ANNALI ITALIANI DI CHIRURGIA

Digital Edition e-publish on-line ISSN 2239-253X

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# A remnant suture can mimic malignancy after total thyroidectomy



Ann Ital Chir, Digital Edition 2018, 7 pii: S2239253X18028402 - Epub, Sept. 25 *free reading*: www.annitalchir.com

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## A remnant suture can mimic malignancy after total thyroidectomy

Foreign body reactions may develop against exogenous or certain endogenous materials. Cases of suture granuloma that develop against nonabsorbable suture material are rare complications of thyroid surgery. Because of these postoperative complications, a history of cancer prior to the operation suggests recurrence of cancer. Appropriate clinical, radiological, and pathological evaluation is highly important in such cases. Postoperative foreign bodies may remain undetected for years, but they sometimes cause lethal complications.

KEY WORDS: Cancer mimicking, Foreign body, Suture granuloma, Thyroid surgery

## Introduction

Lesions mimicking thyroid cancer in cases with or without a history of surgery include various causes, such as foreign body reactions including suture granuloma, chronic granulomatous lesions, traumatic neuroma, surgical clips, schwannoma, parathyroid adenomas, and sarcoidosis. Foreign body reactions may develop against exogenous or certain endogenous materials. Foreign body granulomas developing against suture material are rare complications of thyroid surgery. It develops against nonabsorbable suture material. Because of these postoperative complications, a history of cancer prior to the operation suggests relapse of cancer. Appropriate clinical, radiological, and pathological evaluation is highly important in such cases. Postoperative foreign bodies may remain undetected for years, but they sometimes cause lethal complications <sup>1-4</sup>. In this article, we present the case of a patient with clinically suspected recurrent carcinoma, who had to live with the foreign body for 4 years because of lack of proper clinicopathological correlation and suspicious and incorrect pathology reports.

#### Case Report

A 63-year-old female patient underwent total thyroidectomy because of multinodular goiter in 2013. Histopathological examination at that time revealed a focus of hypochromatic thyrocytes, and immunohistochemical staining showed no immune expression of cytokeratin 19, galectin 3, and HBME1. The pathology report was interpreted as "nodular goiter" based on the absence of immunoexpression in suspected hypochromatic thyrocytes. In 2014, the patient presented to our

Pervenutoin Redazione Febbraio 2018. Accettato per la pubblicazione Marzo 2018

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Fig. 1: Abundant histiocytes and foreign body-type giant cells (PAP EA 50 staining x 400).



Fig. 4: Suture material with surrounding organized histiocytes and abundant FBGCs (hematoxylin-eosin staining, ×400).



Fig. 2: Abundant histiocytes and foreign body-type giant cells (PAP EA 50 staining x 400).



Fig. 5: Suture material with surrounding organized histiocytes and foreign body-type giant cells (hematoxylin–eosin staining, ×400).



Fig. 3: Focal area fibrosis and organized histiocyte community (hematoxylin–eosin staining,  $\times 40$ ).



Fig. 6: Histiocytes showed immune expression of CD68 (immunohistochemistry CD 68 staining x 400).

hospital because of symptoms such as difficulty in swallowing, foreign body sensation in the throat, and pain at the site of surgery. The patient underwent fine-needle aspiration biopsy (FNAB) twice at the time of assessment. The FNAB slides were evaluated at an external pathology center, and the pathology report suggested a diagnosis of "follicular nodule" and "benign aspiration". Then, the patient was sent home with benign findings on cytological examination. However, the patient's complaints did not subside over years, and she was re-admitted to our hospital in 2017. The clinicians considered the presence of a residual thyroid gland based on the previous FNAB pathology reports and performed repeat radiological evaluation as pathological examination after first resection had suggested the presence of suspicious areas; ultrasonographic examination of the thyroid gland revealed a 29 × 14 mm area in the right lobe (operation side) of the thyroid gland. The facts that FNAB showed benign finding twice after the initial operation and the complaints did not subside over years and observation of suspicious areas in pathological examination after the initial surgery have suggested the possibility of an underdiagnosed malignancy; the patient was suspected to have recurrent thyroid carcinoma. Repeat FNAB was performed because of a suspicion of malignancy. Cytopathological examination revealed abundant histiocytes and foreign body-type giant cells (FBGCs). No tissue elements were detected that would be suggestive of residual thyroid gland (Figs. 1, 2). FNAB revealed no foreign bodies; however, because of abundant FBGCs, it was concluded that there was a possible foreign body at the site of the previous surgery, and the patient underwent repeat surgery. The surgical specimen was composed of fragmented irregular tissue pieces of  $4 \times 3 \times$ 2 cm. Histopathological examination revealed no residual thyroid tissue but showed suture material with surrounding organized histiocytes and abundant FBGCs. At the same time, these histiocytes immunohistochemically showed immune expression of CD68 (Figs. 3-6).

# Discussion

Foreign body granuloma is a non-immunogenic reaction that can develop against exogenous (talc, suture material, parasites, oil droplets, wood, metals, silica, and silicon) or certain endogenous (hair shafts, keratin, cholesterol, and urate/gouty tophi) materials. Foreign body granuloma developing against the suture material are rare complications of thyroid surgery <sup>1</sup>. It develops against nonabsorbable suture material. Tissue reaction occurs first, followed by specific inflammation against the foreign body <sup>2</sup>. While most of the cases of suture granuloma were reported to occur in approximately 2 years postoperatively, one study reported a period from several months to several years for such an occurrence <sup>1,4-6</sup>. Our patient was admitted to our center with complaints

in the first postoperative year, and FNAB was performed on the lesion; however, she was sent home because the pathological examination evaluated twice at an external facility suggested "benign thyroid aspirate". Clinically, cases of suture granulomas, especially after cancer surgery, are highly important because they mimic cancer. Careful pathological examination and clear evaluation are necessary. Our patient had no history of cancer. However, because of the suspicious statements in the pathology report after the initial surgery, the patient was suspected to have an underdiagnosed recurrent thyroid carcinoma. One study emphasized the importance of FNAB after thyroid surgery for the follow-up of remaining thyroid tissue or newly developing lesions at the operation site <sup>7</sup>. In our patient, we diagnosed the lesion using FNAB and recommended surgery because of ongoing complaints. Histopathologically, necrosis, histiocytes, and FBGCs are likely to be seen in foreign body reactions. We were unable to re-evaluate the FNAB slides prepared in 2014 as they were evaluated at an external facility. However, FNAB performed after the last admission of the patient in 2017 revealed abundant histiocytes and FBGCs. The surgery revealed no residual thyroid tissue, and an organized structure that is highly adjacent to the surrounding tissue was resected. Histopathological examination revealed focal fibrosis, suture material, organized histiocytes, and abundant FBGCs. It has been reported in some publications in the literature that foreign body exposure can sometimes remain undetected and sometimes be life threatening secondary to the inflammation and vascular complications. It was also reported that surgical removal is the best option for the treatment of foreign bodies <sup>3</sup>. In our patient, the foreign body detected in 2014 was not operated for a long time until 2017 because of misinterpreted FNAB pathology slides.

In conclusion, although foreign body reactions are not desired, they occur as a complication of a surgical procedure. The importance of FNAB after thyroid surgery has been previously emphasized in the follow-up of remaining thyroid tissue or newly developing lesions at the site of surgery <sup>7</sup>. However, when FNAB is performed, the examining pathologist must be informed of radiological and clinical findings 8. The present patient was suspected to have an underdiagnosed recurrent thyroid carcinoma as there were suspicious statements in the total thyroidectomy pathology report after the initial surgery and pathology reports issued after two FNAB procedures misleadingly suggested "benign thyroid cytology" probabecause of inadequate clinical information. bly Furthermore, our patient had to live with a foreign body for a long time because of a sequence of inadequate clinical information and suspicious/incorrect pathology reports. When FNAB is performed, the examining pathologist must be informed of radiological and clinical findings and a proper clinician-pathologist communication should be established. Foreign body reactions should be considered in postoperative cases.

#### Riassunto

In presenza di materiali esogeni introdotti nel corso di interventi chirurgici può svilupparsi una reazione da corpo estraneo. Nel caso della chirurgia della tiroide in corrispondenza delle allacciature vascolari con filamenti non assorbibili può svilupparsi raramente questo tipo di reazione, che in caso di sospetto di natura neoplastica dell'intervento effettuato può ingenerare il dubbio che possa trattarsi di una recidiva. In tali casi è molto importante un'indagine clinica, radiologica ed il nuovo controllo istopatologico.

Il corpo estraneo può rimanere ignorato per anni, ma talvolta può provocare complicazioni negative.

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