Enterologica Belgica, Vol. LXXIX, July-September 2016

It would be interesting to note that the most famous painting in the world was to denote the underlying autoimmune liver pathology of PBC. Whilst this would offer an explanation of several of Mona Lisa's characteristics, it may also represent the earliest depiction of this disorder and highlights the clinical signs and duration of this chronic autoimmune liver disease.

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