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Letter to the Editor

Tuberculosis: through the artist's eye

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Sir,

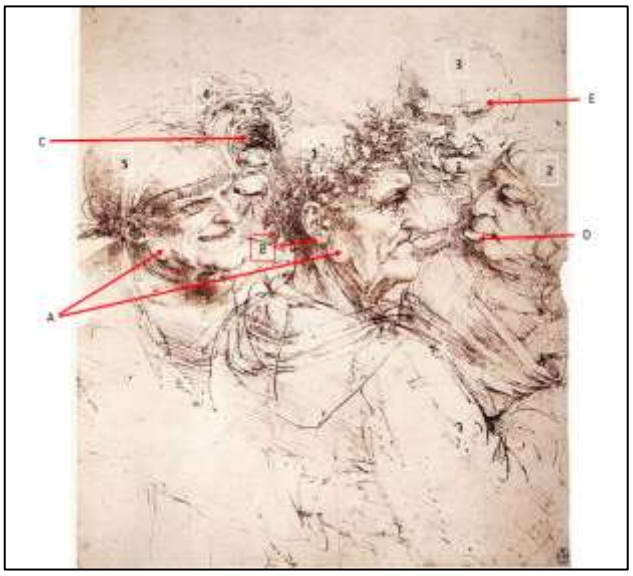
The history of medicine and art have intersected at several instances over time. Centuries ago, even when many diseases were obscure, art has shed some light over early clinical features and signs of many diseases. This article describes Leonardo Da Vinci's famous sketch, "The Five Grotesque Heads" and highlights the hints of reference to the age-old infection of tuberculosis. Da vinci's eye for detail has been known to capture several startling anatomical and pathological features of diseases, which were largely unknown at his time. However, these subtle references give us insight into the clinical presentation of the timeless disease of tuberculosis through the ages.

Have you ever tried reading someone's face and wondering what kind of person he is? Or looked at someone and judged his personality? The art of analyzing facial expressions traces its way back into history. From early caricatures on cave walls to Renaissance art, human expression and facial features have captivated artists across the globe. Leonardo Da Vinci was one such artist known for his fascination for human expression and human anatomy.[1] His eye for detail, while painting human visage is evident in his many works including the famed MonaLisa. Such was his discipline that he would be anatomically accurate in his paintings even at the cost of the art looking ugly or grotesque.

This brings us to the discussion of his famous sketch, "The Five Grotesque heads". Dating back to the 1400 century, this work details a man (labelled 1 in the picture) surrounded by four ugly men (labelled 2,3,4 and 5 in the figure 1). The ugly men are painted with extreme features and expression.[2] These expressions were initially thought to depict human behavior and personality, but later they were interpreted to depict human pathology, namely orofacial manifestations of tuberculosis.[3] Da Vinci was known to make detailed sketches of unique looking people around Florence. Back in the 14th century, when tuberculosis was largely an unknown disease, afflicted individuals were treated as outcasts. It is possible that this sketch depicts a man being robbed by four old men with tuberculosis.

Tuberculosis finds its origin over 150 million years ago when studies from bone samples from human settlements in the Mediterranean indicated a strain similar to Mycobacterium tuberculosis. It was thought to be infectious only in 1720, when the treatment for tuberculosis became sanatorium care. It was only in the 18th century that Robert Koch famously isolated the tubercle bacilli and established an association between this bacillus and the tuberculosis disease.[4]

In the sketch, "The Five Grotesque heads", there are several clinical features of facial tuberculosis noted. The men, labelled as 1 and 5, have a swelling at the angle of the mandible (marked by red arrows as A) suggestive of tuberculosis of the jaw causing abscess, known as a lumpy jaw.[5] The man labelled 1 also shows a nodule over his ear(marked with a red arrow as B) which could be a papulo-nodular lesion of Lupus vulgaris.[6]



A-Swelling due to an abscess in tuberculosis of jaw. B-Nodular lesion of Lupus vulgaris. C-Oropharyngeal granulomas inn a wide-open mouth. D-Prominent lower lip or macrocheilia. E-Prominent supra-orbital ridge.

Figure 1: The Five Grotesque Heads' by Da Vinci. Courtesy of The Royal Collection Trust/_ her Majesty Queen Elizabeth II 2013.[3]

The ugly old man, labelled as 2, is shown to have a prominent lower lip which is also called macrocheilia (marked with red arrow as D), which is also a manifestation of orofacial tuberculosis. The man, labelled as 3, has a prominent supra-orbital ridge over both eyes. The man, labelled as 4, is shown to have an open mouth with a mottled appearance of the pharynx. This is possibly a representation of oropharyngeal granulomas.

The wide-open mouth is likely to be Secondary to a muscle spasm caused by tuberculosis of the temporo-mandibular joint. The last man, labelled as 5, shows poor dentition with loss of teeth, which is a common feature in tuberculous gingivitis which causes loss of alveolar bone and subsequent loss of teeth.[7]

A plausible differential diagnosis to the features depicted in this sketch could include leprosy. It is not possible to differentiate between these two infectious conditions from the details shown in the sketch. However, the diagnosis of sarcoidosis is unlikely, despite similar granulomatous features as its prevalence was less during Da Vinci's time in the Italian provinces and several distinct features of sarcoidosis such as Bell's palsy and uveitis is not detailed in the sketch.[3]

This sketch gives us a glimpse of the importance of clinical signs found in infectious diseases such as tuberculosis and leprosy in a time where knowledge of these conditions was sparse. It also gives an artist's perspective of a pathology which has travelled through history and is of clinical significance even today.

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