

## A revisit of Federico da Montefeltro gout: an additional piece of paleopathological evidence in fine art

Sirs,

In an issue of this journal, Fornacian *et al.* (1), discussed paleopathological findings which suggest that Federico da Montefeltro, Duke of Urbino, suffered from gout. The authors linked the description of joint pain on Federico handwriting with bone lesions observed in the exhumed body. They believed that the letter describes a characteristic picture of gout. On the other hand, an erosion on the right first metatarsal bone was additionally attributed to gout. The scarcity of bone remains and the absence of crystal deposition of monosodium urate from the examined bone – probably related with its dissolution by environmental factors and by time – are two weak aspects of the aforementioned report (1). The osteolytic lesion over the first metatarsal bone of the Duke might also be questionable, considering that several rheumatic and non-rheumatic conditions can produce similar bone lesions as those observed in gout. There are many examples where the visual arts have been helpful in paleopathological

investigations. After ruling out possible pitfalls and artistic style, paintings, sculptures and other visual arts modalities can be a complementary avenue in studies on retrospective diagnosis.

Recently, a tempera on wood dated from 1475, made by Pedro Berruguete or Justus van Gent (authorship not yet clarified), about Federico da Montefeltro, caught my attention. The masterpiece, “portrait of Federico da Montefeltro and his son Guidobaldo”, housed in the Galleria Nazionale delle Marche in Urbino (Italy), shows the Duke of Urbino reading to his son. On the left hand of the Duke, a lump is observed at the level of the proximal interphalangeal joint of the second digit. Less conspicuously, two more lesions with a nodular appearance can be noticed at the second and fourth metacarpalphalangeal joints (Fig. 1). Both areas are typical locations of tophi in gout. The elbow, which is another common location for gouty attack and crystal deposition in the soft tissue at the upper limb, is covered by armour in the portrait.

Curiously, the Duke has been mostly portrayed from his left profile, apparently due to his loss of his right eye and the damage to his nasal bridge in a tournament (2). Therefore, the probability of making similar observations on his right hand in the future would be rather low.

In conclusion, these observations on Federico's portrait (Fig. 1) may be a possible representation of joint enlargement by inflammation or tophi due to chronic gout. It is of course an illness poorly treated because of the limited medical knowledge in the time that the Duke lived. These would reinforce previous findings about the affliction of the Duke reported by Fornaciari *et al.* (1), and also remark on the value of the visual arts as a complementary support to paleopathological studies.

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2. SANTONI-RUGIU P, MASSEIA: The legend and the truth about the nose of Federico, Duke of Urbino. *Br J Plast Surg* 1982; 35: 251-257.



**Fig. 1.** On the left, the Portrait of Federico da Montefeltro and his son Guidobaldo (Public Domain at Wikimedia Commons. Creative Commons CCO License). A detail of the masterpiece on the right shows a notorious lump at the level of 2<sup>nd</sup> proximal interphalangeal joint of the left hand of the Duke. Although less remarkable, a nodular appearance of the second and fourth metacarpalphalangeal joints can also be noted.