

TURMERIC– A HISTOPATHOLOGICAL ARTEFACT

Dr. Jayashri Chaudhari¹, Dr. Monmeeta Srikant*², Dr. Roshan Shaikh³ and Dr. Asha Shenoy⁴

¹MD Pathology, Assistant Professor, Department of Pathology, Seth GS Medical College and KEM Hospital, Parel, Mumbai 400012.

^{2,3}MD Pathology, Resident, Department of Pathology, Seth GS Medical College and KEM Hospital, Parel, Mumbai 400012.

⁴MD Pathology, Professor, Department of Pathology, Seth GS Medical College and KEM Hospital, Parel, Mumbai 400012.

Corresponding Author: Dr. Monmeeta Srikant

Resident, Department of Pathology, Seth GS Medical College and KEM Hospital, Parel, Mumbai 400012.

Article Received on 02/04/2022

Article Revised on 22/04/2022

Article Accepted on 12/05/2022

ABSTRACT

Turmeric is commonly used as a household antiseptic for wounds due to its anti-inflammatory properties. But the use of such compounds can interfere in the histopathological diagnosis of tissue samples. We present a case of a 53-year-old man with a forehead growth with a history of repeated episodes of bleeding which on microscopic examination, presented with bluish structures. On enquiry, the patient admitted to the application of turmeric. On processing turmeric and examining it microscopically, it appeared similar to the bluish structures as in the sections of the growth. Therefore, the final impression was made to be lobular capillary haemangioma with turmeric artefact. Hence the local use of such chemicals can confuse and lead to the wrong diagnosis. Therefore, this case indicates the need to identify artefacts for adequate histopathological diagnosis.

KEYWORDS: Turmeric, histopathological artifact.

INTRODUCTION

Medicinal use of turmeric is well known, dating back to nearly 4000 years. It contains moisture (>9%), curcumin (5–6.6%), extraneous matter (<0.5%), mould (<3%), and volatile oils (<3.5%).^[1] Curcumin (diferuloylmethane) is an active compound that exerts several positive pharmacological effects. This yellow curry powder has anti-inflammatory, antioxidant, anti-hypertensive, anti-cancer, antiviral, anti-infective, proapoptotic activities.^[1] It inhibits the release of High mobility group box 1 (HMGB1), producing an anti-inflammatory response; hence it is useful for vascular inflammatory diseases.^[2] It is commonly used as an antiseptic for cuts, burns, and bruises, and as an antibacterial agent in many South Asian countries.^[1] Turmeric also has the wound-healing ability and decrease the multiplicity and onset of skin tumours.^[1] However, application of such chemicals can present as a foreign substance or cause tissue alteration in microscopic sections and thus can result in misinterpretations that can lead to diagnostic pitfalls. Vegetable matter is known to mimic parasitic eggs and larvae in contaminated tissue samples.^[3] We present a case of turmeric artefact on histology in a bleeding forehead mass.

CASE REPORT

A 53 years old male presented in the OPD with a complaint of growth on the forehead in the past 1.5 months which was associated with episodes of bleeding on and off. There is no history of any trauma to the site. Excision of this mass was performed under local anaesthesia. We received skin measuring 1.2 X 0.3 cm showing a brown nodular mass measuring 0.5 X 0.4 cm (Fig 1) which was brown irregular and the cut surface was brown. On microscopic examination, the sections studied showed skin covered tissue. The epidermis showed acanthosis and pseudoepitheliomatous hyperplasia. The skin showed focal ulceration covered with fibrin. (Fig 2, 3) Within the fibrin, various bluish-coloured polygonal structures of various sizes were seen. (Fig 4, 5) The sub-epithelial tissue showed lobular proliferation of capillaries with few large calibre vessels. On enquiring for further history regarding the bluish structures, the patient informed us about the application of turmeric on the growth during repeated bleeding episodes. Hence, dry turmeric stick was being processed as like the specimen which on microscopic examination appeared similar to the bluish structures present in the sections of the growth. (Fig 6) Therefore, the final impression made was lobular capillary haemangioma with turmeric artefact.

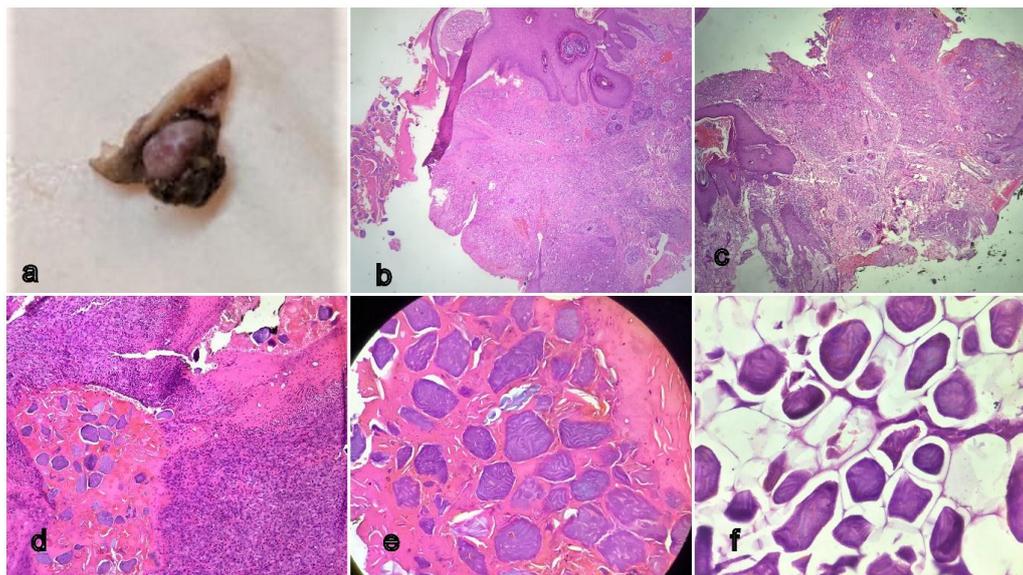


Figure 1:

a: shows a gross photograph of the nodular mass on the scalp with ulceration of the skin

b & c: show lobular capillary haemangioma with ulceration of overlying epidermis, and blue structures in the fibrin (H & E x 40)

d: blue coloured structures in the fibrin (H & E x100)

e: Polygonal blue coloured structures of varying sizes (H & Ex400)

f: dry turmeric stick histology (H & Ex400)

DISCUSSION

Turmeric has been used in Ayurvedic and Chinese systems of medicine as it has been reported to possess anti-inflammatory, antiproliferative, antiangiogenic, and anticoagulant activities.^[4] It contains three major polyphenolic analogues, the majority being curcumin and the compounds in smaller amounts are demethoxycurcumin, and bisdemethoxycurcumin (BDMC).^[4] It was found that curcumin and BDMC prolong the PT and aPTT, and the methoxy group present in the curcumin and its derivatives also inhibits thrombin and FXa activities.^[5] Also, Blatt J et al and Hassell LA et al in their respective studies have mentioned curcumin as a contemporary option in the treatment of haemangiomas and other types of vascular tumours.^[5] Lobular capillary hemangiomas are benign vascular tumours. Their development can be classified into (i) cellular phase, (ii) capillary phase or vascular phase, and (iii) involutionary phase. They tend to bleed frequently.^[6] Therefore, turmeric is widely used in Indian households as a local anticoagulant. However local use of such chemicals can create confusion during diagnosis of histopathological tissue and lead to an incorrect or inconclusive interpretation. Therefore, it is essential to identify such artefacts for adequate diagnosis. In our case, the patient used turmeric to contain the bleeding episodes of the haemangioma before excision which inadvertently showed up in our microscopic sections as an artefact within the fibrin on the surface of the lesion.

REFERENCES

1. Prasad S, Aggarwal BB. Turmeric, the Golden Spice: From Traditional Medicine to Modern Medicine. In: Benzie IFF, Wachtel-Galor S, editors. *Herbal Medicine: Biomolecular and Clinical Aspects*. 2nd edition. Boca Raton (FL): CRC Press/Taylor & Francis, 2011; 13.
2. Kim DC, Lee W, Bae JS. Vascular anti-inflammatory effects of curcumin on HMGB1-mediated responses in vitro. *Inflamm Res.*, 2011; 60(12): 1161-68.
3. Shakoor S, Wasay M, Zafar A, Beg MA. Plant root hair in tap water: a potential cause for diagnostic confusion. *The Korean journal of laboratory medicine*, 2011 Jan 1; 31(1): 44-6.
4. Kim DC, Ku SK, Bae JS. Anticoagulant activities of curcumin and its derivative. *BMB Rep.*, 2012; 45(4): 221-226. doi:10.5483/bmbrep.2012.45.4.221
5. Lou S, Wang Y, Yu Z, Guan K, Kan Q. Curcumin induces apoptosis and inhibits proliferation in infantile haemangioma endothelial cells via downregulation of MCL-1 and HIF-1 α . *Medicine (Baltimore)*, 2018; 97(7): e9562.
6. Marla V, Shrestha A, Goel K, Shrestha S. The histopathological spectrum of pyogenic granuloma: A case series. *Case Rep Dent.*, 2016.