

Thyroid abscess with retropharyngeal extension causing vocal cord fixation

MEHMET ALI SAY, MÜGE ÖZCAN

ABSTRACT

Thyroid abscesses are rare because the thyroid gland is encapsulated, has a good blood supply and lymphatic drainage, and contains high amounts of iodine. Difficulty in breathing, dysphonia, hoarseness, dysphagia, and difficulty in moving the head may be observed in patients. Vocal cord paresis and movement limitation due to a thyroid abscess are rarely seen. We present a 36-year-old female with a rarely seen thyroid abscess that developed after subacute thyroiditis, extended to the retropharyngeal region, and presented with cord fixation and difficulty in swallowing.

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INTRODUCTION

The thyroid gland has an excellent blood supply, extensive lymphatic drainage, and contains high amounts of iodine. It also has a capsule.¹ Due to all these features, infectious pathologies of the thyroid gland are rare.¹ Acute suppurative thyroiditis (AST) occurs in less than 1% of all thyroid pathologies.² It is diagnosed by clinical examination, ultrasonography (USG), computerized tomography, fine needle aspiration biopsy, and laboratory tests.³ Treatment consists of surgical drainage and systemic antibiotics. If adequate treatment is not started early, it may be fatal.^{4,5} Patients with suppressed immune systems and children with congenital abnormalities are the most likely to develop thyroid gland abscesses.^{6,7} Additionally, the risk of a thyroid abscess is high in patients with long-standing goitre or thyroid malignancy.^{8,9} We report a 36-year-old female with a thyroid abscess that developed after subacute thyroiditis, extended to the retropharyngeal region, and presented with cord fixation and difficulty in swallowing.

THE CASE

A 36-year-old female patient had an acute upper respiratory tract infection approximately 1 month before presenting to the endocrine outpatient clinic with complaints of a sore throat and sensitivity in the throat that had lasted for approximately 15 days. During this period, she was treated with non-steroidal anti-inflammatory (NSAID) therapy, macrolide antibiotics, and corticosteroids. USG showed an appearance compatible with subacute thyroiditis in the right lobe, increased white blood count (WBC) ($12.98 \times 10^9/L$), and increased C-reactive protein

(CRP) value (20 mg/L). As investigation for thyroiditis, thyroglobulin and microsomal antibodies were tested. Subacute thyroiditis was diagnosed, and methylprednisolone 32 mg/day was started due to a lack of response to NSAID. A dramatic regression was observed in the patient's symptoms, and laboratory results decreased to normal values. Methylprednisolone dose was reduced and discontinued.

Two days later, the patient was admitted to the emergency department in our hospital with difficulty swallowing, hoarseness, swelling, and redness in the middle and left sides of the neck. Examination revealed a painful swelling of the neck (Fig. 1). CRP was 72.52 mg/L, and WBC was $16.55 \times 10^9/L$.

USG neck showed that the thyroid parenchyma was diffuse and slightly heterogeneous. The size of the right lobe was normal. There was a complex-complicated cystic lesion with dense content in the left upper medial part of the thyroid lobe, located cranially from the paratracheal area with a lobulated contour, measuring 30×19 mm, with point echogenicities in the heterogeneous hypoechoic internal structure. No blood supply was observed in the lesion on Doppler.

A contrast-enhanced neck computed tomography (CT) showed a hypodense cystic nodular area of approximately 33×28 mm in size, extending from the left thyroid chamber, from the posterior part of the thyroid cartilage to the retropharyngeal area, showing peripheral contrast enhancement (abscess extending to the retro-pharyngeal region). A flexible endoscopic examination was done on the same day, which showed limited movement of the left cord (Fig. 2).

The patient was hospitalized for intravenous (IV) antibiotics and drainage. She underwent urgent USG-guided drainage. Approximately 20 ml of purulent fluid was aspirated, and the material was sent for culture. The patient was started on IV meropenem and clindamycin. The culture grew *Streptococcus intermedius*. Meropenem was stopped, and IV ampicillin-sulbactam was started. Antibiotic therapy was given for 14 days. A repeat endoscopic examination showed that the vocal cords were mobile, and the pyriform sinus was normal. Repeat USG showed that the abscess had decreased. CRP and sediment values decreased, and the patient was discharged with oral antibiotic therapy. At 1-month follow-up, the endoscopic examination and serum markers were within normal limits.

DISCUSSION

Thyroid abscesses are more common in patients with immunodeficiency, congenital anomalies, and thyroid malignancies.¹⁰ Yu *et al.* reported that 50% of patients with AST had causes such as malignancy and HIV that led to immune deficiency.⁵ There was no such risk factor in our patient. A thyroid abscess is more common in congenital anomalies. It can be found

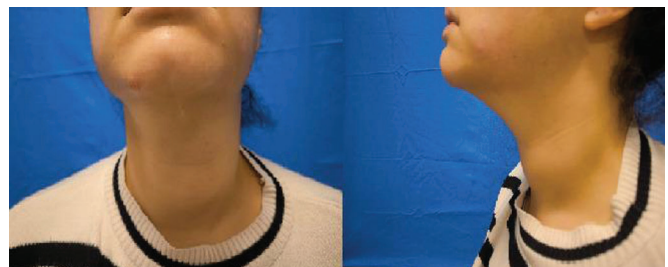


FIG 1. The patient had a painful swelling on palpation in the neck on the day she was admitted to the emergency department

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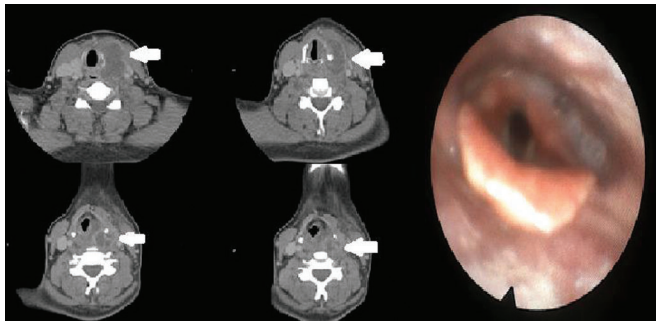


FIG 2. Contrast-enhanced neck CT scan in the emergency department, and an image of the patient's indirect laryngoscopy examination

especially in patients with type 3 and 4 branchial cleft cysts.¹¹ Paes *et al.* described a sinus tract between the pyriform sinus and the thyroid gland.¹² Patients present with complaints of tenderness, pain, and local temperature in the front part of the neck. Difficulty in breathing, dysphonia, hoarseness, dysphagia, and difficulty in moving the head may be observed. Vocal cord paralysis and movement limitation due to thyroid abscess are rarely reported.^{13,14} In our patient, limited movement in the left cord was observed on endoscopic examination. We believe that this limitation of movement may be due to the mass effect of the abscess or to pressure on the recurrent nerve.

Laboratory and imaging methods are used in the diagnosis of AST. WBC, CRP, and erythrocyte sedimentation rate as well as thyroid-stimulating hormone and free thyroxine values may be abnormal.⁷ Laboratory findings usually show leucocytosis with high ESR and euthyroid to slightly hyperthyroid function.² USG is the most commonly used imaging method. CT can be used to detect abscesses as well as to identify anatomical anomalies.²

The most common agents in thyroid abscesses due to AST are *Staphylococcus* and *Streptococcus* species. Gram-negative and anaerobic organisms are infrequent.¹² *Salmonella*, tuberculosis, echinococci and fungi have been reported to cause infection in the thyroid gland in people with an immune deficiency.¹⁵⁻¹⁷

Thyroid abscesses can also be seen as idiopathic or iatrogenic including after fine needle aspiration biopsy and heroin injection into the thyroid.^{18,19}

Treatment of thyroid gland abscesses is drainage and systemic antibiotics.² If patients do not respond to treatment despite antibiotics and drainage, hemi-thyroidectomy or total thyroidectomy should be done.²⁰ Since there are risks such as hypoparathyroidism and recurrent laryngeal nerve paralysis, surgery should be deferred.

Patients with thyroid abscesses may experience thyro-toxicosis

with symptoms of thyroid storm.²¹ Stridor due to tracheal compression, tracheal deviation, internal jugular vein thrombosis, sepsis, and death may also occur in thyroid abscesses.^{22,23}

Conflicts of interest. None declared

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