



Acute Neck Infection Due to Thyroid Abscess

Cengizhan Şan Özdemir, Selim Sözen, Oktay Banlı

Elazığ Education, and Research Hospital,
Department of General Surgery, Elazığ,
Turkey

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ABSTRACT

Thyroid abscess is a rare clinical disorder. The caused organism was found to be *Staphylococcus aureus*. A history of preceding upper respiratory tract infection and recurrent left sided neck infection should alert the physician to its presence. Early biopsy and cultures are needed. Thyroid abscess is successfully treated with immediate surgical intervention and appropriate antimicrobial agents.

Key words: Abscess, infection, thyroiditis

Troid Absesine Bağlı Derin Boyun Enfeksiyonu

Troid absesi nadir bir klinik bozukluktur. *Staphylococcus aureus* en çok sorumlu ajan olarak tespit edilmiştir. Üst solunum yolu enfeksiyonu ve sık tekrarlayan sol taraflı boyun enfeksiyonu hikayesi klinisyeni şüphelendirmelidir. Erken biyopsi ve kültüre ihtiyaç vardır. Troid absesi acil cerrahi girişim ve uygun antimikrobiyal ajanlar ile başarılı bir şekilde tedavi edilir.

Anahtar kelimeler: Abse, enfeksiyon, troiditis

Correspondence: Dr. Selim Sözen
Sürsürü Mahallesi, Haznevi Sokak, Elakent
Sitesi, C Blok Daire:10, Elazığ, Turkey
E-mail: selimsozen63@yahoo.com

INTRODUCTION

Acute suppurative thyroiditis is a rare condition even in patients with impaired host defenses (1). Thyroid abscess and acute suppurative thyroiditis represent only 0.1 to 0.7% of surgically treated thyroid pathologies (2). The diagnosis of acute suppurative thyroiditis is usually made on clinical grounds and confirmed by needle aspiration or surgical drainage. The thyroid scan is abnormal, with decreased uptake in the involved areas of the gland (3,4).

CASE

A 22-year-old white female patient was admitted with an enlarging, painful neck mass accompanied by high fever. There was history of high grade fever, odynophagia and dysphagia since the onset of the neck swelling. She was acutely ill with a temperature of 38.4°C and tachycardia. Examination of the neck revealed a large tender, warm, and fluctuant mass occupying the region of the left lobe of the thyroid gland and no further extension. Abscess located on the left side was as large as a fist, and exquisitely tender to the touch. There was considerable dyspnea and huskiness of voice and reflex cough, indicated implication of the recurrent laryngeal nerve. The neck was swollen, red, very painful, and sensitive to movement, and there was severe occipital headache. On physical examination the patient was hoarse and in moderate distress. Temperature was 39.4°C and pulse 100/mm. There was a diffuse, tense, nonfluctuant, erythematous, warm, and exquisitely tender swelling over the thyroid area. The retropharyngeal space had normal dimensions on radiographs. Computed tomography revealed cystic areas in left lobe of the thyroid gland. The CT scans showed what appeared to be acute thyroiditis and penthyroid soft-tissue infection (Figure 1). The spectrum of findings included loss of iodine in the affected lobe, thyroid swelling with poorly defined margins, low density intraparenchymal areas, and air in the thyroid. Ultrasound examination of neck, revealing cystic area anterior to thyroid. Laboratory findings included WBC of 12,900/mm³ with a shift to the left, and a sedimentation rate of 120 mm/hr. Serum T4, T3 resin uptake, and TSH were normal. Antithyroglobulin and antimicrosomal antibodies were undetectable. Radiographs of the neck revealed soft-tissue swelling without airway compression. On the second hospital day definite fluctuance was found, and at surgery a 100-cc abscess was drained. It lay deep to the strap muscles but did

not involve the thyroid. Pus culture was uninformative. Fever subsided, voice improved, and several weeks later the wound had healed. At 4 weeks the patient is well. Culture grew *Staphylococcus aureus* sensitive to penicillin. Postoperative recovery was rapid. In the operating room, a small incision three inches long over site of abscess, splitting of capsule with thermocautery, With the finger in the cavity a second abscess was readily located and opened by lacerating the gland-tissue with the finger. And then a thin tube drain was inserted which drained pus for 72 hours after which the drainage was scanty.

DISCUSSION

Acute suppurative thyroiditis is a rare condition even in patients with impaired host defenses (1). Thyroid abscess and acute suppurative thyroiditis represent only 0.1 to 0.7% of surgically treated thyroid pathologies (2). The diagnosis of acute suppurative thyroiditis is usually made on clinical grounds and confirmed by needle aspiration or surgical drainage. The thyroid scan is abnormal, with decreased uptake in the involved areas of the gland (3,4).

Acute suppurative thyroiditis especially affects patients with preexisting thyroid gland pathology, and in childhood it is associated with local anatomic defects (5). The pyriform sinus fistula is the route of infection and is the most common underlying abnormality in acute suppurative thyroiditis cases (5). Acute suppurative thyroiditis now rarely progresses to abscess formation due to the widespread use of antibiotics (6). Pyriform sinus fistula is a developmental abnormality at the 3 or 4 branchial pouch early in the course of acute suppurative thyroiditis, the differential diagnosis may be difficult, and includes nonsuppurative, painful thyroiditis or acute hemorrhage into a thyroid nodule or cyst. Infections of the thyroid gland are rare due to its isolated anatomic location, rich blood supply, generous lymphatic drainage and high concentrations of iodine (7).

The left side of the thyroid is more commonly involved than the right in cases with an abscess (8). This left-sided predominance is unexplained but may possibly be related to the embryologic asymmetry of the fourth branchial arch, which forms the aortic and innominate arteries. The normal thyroid gland, being enclosed in a firm capsule having no excretory duct and a low



Figure 1. The CT scans showed what appeared to be acute thyroiditis and perithyroid soft-tissue infection

functional activity, is protected against the invasion of organisms unless introduced through the blood-supply. Suppurative thyroiditis is always of microbic origin. Recently, the cause of acute recurrent suppurative infections of the thyroid and neck has been identified as being due to a congenital internal sinus arising from the pyriform fossa with the tract ending in the thyroid or perithyroid tissues. In the rare cases where a thyroid abscess is formed, the offending organisms include gram-positive pathogens such as *Staphylococcus aureus* and anaerobes of the oropharyngeal area(5,9). There have been reports in literature where *klebsiella*, *salmonella typhi*, *salmonella bradenburg* and *eikenella corrodens* have been isolated in individual cases as the caused organism. *Staphylococcus aureus* is isolated in this case. Most often the suppurative process is local and the rest of the scan remains normal (3,10,11).

Thyroid abscesses are generally limited to one lobe. They are single or multiple. In contrast to the acute phase of nonsuppurative thyroiditis, during which a patient is clinically hyperthyroid with elevated serum T4 and T3 concentrations (12,13). Suppurative thyroiditis rarely results in these findings (3,4,14). Our patients' laboratory findings were also normal. Serum T3,T4 resin uptake, and free thyroxine index were normal. The CT scans showed what appeared to be acute thyroiditis and perithyroid soft-tissue infection. The spectrum of findings included loss of iodine in the affected lobe, thyroid swelling with poorly defined margins, low density

intraparenchymal areas, and air in the thyroid. When the adjacent perithyroid tissues were involved, we saw edema or a low-density enhancing mass with or without air in it.

Children and adults have painful swelling in the anterior lower neck accompanied by fever that is usually preceded by a sore throat. Neonatal infants have respiratory distress, sometimes accompanied by stridor, associated with tracheal compression by the abscess in the neck(15). Adult patients with this condition often have a history of repeated upper respiratory tract infection and sore throat. With suppuration and enlargement of the mass, the skin becomes warm and erythematous. Hoarseness of the voice is frequently present. Untreated cases may lead to septicaemia, osteomyelitis or septic thrombophlebitis.

In conclusion; when a patient presents with a tender mass in the thyroid region, we strongly recommend ultrasound examination of the neck, in order to distinguish an intrathyroid from an extrathyroid process. Early biopsy and cultures are needed for prompt antimicrobial therapy. Thyroid abscess is successfully treated with immediate surgical intervention and appropriate antimicrobial agents.

REFERENCES

1. Imai C, T Kakiyama A, Watanabe Y, et al. Acute suppurative thyroiditis as a rare complication of aggressive chemotherapy in children with acute myelogenous leukaemia *Pediatr Hematol Oncol* 2002;19:247-53.
2. Schneider UR, Birnbacher S, Schick W, Ponhold E. Recurrent suppurative thyroiditis due to pyriform sinus fistula: *Eur J Pediatr* 1995;154:640-2.
3. Goldfarb H, Schi Frin D, Graig FA. Thyroiditis caused by tuberculous abscess of the thyroid gland. *Am J Med* 1965;38: 825-8.
4. Adler ME, Jordan G, Walter RM JR. Acute suppurative thyroiditis. Diagnostic, metabolic and therapeutic observations. *West J Med* 1978;128:165-8.
5. Rohondia OS, Koti PP, Majumdar T, Bapat RD. Thyroid abscess. *J Postgrad Med* 1995;41:52-4.
6. Menegaux F, Biro G, Schatz C, Chigot JP. Thyroid abscess. Apropos of 5 cases. *Ann Med Interne (Paris)* 1991;142:99-102.
7. Berger SA, Zinszein J, Villamena P, Mittman N. Infectious diseases of the thyroid gland. *Rev Infect Dis* 1983;5:108-18.
8. Yamashita H, Noguchi T, Takahashi M. Recurrent cervical abscess due to pyriform sinus fistula. *J Larygol Otol* 1995;109:886-8.
9. Minhas S, Watkinson JC, Franklyn J. Fourth branchial