Subacute thyroiditis in Western Saudi Arabia

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ABSTRACT

Objectives: The aim of this study is to assess the clinical presentation of 23 patients with subacute thyroiditis (SAT) and the diagnostic value of radionuclear scan.

Methods: This is a cohort study, which consists of 23 patients with a suspected diagnosis of subacute thyroiditis. The study was carried out in the Endocrinology Clinic, King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia between July 2002 and July 2004. Medical charts including age, gender, clinical presentation, systemic symptoms and clinical examination of the thyroid gland were reviewed. Laboratory data included white blood count and its differential count, erythrocyte sedimentation rate (ESR), thyroid function test and thyroid antibodies. The radionuclear scan results were also noted. The mode of therapy provided to patients and the outcome of the treatment during a follow up period of 2 years was reported.

Results: Twenty-three adult patients with subacute thyroiditis (15 females and 8 males with a female to male ratio of 1.9:1) were reviewed over a 2-year period. The mean age was 35.8±9.2 years. Eighteen patients (78%) had an upper respiratory tract infection at the initial clinical presentation. Twenty patients (87%) visited an Ear, Nose and Throat specialist for sore throat and abnormal sensation in the throat at least 2 weeks before presentation to the endocrinologist. Two patients were admitted to a medical unit with a diagnosis of fever of unknown origin for 4 weeks. All patients had an elevated free thyroxine (35.7±19.8 pmol/L) and suppressed thyroid–stimulating hormone (TSH) (0.043±0.065IU). The radionuclear san showed either no uptake at all in 12 patients or minimal uptake in 11 patients (0.32±0.55%). Eight patients (35%) received prednisolone therapy alone with an average dose of 30-40 mg daily for 7-8 days; 7 patients (30%) were treated with non-steroidal anti-inflammatory drugs (NSAIDs) only. Eight (35%) patients were treated with both NSAIDs and corticosteroids. Hypothyroidism, with elevated TSH, was observed in 6 (26%) of our patients with positive thyroid antibodies during the first 6 months of follow up. There were no reported cases of recurrent or permanent hypothyroidism in our cohort study.

Conclusion: Subacute thyroiditis is an uncommon disease that should be considered in the differential diagnosis of acute anterior neck pain, sore throat and fever especially in patients who do not respond to treatment. In the clinical setting, radioiodine uptake can help exclude other diseases, confirm the diagnosis and expedite the initiation of appropriate therapy to relieve symptoms.

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Subacute thyroiditis (SAT) (also called de-Quervain thyroiditis or granulomatous thyroiditis) is a self–limiting, possibly viral, inflammatory thyroid disorder, which is usually associated with pain in the region of the thyroid in addition to other systemic symptoms.[1] Other clinical features of SAT include symptoms of hyperthyroidism, suppressed levels of thyroid stimulating hormone (TSH), low thyroid uptake of radioactive iodine, and an elevated erythrocyte sedimentation rate (ESR). The diagnosis is based on clinical and laboratory data. A tissue diagnosis is rarely needed.[2] In most cases only symptomatic treatment is necessary consisting of a short course of a nonsteroidal anti-inflammatory drug (NSAID). Corticosteroids are very effective in relieving

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symptoms of SAT, often within 24 hours. Levothyroxine is only indicated during the hypothyroid phase of the illness.[3] Subacute thyroiditis usually resolves completely and spontaneously over several weeks or months. Rarely, the course may extend over several years with repeated bouts of inflammation of the thyroid gland.[4] The incidence of SAT is low. There are only few sporadic case reports of SAT from Kingdom of Saudi Arabia (KSA) and other countries.[5-7] The aim of our study is to assess the clinical presentations of 23 patients with SAT and the diagnostic value of radionuclear scan.

Methods. This is a cohort study that included all patients who presented to the Endocrinology Clinic with a probable diagnosis of SAT at King Abdul-Aziz University Hospital, Jeddah, KSA between July 2002 and July 2004. The inclusion criteria for diagnosis of SAT were any of the following: (i) Painful thyroid along with either absent or suppressed uptake of iodine or an elevated ESR, or both. (ii) Unilateral thyroid pain with abnormally low uptake of iodine and elevated ESR. Data were obtained by reviewing each patient's medical chart for age, gender, nationality, clinical presentation, systemic symptoms and symptoms of hyperthyroid. A detailed clinical examination of the thyroid gland was noted. Laboratory data included white blood cell count with its differential count, ESR, thyroid function test (free thyroxine [FT4], triiodothyronine [FT3], TSH), thyroid antibodies (anti-microsomal and anti-thyroglobulin antibodies). The radionuclear uptake scan of each patient was reported. The mode of therapy provided to the patients and the outcome of the treatment during a follow up period of 2 years was also noted. The results were expressed as mean±SD or median (range).

Results. Twenty-three adult patients with SAT (15 females and 8 males with a female to male ratio of 1.9:1) were reviewed over a 2 year period. The mean age was 35.8±9.2 years; the range was 21-54 years. Eleven patients (48%) were Saudi, 12 patients (52%) were non-Saudi (5 Arabs, 4 Asians, 2 Filipinos and 1 British). Eighteen patients (78%) had a history of upper respiratory tract infection. Twenty patients (87%) visited an ENT specialist for a sore throat and an abnormal sensation of throat at least 2 weeks before their visit to the endocrinologist. Two patients were admitted to the medical unit with a diagnosis of fever of unknown origin for 4 weeks. **Table 1** shows the symptoms and signs in the patients studied. All patients had an elevated FT4 (35.7±19.8 pmol/L) and a suppressed TSH (0.043±0.065IU). Thyroid antibodies (antimicrosomal and antithyroglobulin antibodies) were measured in 10 patients (8 patients were positive; and 2 patients were negative). Radionuclear san confirmed the diagnosis of SAT, which showed either no uptake at all in 12 patients or minimal uptake in 11 patients (0.32±0.55%). Ultrasonography was carried out in one patient only. Computerized tomography scan was carried out in one diabetic patient who presented with a tender neck and fever for 4 weeks to exclude a thyroid abscess. Fine needle aspiration (FNA) was not preformed on any of the patients (**Table 2**). Eight patients (35%) were treated with predinsolone alone in a dose of 30-40 mg daily for 7-10 days. Seven

Table 1 - Clinical presentation of subacute thyroiditis in 23 patients.

Symptoms	N	(%)	Signs	N	(%)
Upper respiratory tract infection	18	(78.3)	Fever (37°C-40°C)	15	(65.2)
Sore throat	20	(87)	Goiter	9	(39.1)
Unilateral thyroid pain	3	(13)	Tender neck	15	(65.2)
Thyroid pain	15	(65.2)	Localized tenderness in neck	16	(69.5)
Thyroid pain radiating to jaw	12	(52.2)	Palpable lymph nodes	3	(13)
Arthralgia	10	(43.8)			
Myalgia	12	(52.2)			
Tremor	18	(78.3)			
Sweating	18	(78.3)			
Weight loss	16	(69.6)			
Fever of unknown origin	2	(8.7)			

Table 2 - Laboratory data at diagnosis for 23 patients with subacute thyroiditis.

Laboratory test	Mean±SD	Median	Range
Free thyroxin (12-22pmol/L)	35.7 ± 19.8	28.6	15.7 - 100
Free triiodothyronine (2.8-7 nmol/L)	14.25 ± 5.07	14.25	5.5 - 23.4
Thyroid–stimulating hormone (0.27-4.2 IU)	0.043 ± 0.065	0.005	0.003 - 0.096
White blood cell (3.8*109/L)	8.3 ± 2.38	7.7	4.7 - 13.6
Erythrocyte sedimentation rate	41.87 ± 9.7	29	10 - 83
Uptake of iodine (%)	0.32 ± 0.55	0.2	0 - 2

(30%) patients were treated with NSAIDS only. However, 8 (35%) patients were treated with both NSAIDs and corticosteroids. Almost most patients (87%) received propranalol to alleviate sympathetic symptoms; 3 (13%) patients were treated with neomercazole initially by general physicians. Reports indicate that the hyperthyroid phase is often followed by a transient phase of hypothyroidism. Six patients (26%) with positive thyroid antibodies had elevated TSH during the first 6 months of follow up. Only 2 of them were treated with L-thyroxine therapy. Permanent hypothyroidism is a recognized complication; no reported cases of permanent hypothyroidism or recurrent SAT were noticed in our cohort during the 2 years follow up period.

Discussion. Subacute granulomatous thyroiditis (de Quervain thyroiditis) is an uncommon disease that represents 0.16-3.6% of all thyroid disorders. It occurs most commonly in females during the second to fifth decades of life as noted in our study.[1] It is a result of a viral infection as it is preceded by an upper respiratory tract infection, which was noticed in 78% of our cases.[8] Patients may present with systemic findings such as weakness, fever, sore throat and an elevated ESR. Eighty seven percent of our patients were diagnosed as pharyngitis and treated with antibiotics.[9] Typically, a sudden onset of unilateral anterior neck pain occurs and may radiate to the ear, jaw or upper chest. There is usually unilateral or generalized thyroid tenderness. The thyroid tenderness results from stretching the thyroid capsule due to the underlying inflammatory disease process.[10] Release of T3 and T4 due to damage of the follicular epithelium may induce transient hyperthyroidism. Almost all our patients had some symptoms or signs of hyperthyroidism with a high FT4 and suppressed TSH during their visit to the endocrinologist.[11] A subsequent hypothyroid phase may occur, and it may last for several months. Six of our patients (26%) developed hypothyroidism during the first 6 months of follow up.[12] Rarely, permanent hypothyroidism may occur. Pathologically, early in the process, disruption of the thyroid follicles occurs with subsequent release of colloid into the stroma. These changes result in an inflammatory response dominated initially by neutrophils and subsequently by a granulomatous process with lymphocytes, histocytes and giant cells surrounding and engulfing deposits of colloid. Ultimately fibrosis occurs especially in areas of severe destruction. Eleven of our cases (48%) had neutrophil leukocytosis; however, others had a normal WBC count due to their late presentation to the endocrinologist. On images, subacute granulomatous thyroiditis (de-Quervain thyroiditis) shows a low uptake of iodine on radionuclide scintigraphy (radioiodine uptake), probably due to follicular cell destruction, as noted in our cohort study.[13] One diabetic patient had a computerized tomography (CT) scan to exclude a thyroid abscess. He visited different specialists and was treated with different antibiotics. The CT scan showed low attenuation of the thyroid gland; this could be explained on the basis of follicular cell destruction and loss of iodine concentration within the thyroid gland.[14,15] Generally, treatment consists of NSAIDs. Steroids may also be administrated until symptoms disappear. Usually these patients do not need treatment of hyperthyroidism; however, 3 of our patients were treated by neomercazole initially before being referred to the endocrinologist.[16,17]

In conclusion, SAT is an uncommon disease that should be considered in the differential diagnosis of acute anterior neck pain, sore throat and fever especially if the patients did not respond to treatment. In the clinical setting, radioiodine uptake can help exclude other diseases, confirm the diagnosis and expedite the initiation of appropriate therapy to relieve symptoms.

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