

Clinical Note

Two cases of acute suppurative thyroiditis secondary to piriform sinus fistula

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The thyroid gland is an endocrine organ, which is quite resistant to infections.¹ Acute suppurative thyroiditis (AST) especially affects the persons who have thyroid pathology beforehand and local anatomic defects connected in childhood.² The most frequent abnormality underlying in cases with AST is the piriform sinus fistula (PSF), and it has been reported that this fistula is the root of the infection.³

A 51-year-old man with a history of acute swelling, erythema, and pain on the left neck area and sub-febrile fever after an upper respiratory tract infection 1.5 years ago. Laboratory evaluation revealed white blood count of $14500/\text{mm}^3$ (normal range [nr]; $4000\text{-}11000/\text{mm}^3$), sedimentation was 102 mm/hour (nr: 0-12 mm/hour), and thyroid function tests and thyroid autoantibodies were normal. Bilateral subtotal thyroidectomy was performed with the diagnosis of multinodular goiter in another hospital. After the investigation of the specimen, it was found compatible with suppurative inflammation. Nine months after the operation, a small swelling and erythema develops at the same area and a wide spectrum antibiotic was initiated. After 9 months, he presented again with swelling and erythema on the same area and antibiotic therapy is repeated. Before admission, he was euthyroid clinically and he was using L-thyroxin twice a day.

Fine needle aspiration (FNA) biopsy was performed, and an acute inflammatory process, which contains a micro abscess focuses, was determined. A hypo-echoic lesion was present on lower pole of the left lobe in thyroid USG. We determined the internal orifice of the fistula by an endoscopic examination (Figure 1). After the proper antibiotic therapy, his complaints got well. He did not approve to another approach for diagnosis or therapy, and he was discharged. After administering antibiotic therapy, a progressive recovery was observed. He was approached for another therapy but he is not willing to take it and then he was discharged from the hospital.

A 49-year-old man with a history of fever, chills and swelling on the right neck area was presented to our department. Before admission, he was taking an oral antibiotic, but the infection persisted and he had to have intravenous antibiotic after hospitalization. On seventh day of admittance, he experienced nausea, then vomiting and acute reduction in swelling was observed. When the patient was admitted, his fever was 38°C , oropharynx was hyperemic and there were erythema

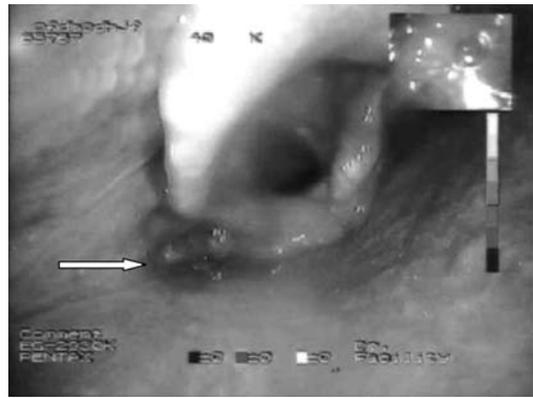


Figure 1 - The appearance of internal orifice of the fistula by an endoscopic examination.

and heat increase on the right neck area and there were 2 nodules measuring 2×2 cm in diameter, mobile and non-fluctuant. Laboratory observations indicate that leukocyte count was $9300/\text{mm}^3$ (nr: $4000\text{-}11000/\text{mm}^3$), sedimentation: 88 mm/hours (nr: 0-12 mm/hours), C-reactive protein: 83.2 mg/l (nr: 0-8 mg/l), thyroglobulin: 103 ng/ml (nr: 1.7-55.6 ng/ml), free triiodothyronine (FT3): 6.29 pg/ml (nr: 1.45-3.48), free thyroxine (FT4): 3.40 ng/dl (nr: 0.71-1.85) and thyroid-stimulating hormone (TSH) TSH: <0.01 IU/ml (nr: 0.35-4.94 IU/ml). It was accepted as destructive thyrotoxicosis, therefore, propranolol treatment was initiated to control the symptoms. There were gram-positive coupled coccus in direct microscopic examination of FNA and intravenous antibiotic was added to the therapy. The patient underwent thyroid scan for thyroiditis. Computed tomography (CT) scan revealed nodules in the thyroid gland. We also performed endoscopic investigation and the orifice of the fistula was determined. We performed a barium meal graphy, but the fistula tract was not demonstrated. In a follow-up period, there were no clinical complaints and thyroid function tests were normal. The patient was discharged from the hospital.

Thyroiditis is the infiltration of thyroid gland by inflammatory cells, and currently it was classified in 5 categories. Aspartate aminotransferase (AST) is not common due to its bacterial infections with a rate of 68%.² The infection in thyroid gland may develop by lymphatic, hematogen, trauma, or direct penetration with fistula from the adjacent structures. In general, women between 20-40 years old are more inclined to suppuration, but it has been reported in all age groups and both of the geniuses.⁴ Local infection findings as an acute swelling, erythema, and pain on the laterocervical left neck area after an upper respiratory tract infection and fever is usually detected. We obtained this classic history in both of the cases. In AST, acute inflammation markers such as leucocytosis, high levels of sedimentation, and C-reactive

protein usually accompanies to the noisy clinic table. Also, thyroglobulin may be detected in high levels. It has been reported that high serum thyroglobulin levels are good markers of thyroid infections.⁵ In our second case, thyroglobulin levels had exceeded 2 folds of the normal. The thyroid function tests are usually normal. But, it may be found slightly higher in 25% of the patients. Fine-needle aspiration biopsy must absolutely be performed to demonstrate the suppuration and to manage the therapy. The specimen should be investigated from the aspects of microscopic and microbiologic. We determined the suppuration by pathologic investigation of FNA, but there was no reproduction on the cultures. The ultrasonography (USG) and CT are the imaging methods for both diagnosis and differential diagnosis. In general, intra and extra-thyroidal areas are seen in USG as in our first case. Computerized tomography should be used to demonstrate the widespread of neck caught and to evaluate the other adjacent tissue plans and surgery.⁴ Generally, hypodense areas are encountered in CT as in our second case. There are 4 well-defined pouches, and another fifth one is added into the fourth pouches. Most of the authors suggest that piriform sinus fistula (PSF) is resulted from the fourth pouches. But, Miyauchi et al³ advocates that its origin is the fifth arcus. The fistula lies down the perithyroid space from the apex of piriform sinus. It is restricted by sternothyroid muscle in front, carotid cover in lateral and prevertebral fascia behind the purulent secretion moves ahead through the fistula and accumulates in this space.⁵ Sometimes, the fistula ends in the thyroid or in the incisional scar area. The most frequent abnormality is PSF in cases with AST, and it is reported that this fistula is the root of the infection.³ In the diagnostic approach, you must have first a doubt in diagnosis of PSF. Recurrent left neck abscess or unresponsive of acute thyroiditis to antibiotherapy or surgery enhances the suspicion more. Piriform sinus fistula is usually located on the left neck area, however, sometimes it is located on the right neck area. Takai et al⁵ suggests that hypopharynx must be carefully examined especially in AST cases with recurrent abscess. We succeeded in determining the internal orifices of the fistulas in our 2 cases. The barium meal graphy may be performed to demonstrate the fistula tract. It must be carried out in 2 months time after the

acute process, because the edematous tract during the acute inflammatory phase does not permit barium's passing, thus false negative results may occur. During treatment, the aspirated material must be examined with gram staining and empirical anti-biotherapy must be initiated. It was modified due to the reproduction in cultures. The cultures were negative in our cases, but we obtained clinical improvement with empirical anti-biotherapy. Although we agree that surgery is curative, because relapse does not occur in cases with fistulectomy, we could not perform fistulectomy because our patients did not accept any invasive interference. Therefore, if a patient with an abscess or an inflammatory process on the neck area, especially recurrent type, they must considered the possibility of AST. Also, the studies, which will demonstrate the presence of PSF, must be performed. Direct laryngoscopic study is quite useful to demonstrate the internal orifice of the fistula.

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