Case report

Cytology of suture granuloma in a recurrent thyroid nodule

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Article history

Received 21 November 2013
Revised 17 February 2014
Accepted 18 February 2014
Early online 25 February 2014
Print 28 February 2014

Abstract

Foreign body giant cell (FBGC) reaction leading to suture granuloma is known to occur in response to suture material used during surgery. It occurs most commonly in the gastrointestinal tract (GIT). It is rare to find a suture granuloma in the thyroid. After extensive search of literature and the internet, it was found that such a lesion has been reported so far on guided aspirates, but not on fine needle aspiration cytology (FNAC) alone. The cytomorphology on FNAC is important to clinch the diagnosis and avoid unnecessary surgery as it can mimic a malignant thyroid nodule, multinodular goiter or a metastatic lymph node. This is the first case report of such a lesion to date.

We report a 54 year old male with a recurrent firm thyroid nodule on the right side of the neck, for whom FNAC was done. It was reported as a suture granuloma on cytology. Hence the case was managed conservatively since malignancy was ruled out.

Key words: FBGC, FNAC, recurrent thyroid nodule, suture granuloma

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Inflammatory and foreign body giant cell reactions may be elicited when foreign substances are introduced into the human body. They may be introduced during surgery and may be substances such as, suture material, surgical clips, glove powder, gauze, lint, haemostatic material, talc, prosthetic implants, sponge, etc. The nature and extent of reaction that these foreign substances evoke may be variable. They may cause symptoms depending on the lesions produced. Such surgically induced foreign materials may cause lesions such as intra-abdominal adhesions secondary to granulomas due to talc or suture material. They may lead to intra-abdominal masses called as textilomas or gossypibomas, or may lead to space occupying lesions especially in the brain. They may mimic metastasis in cancer cases or cancer itself. With this background, we report suture granuloma in a firm recurrent thyroid nodule with extensive post-operative foreign body giant cell reaction.

Case report

A 54 year old male, in December 2012, complained of swelling on the right side of the neck for 6 months and hoarseness of voice for 3 months. There was a past history of a right sided hemithyroidectomy in 2003 and a left sided hemithyroidectomy in 2005 with a diagnosis of follicular adenoma and multinodular goitre respectively. He was asymptomatic till July 2012, when he developed a right sided thyroid nodule.

A Trucut biopsy was then done. The histopathology of it showed only fat necrosis. Clinically a carcinoma of the thyroid was suspected, hence a FNAC was advised.
On examination, a firm swelling of 3 X 3 cm was seen on the right side of the neck, in the region of the thyroid, which was moving with deglutition. FNAC was done. There were no other swellings palpable. All other investigations did not reveal any other pathology.

Cytomorphological features

FNAC smears showed cyst macrophages, colloid, FBGC.

![Fig 1. Smear showing FBGC and follicular epithelial cells in blood mixed colloid background (H&E: scanner and low power view)](image1)

![Fig 2. Follicular epithelial cells surrounding suture material (H&E: scanner and low power view)](image2)

![Fig 3. Giant cells around suture material (H&E: high power view)](image3)

![Fig 4. FBGC engulfing suture material (H&E: high power view)](image4)

A diagnosis of suture granuloma of thyroid (FBGC reaction to suture material) was given. The patient underwent surgery at a private hospital. The reports of which confirmed the diagnosis of suture granuloma, thus ruling out neoplastic disease of the thyroid.

Discussion

Surgical procedures are an integral part of treatment in this new era of medical science, despite being associated with inherent complications and side effects. As a part of surgery the human body has to react with a variety of foreign materials, like suture material, lint, surgical clips, gauze, prosthetic implants, glove powder and locally applied hemostatic material.

Absorbable sutures are used in surgical practice. They may also elicit significant foreign body reaction. Hence suture granulomas are a well-established clinical and histopathological entity. Clinically and on USG suture granulomas may mimic cancer.

As Shapiro states, foreign body reaction to suture material shows a granulomatous reaction around the suture material. The histopathology consists of necrosis, histiocytes and FBGC. The suture material may lie within the FBGC, histiocytes or extracellularly. In the present case suture material was found within the cytoplasm of the FBGC and also extracellularly. The incidence of foreign body granulomas in post-operative intra-abdominal adhesions was high as determined by Luijendijk et al. They found that suture material was the most common foreign material that leads to such granulomas. It was also observed that suture granulomas were seen in 25% and starch granulomas in 5% of patients with past history of abdominal surgery. These granulomas usually occurred from a few months to a few years after surgery, mostly within two years.
Under polarized microscopic examination suture material, talc and glove powder are doubly refractive, and in histological sections glove starch powder can be visualized as having the typical birefringent Maltese Cross1.

Post operatively when gauze, lint or cotton fibers are retained in the body, they can elicit an exaggerated FBGC reactions. These may mimic slowly growing soft tissue tumors (textilomas)2 and can attain enormous sizes. The radiological features of such lesions have also been described; Tinker et al8 reported two cases of granulomatous peritonitis in which fiber like foreign body material was identified on histology along with inflammatory and foreign body giant cell reaction. These were confirmed as cellulose fibers from disposable surgical drapes and gowns that were birefringent on polarized microscopy and had a typical trilaminar configuration.

Resorbable and non-resorbable substances are used to achieve local hemostasis in the surgical bed intra-operatively. These may be composed of gelatin sponge, cellulose or microfibrillar collagen. Cotton or rayon based hemostats may also be used. These agents have been reported to cause mass lesions, most commonly following intra-abdominal surgeries2. These may also produce symptomatic lesions like abscesses, as reported by Ibrahim et al9. Histological examination shows a core of degenerating hemostatic agent surrounded by inflammatory and foreign body giant cell reaction2.

Conclusion

To conclude, in spite of all adequate precautions taken during surgery, inadvertent retention of foreign material within the human body cannot be entirely avoided. Inflammatory and foreign body giant cell reactions to such material can produce lesions, clinically and radiologically mimicking cancer. In this case the granuloma mimicked a malignant thyroid nodule, with a differential diagnosis of multinodular goiter or metastasis to lymph node. It is thus important for the cytopathologists to be aware of such entities associated with foreign materials used during surgeries and to be able to identify their morphology.

Acknowledgments: We would like to thank Dr. O. Shravan Kumar for his guidance and support. We appreciate the support of our technician Mr. Francis Xavier.

Conflict of interest: There has been no financial or any other aid, nor are there any conflicts of interest.

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