

Rare brucellosis involvement: Thyroid gland abscess

Mahmut Sunnetcioglu^{a,*}, Mehmet Resat Ceylan^b, Murat Atmaca^c, Ali İrfan Baran^a, Osman Menteciler^d, Rifki Üçler^c

^aDepartment of Infectious Diseases and Clinical Microbiology, Yuzuncu Yil University, Medical Faculty, Van, Turkey

^bDepartment of Infectious Diseases and Clinical Microbiology, Viransehir State Hospital, Viransehir, Turkey

^cDepartment of Endocrinology, Yuzuncu Yil University, Medical Faculty, Van, Turkey

^dDepartment of Infectious Diseases and Clinical Microbiology, Bingöl State Hospital, Bingöl, Turkey

Abstract. Brucellosis is a zoonotic disease, especially in endemic regions all over the world, it is a common infectious disease. However, brucellosis borne thyroid gland infection is quite rare. The purpose of this study is to draw attention to the thyroid abscess borne due to brucella, which also show an unusual clinical graphic. Within this study we aim to represent a case with thyroid abscess dominated *Brucella spp.*

Key words: Thyroid gland abscess, brucellosis, therapy

1. Introduction

Brucellosis is an infectious disease still endemic in many parts of the world, particularly in Mediterranean and Middle Eastern countries, including our country (1). The *Brucella species* is a small gram negative coccobacilli, immobile, and free of spores (2). The disease can cause multisystemic complications. In many studies, cases have been reported to show complications involving the gastrointestinal, cardiovascular, genitourinary, hematological, neurological, skeletal, respiratory, skin, and eyesight systems (3,4). One of these complications is thyroid abscess. Thyroid abscess is a relatively rare complication compared to the other systems affected by acute brucellosis. This paper will present instances of common thyroid abscess caused by the *Brucella species*.

2. Case report

A 22-year old female patient was admitted 20 days ago into the endocrine clinic of our hospital with complaints of fever, fatigue, night sweats,

joint pain, neck pain, swelling, and difficulty breathing. Patient, who underwent head and neck examination, was found to have a thyroid demonstrating palpable, precise, and temperature increases. A thyroid ultrasonography was carried out on the patient and thyroid cysts were detected. In her medical history, the patient, diagnosed with a goiter 4 years ago, and who has experienced 3-4 kg weight loss per month since, was diagnosed with a hyperthyroid at an external medical center and was subsequently directed to the endocrine clinic. The patient, who has been struggling with thyroid complaints, has never used medicine to cure this disease. She gave birth to her baby three months ago in an external medical center.

Laboratory tests: Hb: 12.3 g/dL, WBC: 5200/mm³ (neutrophils: 46%, lymphocytes: 41% and monocytes: 11%) thrombocyte 313.000/mm³, sedimentation/ESR: 56 mm/h, CRP: 28 mg/L, AST: 37 U/L, ALT: 60 U/L, creatinine: 0.7 mg/dL, glucose: 103 mg/dL, TSH: 0.05 µIU/mL and T4:2.2 ng/dL.

Regarding the patient's family history, 7 months ago her husband's parents received a diagnosis of brucellosis and were treated accordingly.

As a result of the examinations held thyroid cysts and empyema were detected in the patient's lungs. The patient's thyroid cysts and empyema were aspirated and sent for culture. Examination of both cultures showed that the *brucella spp.* continued to form. A brucella tube agglutination test was conducted on the patient's blood. The

*Correspondence: Dr. Mahmut Sunnetcioglu
Department of Infectious Diseases and Clinical
Microbiology, Yuzuncu Yil University, Medical Faculty,
Van, Turkey
Tel: +90-(432)-215 0473
Fax: +90-(432)-216 7519
E-mail: mahmutsunnetci@hotmail.com
Received: 17.10.2014
Accepted: 30.10.2014

test resulted in 1/1280 and rifampicin 300mg 1x2 and doxycycline 100mg 2x1 was started. As a result of the ultrasound conducted on the patient's neck, a hemorrhagic cyst was found in the left thyroid lobe, 8x5, 5x7 cm in size (Figure 1).



Fig. 1. Swelling on the anterior part of the neck in thyroid gland location.

Because of the thyroid left lobe brucella abscess, left lobectomy and isthmectomy operations were conducted. During the operation process, an abscess culture was again taken and sent for examination, but no active reproduction was observed. The post-operative period was taken to our service. 1x1/1 g. of streptomycin was added to the treatment. We did not face any problems during treatment and all laboratory values were found to have reached normal limits during the follow-up and the patient was subsequently discharged to outpatient control. The patient's clinical and laboratory improvement was observed in full when she came back for her routine controls.

3. Discussion

Brucellosis can affect many other organs and systems with heterogeneous clinical variability. It is also a systemic zoonotic infectious disease. Often, it is seen as an occupational disease in animal husbandry, especially in developing countries, and can affect all segments of society. Consumption of unpasteurized, undercooked/boiled milk and milk products, direct contact with an infected animal or birth materials are the main modes of transmission (2,3,5). Thyroid abscess is rarely seen.

Streptococcus and *staphylococcus* are the major factors. Thyroid abscess is considered to be a rare complication compared to the other forms of brucella complications with a prevalency rate of less than 1%.

Vermiglio et al (6) reported a case of thyroiditis borne from *Brucella melitensis* in a 42-year-old female patient. The patient's Wright test was found to be positive and active reproduction was detected in her blood culture. The case was successfully solved after a 2-month treatment of streptomycin and tetracycline.

Starakis et al (7) reported thyroid abscess borne from *Brucella melitensis* in an 87-year-old female patient in Greece. Rifampicin and doxycycline treatment was given to the patient for 3 months. Besides this, the right thyroid lobe and isthmus were surgically resected.

Azizi et al (8) reported 3 female patients with thyroid gland infections borne from brucella, each with positive Wright test results which found brucella formations on their whole cultures.

A study conducted by Uzunlar et al (9) reported a 27-year old female patient with a painless mass in her thyroid who went down under operation due to malignant thyroid tumors. The patient was diagnosed with metastatic adenocarcinoma, detected through an examination conducted through another pathology laboratory, of the thyroidectomy material resected by the diagnosis of the tumor. However, the comprehensive investigation found that the secondary chronic inflammatory changes were due to suppurative thyroiditis, which resulted from brucellosis in the thyroid lesions. Streptomycin, tetracycline, and rifampin combination treatment was successful.

Harman et al (10) reported a 20-year old male patient whose culture, gathered from thyroid abscess through drainage, demonstrated a reproducing *brucella species*. Brucella may be accompanied by hyperthyroidism. Patient was also diagnosed with hyperthyroidism 4 years ago and his disease process was followed-up. Brucella diagnosis is usually made serologically. A Brucella tube agglutination test of the patient came back positive in the blood and thyroid cystic fluid. Additionally, *Brucella spp.* was isolated on the culture we created through the sample gathered via drainage from thyroid abscess and pleural empyema. Brucella can involve any organ of the body. Because Brucella is still considered to be endemic within our region, the potential mass formation, especially in the neck area, occurring as an atypical formation of the disease, shall be redolent of a secondary

thyroid abscess to Brucella. Thus, different diagnoses may also be valid.

References

1. Solera J, Martinez-Alfaro E, Espinosa A. Recognition and optimum treatment of brucellosis. *Drugs* 1997; 53: 245-256.
2. Young EJ, Mandell GL, Bennett JE. *Brucella Species. Principles and Practice of Infectious Diseases*. 6th ed. Philadelphia: Churchill Livingstone 2005; 2669-2674.
3. Çelen MK. Complicated bruselloz. *Ankem Jour* 2006; 20: 214-218.
4. Memish ZA and Venkatesh S. Brucellar epididymo-orchitis in Saudi Arabia: A retrospective study of 26 cases and review of literature. *BJU International* 2001; 88: 72-76.
5. Karsen H, Akdeniz H, Erten R, et al. Thyroid gland abscess due to *Brucella melitensis*. *Dicle Medical Journal* 2011; 38: 225-227.
6. Vermiglio F, Stassi G, Finocchiaro MD, Trimarchi F. Thyroiditis due to *Brucella melitensis*. *J Endocrinol Invest* 1995; 18: 308-310.
7. Starakis I, Stoubou V, Siagris D, et al. Brucellar thyroid abscess: Case report and review of the causes and management of this rare medical entity. *Infect Dis Clin Pract* 2007; 15: 70-73.
8. Azizi F, Katchoui A. Brucella infection of the thyroid gland. *Thyroid* 1996; 6: 461-463.
9. Uzunlar AK. Resembling Carcinoma Thyroiditis due to *Brucella melitensis* Case. *Firat Med Journal* 2008; 13: 205-206.
10. Harman R, Aşık Z, İnan D, et al. Thyroid Abscess Due To Brucellosis. *Trakya Univ Med Fak Jour* 2010; 27: 438-439.