SQU Med J, May 2012, Vol. 12, Iss. 2, pp. 247-248, Epub. 9th Apr 2012
Submitted 13th Jan 12
Accepted 7th Mar 12

LETTER TO EDITOR

Suture Artefacts

Explored through polarising microscope

خداع خيط الجراحة

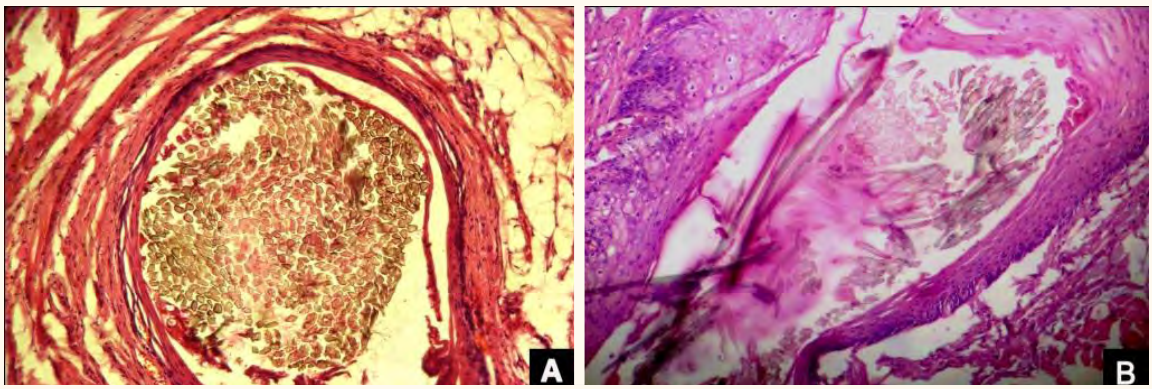
استكشافه من خلال مجهر مستقطب

Sir,

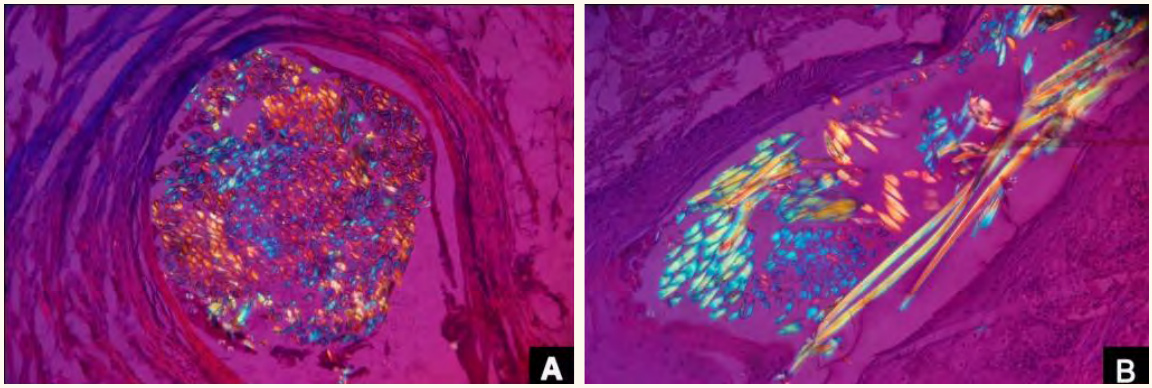
Recently, during a routine histopathological examination, an excisional biopsy of a squamous cell carcinoma, on the lateral border of the tongue of a 70-year-old male patient, was evaluated and revealed a remarkable feature. In a haematoxylin and eosin (H&E) stained slide, numerous well defined polygonal isomorphous tiny structures, the majority of them stained with eosin and a few unstained, filled a lumen-like structure formed by the folding of the thin stratified squamous epithelium [Figure 1a]. My fellow postgraduates suspected them to be some sort of desquamated epithelial cells, ghost cells, cross-sections of muscle fibres, keratin flakes, red blood corpuscles or inclusion dust, glass or metal particles. Moreover, in another field, a few elongated well defined semi-transparent structures, resembling candidal hyphae were seen interspersed with the numerous above mentioned structures [Figure 1b]. Since candidal hyphae hardly persist in formalin fixed tissue and can easily be differentiated by its pseudomycelium forms, we excluded this possibility.

An artefact (Latin 'ars'- art + 'factum'- made) in histology means any non-natural feature or structure accidentally introduced into something being observed or studied.[1] Suture material is an occasional inclusion in histological specimens. It may consist of isolated fragments or complete fibre-bundles cut in transverse, oblique or longitudinal planes. Detail of the fibre structure can sometimes be seen upon careful examination of H&E stained sections. Silk sutures exhibit strong birefringence under polarised light and can be useful in their identification.[2,3] Our suspicion in this case was confirmed when we observed the same sections under a polarising microscope. The sections of mysterious foreign material exhibited a strong birefringence under a polarised light [Figure 2]. Hence we concluded that the foreign material was polyfilament silk suture material (cross-sections and longitudinal sections).

Other artefacts with structures almost similar to suture filament include cellulose fibre and hair. Cellulose fibres arising from cotton gauze can be encountered as a contaminant during specimen collection and processing. It is recognised by the characteristic appearance of plant cells with their strongly staining cell walls and square shape. Very rarely a hair can also contaminate the tissue during processing; it can be



Figures 1A and 1B: Cross-sections (A) and longitudinal sections (B) of the polyfilament silk suture material when viewed under a bright field microscope (haematoxylin and eosin stain, x 20)



Figures 2A and 2B: Cross-sections (A) and longitudinal sections (B) of the polyfilament silk suture material when viewed under a polarising microscope (haematoxylin and eosin stain, x 20)

clearly differentiated by its characteristic tubular structure and black/brown colour. Moreover, in contrast to polyfilament sutures, and in the case of, too many cross-sections, hair will not be seen in a single section.[2,3]

The purpose of this letter is to call the attention to this artefact, which may be found during a histopathology routine, and needs to be kept in mind for an accurate diagnosis.

***Sonal Grover, Rashmi Naik, Jayadeva HM, Ahmed Mujib BR**

Department of Oral Pathology & Microbiology, Bapuji Dental College & Hospital, Davangere, Karnataka, India

**Corresponding Author e-mail: sonalgrvr@yahoo.com*

References

1. Jadhav KB, Gupta N, Ahmed MBR. Maltese cross: Starch artifact in oral cytology, divulged through polarized microscopy. J Cyt 2010; 27:40–1.
2. Rolls OG, Farmer NJ, Hall JB. Artifacts in histological and cytological preparations. Scientia, Leica Microsystem education Series. From: http://www.leica-microsystems.com Accessed: Dec 2012.
3. Wallington EA. Artifacts in tissue sections. Med Lab Sci 1979; 36:3–61.