

ACUTE THYROIDITIS ASSOCIATED WITH BRUCELLOSIS: A CASE REPORT

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ABSTRACT

Brucella thyroiditis represents an extremely rare focal form of brucellosis. In this case report we describe a 55 years old male, diagnosed with brucellosis and peripheral arthritis with subsequent development of acute thyroiditis. The symptoms duration consistent with brucellosis started two weeks before establishing the diagnosis. Only a day after diagnosis and initiation of antibrucellar treatment, acute non-suppurative thyroiditis suddenly manifested. Thyroiditis was diagnosed with clinical inspection and confirmed by ultrasound investigation. With the appropriate antibrucellar treatment, complete cure of thyroid affection was reached in ten days and the patient remained well during the follow-up period of two and a half years. In conclusion, in brucellosis endemic regions brucellosis should be included in the diagnostic consideration in patients with acute non-suppurative thyroiditis. Early recognition and adequate treatment of brucella thyroiditis results in favorable outcome.

Keywords: brucellosis; thyroiditis; arthritis; ultrasound

INTRODUCTION

Brucellosis is a zoonotic infection transmitted to humans by contact with fluids from infected animals (sheep, cattle, goats, pigs, or other animals) or derived food products, such as unpasteurized milk and cheese [1]. It is one of the most widespread zoonoses worldwide. Brucellosis has high morbidity, both for humans and animals; It is an important cause of economic loss and a public health problem in many developing countries [2].

The acute illness can be manifested as a systemic disease with insidious onset of fever, night sweats, arthralgias, myalgias, low back pain, weight

loss, as well as weakness, fatigue, malaise, headache, dizziness, depression, and anorexia, without organ manifestation, or as a localized illness with affection of one or more systems, like osteoarticular, hematopoietic, urogenital, nervous, cardiovascular etc. [1]

Thyroid gland involvement, due to brucellosis, was first reported in 1963 by Pacheco [3]. It is an extremely rare condition and less than 20 cases are reported in the literature, almost exclusively as case reports. In the descriptions, predominated cases with thyroid gland abscess [4-8], but also acute [9-11],

subacute [3, 12], chronic suppurative [13], and recurrent thyroiditis [14] have been described.

Here we present a case of acute non-suppurative thyroiditis and osteoarthritis in the course of brucellosis.

CASE REPORT

A 55 years old male patient, living in a rural district, without any co-morbidities, presented with high grade fever, chills, night sweating, arthralgia and loss of appetite for the last two weeks. He was treated with non-steroid anti-inflammatory drugs by his family doctor, without any improvement. He had a positive history for a contact with sheep and lambs during their slaughter a few months ago.

During the initial medical examination at our hospital he was conscious, pail, febrile up to 39.0°C, with pain, swelling and movement restriction of the right ankle and the left carpometacarpal joint. Laboratory analysis showed hemoglobin 135 g/dl, erythrocytes $4940 \times 10^{12}/L$, white blood cells $10.0 \times 10^9/L$, neutrophils 69%, lymphocytes 20%, ALT 29 U/L, AST 21 U/L, erythrocyte sedimentation rate (ESR) 25 mmHg and C-reactive protein (CRP) 61 mg/L. The Rose Bengal test was positive and the Brucellacapt test was 1:5120. Treatment with parenteral gentamicin 120 mg two times a day, oral doxycycline 200 mg once a day and oral ciprofloxacin 500 mg two times a day was immediately initiated.

The second day of the hospitalization the patient presented with a sudden pain and swelling in the front part of the neck, accompanied with sore throat, mild dysphagia and dysphonia. Physical examination revealed enlarged thyroid gland with bilateral, warm, elastic swelling painful on palpation, movable during swallowing and with a discrete overlaying skin redness (Figures 1 and 2). Both thyroid lobes were palpable, with regular margins, strongly sensitive on palpation, without fluctuation. The thyroid function analysis revealed total serum triiodothyronine (T3) 2.12 ng/dl (normal values 0.9-2.9 ng/dl), total serum thyroxine (T4) 166 ng/dl (normal values 71-141 ng/dl) and thyroid-stimulating hormone (TSH) 1.24 mIU/L (normal values 0.4-4.5 mIU/L). Anti HIV and tuberculin skin tests were negative.

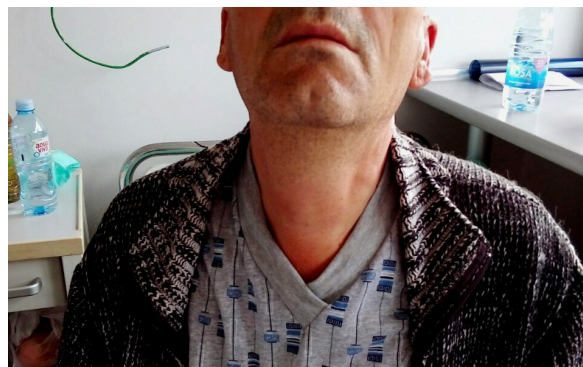


Figure 1 and Figure 2. Frontal and profile images show enlarged thyroid gland with discrete overlaying skin redness

The ultrasound of the thyroid demonstrated asymmetric enlarged thyroid gland. Right and left thyroid lobes had a diameter of $28 \times 38 \times 49$ mm and $22 \times 24 \times 47$ mm respectively, with heterogeneity and overall reduced parenchymal echo. Moreover, an oval heterogeneous, mostly hypoechogenic nodule was observed above isthmus, spreading towards the upper part of the right lobe, with a diameter of 15 x 10 mm (Figure 3).



Figure 3. Ultrasound demonstrated an asymmetric enlarged thyroid gland with heterogeneity and overall reduced parenchymal echo

During the first two days an enlargement of the thyroid gland with expressed signs of inflammation was evident. In the next two days, the thyroid gland was about the size of a smaller chicken egg, warm, painful on palpation, with pain upon swallowing, and without fluctuation. In the time following, there was gradual regression of the swelling, the pain and both the local warmth and the redness, as well as reduction of the dysphagia and dysphonia. All local symptoms and signs disappeared by the tenth day. The patient had high temperature for the first five days of the hospitalization. Thenceforward he had a normal body temperature.

Gentamicin was administered for the first 10 days, whereas doxycycline and ciprofloxacin were continued throughout the whole hospital stay that lasted two weeks. Arthritis of the carpometacarpal joint was existent till the tenth day, and ankle arthritis lasted during the first 14 days after treatment initiation. Control laboratory analysis including thyroid function tests by the end of the second week were within the normal range. The patient was discharged afebrile, without constitutional symptoms and with given recommendation to continue the treatment with doxycycline and ciprofloxacin for the next 30 days.

At the end of the 45-days treatment course the patient was clinically cured, with normal laboratory analysis and normal values of thyroid function tests. His Brucellacapt test was 1:1280 and ultrasound finding of the thyroid gland was normal (Figure 4). Marked serological reduction (Brucellacapt 1:160) was achieved in the tenth month after the treatment. The patient was periodically followed-up in the period of two and half years and he was in a good health all the time.

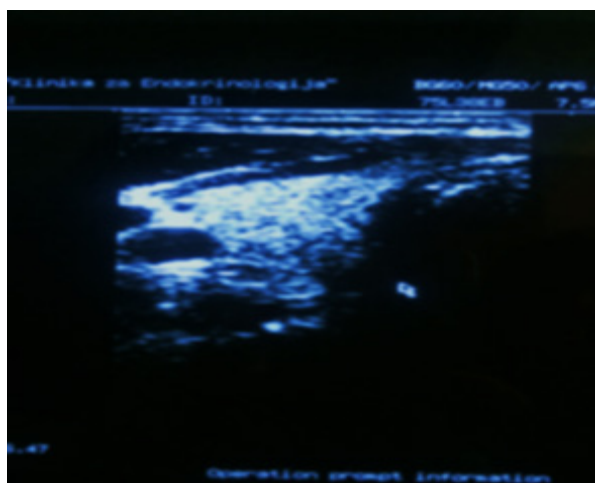


Figure 4. Normal ultrasound finding of the thyroid gland at the end of antibrucellar treatment

DISCUSSION

In this study we described a rare case of acute thyroiditis, which according to the clinical characteristics, the course, and the adequate response to antibrucellar treatment is due to brucella etiology. Acute bacterial thyroiditis is a rare phenomenon, due to natural thyroid gland defense mechanisms, which include thyroid gland anatomic position, its capsulated nature and the lack of direct communication with neighboring structures, high iodine content, high vascularity and extensive lymphatic neck drainage [5, 6, 9]. Consequently, brucella thyroiditis is an extremely rare condition [6, 9]. In a large Turkish study of 1028 patients with brucellosis, only one case with brucella thyroiditis was found [15]. A few bigger case series of patients with brucellosis did not find thyroiditis at all [16, 17, 18].

Brucella thyroiditis is more often observed in women [3, 4, 5, 8, 9, 10, 11, 13]. In men, as in our case, it is very rare [6, 7, 14] and the reason for such gender distribution still remains unclear. Furthermore, all cases described show age distribution in a range from 19 to 87 years of age [3, 4]. Thyroiditis has appeared in our patient two weeks after the onset of the first symptoms and signs compatible with brucellosis, similarly to a few other cases [10, 13]. In our case, besides the thyroiditis, the patient also had concomitant involvement of two peripheral joints. Two other reports in the literature also describe simultaneous appearance of brucella arthritis and thyroiditis [6, 7], which is probably due to the high frequency of osteoarticular involvement in brucellosis.

In brucella thyroiditis, parameters of inflammation vary from slightly [5, 8], to moderately elevated [7, 11], while thyroid function tests are usually within normal range [7, 10, 13]. However, deviations are possible, like lower TSH and elevated T4 [3, 5, 9, 11].

The physical examination, together with the ultrasound of the thyroid gland, are usually enough to diagnose acute thyroiditis, and positive serology for Brucellosis is undoubtedly a confirmation of the etiology. Fast and adequate response to antibrucellar treatment represents an additional confirmation that our patient suffered from brucella thyroiditis. According to this, it was not necessary to undertake further investigations involving additional invasive and/or imaging procedures which are mainly reserved when the ultrasound

fails to establish the diagnosis; When there is suspicion for abscess and when expected therapeutic response is missing. It is a well-known fact that in unclear cases fine needle aspiration and cultivation of the aspirated pus can help in establishing the etiological diagnosis [4, 5, 6].

The treatment that was administrated in our patient did not differ from the therapeutic approach used in patients with uncomplicated brucellosis in this region [2]. The treatment resulted with successful response rendering the thyroiditis in a shorter period than seen in several other studies [3, 7, 9, 10]. This is probably due to the early recognition of the illness and timely treatment initiation with an adequate choice of antimicrobial drugs. In several other reports, patients with brucellar thyroiditis were treated even longer than 6 weeks, which we consider as unnecessary if there is not suppuration. On several occasions brucellosis was not recognized on time and treatment initiation was postponed, which resulted with thyroid gland abscess formation [5, 6, 7]. After adequate treatment the outcome in patients with brucella thyroiditis was favorable [7, 9, 10, 11].

In conclusion, in brucellosis endemic regions, every case with acute thyroiditis should be considered for a possible brucella etiology. Early recognition and adequate treatment of brucellosis decreases the possibility of thyroid gland involvement, and timely treatment of brucella thyroiditis undoubtedly leads to a favorable outcome, without abscess and need for surgical approach.

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Резиме**АКУТЕН ТИРОИДИТ АСОЦИРАН СО БРУЦЕЛОЗА: ПРИКАЗ НА СЛУЧАЈ**

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Бруцелозниот тироидит е екстремно ретка фокална форма на бруцелозата. Овде опишуваме случај на 55-годишен маж со бруцелоза и периферен артритис. Болеста започнала две недели пред да биде поставена дијагнозата. Еден ден по дијагностицирањето и отпочнувањето на третманот, ненадејно се појави акутен несупуративен тироидит. Тироидитот беше дијагностициран со клиничка инспекција и потврден со ултразвук. Со соодветен антибруцелозен третман беше постигнато комплетно излекување на тироидното засегање за десет дена и во текот на две и пол години следење пациентот беше добар. Како заклучок, во ендемските региони за бруцелоза, таа треба да биде вклучена во диференцијалната дијагноза на пациентите со акутен несупуративен тироидит. Раното препознавање и адекватниот третман на бруцелозниот тироидит даваат поволен исход.

Клучни зборови: бруцелоза, тироидит, артритис, ултразвук