### **Case Report**

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# Salmonella thyroid abscess in a pre-existing multinodular goitre: rare clinical entity with review of literature

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#### **ABSTRACT**

With its inherent resistance to infection, abscess of the thyroid has been rarely encountered clinically. The disease is usually preceded by an attack of upper respiratory tract infection. The availability of potent broad spectrum antibiotics is one important factor due to which currently thyroid abscess has become a rare clinical entity. But we report a case of thyroid abscess in an otherwise 26 yr old healthy young female with a long standing goitre. She gave no history of preceding URTI. The causative organism was identified as Salmonella typhi.

Keywords: Multinodular goitre, Salmonella typhi, Thyroid abscess, Thyroiditis

#### INTRODUCTION

Except in situations like immunosupression, thyroid abscess is uncommonly encountered clinically. Most of these cases occur due to hematogenous spread of infection. Commonly encountered organisms are gram positive cocci. The condition should be identified early for its devastating complications that can follow when treatment is delayed. Easily available modalities for diagnosis of this condition are fine needle aspiration cytology (FNAC) and ultrasonogram (USG). Primary surgical intervention with debridement or lobectomy and antibiotics are essential for uneventful recovery of the patient.

#### **CASE REPORT**

A 26 year old female patient presented with a history of thyroid swelling of 5 year duration and pain in the swelling with increase in size since 3 days. She had associated fever and odynophagia. She gave a family history of thyroid disorder with her mother having multinodular goitre and elder sister diagnosed with

papillary carcinoma. On examination the patient was febrile. The skin overlying the thyroid gland was erythematous and the gland was diffusely enlarged and tender. She had no signs of hypo or hyperthyroidism. On investigating she was anaemic, white blood count (WBC) was 9400/cu.mm and erythrocyte sedimentation rate (ESR) was 126 mm at the end of 1 hour.



Figure 1: Ultrasonogram of left lobe of thyroid gland showing internal echoes suggestive of abscess.

Her thyroid hormone profile showed borderline elevation in triiodothyronine (T3), thyroxine (T4) and reduced thyroid stimulating hormone (TSH). USG of thyroid gland revealed hypoechoic lesion in the left lobe and isthmus (7.8×4.6cm) with internal echoes and level IV lymphadenopathy (Figure 1). FNAC yielded purulent material and features were suggestive of acute suppurative thyroiditis.

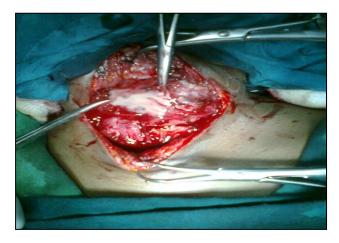


Figure 2: Purulent material from left lobe during dissection of the gland.



Figure 3: Resected specimen showing abscess cavity.

After correction of anaemia, the patient underwent a subtotal thyroidectomy. At surgery the strap muscles were seen adherent to the gland. Accidental left lobe puncture during dissection yielded foul smelling pus (Figure 2). Salmonella typhi was isolated on culture. WIDAL was strongly positive (Salmonella typhi 'H'-Positive 1 in 2650 dilution). Dissected specimen (Figure 3) was sent for histopathological examination. Histopathology displayed features of hurthle cell adenoma with aggregates of acute inflammatory cells. Patient was treated for Salmonella typhi with intravenous antibiotics and discharged after 7 days with an uneventful hospital stay.

#### **DISCUSSION**

The thyroid gland is resistant to infection and rarely demonstrates suppurative processes. Some postulated its resistance to infection to rich blood supply, dense lymphatics, inhibiting effect of the gland's iodine content and the protective fibrous capsule of the gland. Acute suppurative thyroiditis with abscess formation is a rare clinical situation. The diagnosis is of thyroid abscess is often delayed. Acute suppurative thyroiditis especially affects patients with pre-existing thyroid gland pathology as in our case who had a multinodular goitre, and in childhood it is associated with local anatomic defects. A thyroid abscess usually presents as a painful, enlarging mass.<sup>2-4</sup> Haematogenous spread from a distant site is considered to be the most common cause of infection. The most common causative organisms are Staphylococci and Streptococci species. Many other organisms such as Acinetobacter, Mycobacterium, Coccidioides, Pseudomonas, Eikenella, Clostridium, Nocardia, Pneumocystis carnii, Haemophilus, and Candida have associated isolated, but mostly immunosuppression.<sup>2,5</sup> But as such isolation of Salmonella species is very rare. Salmonella typhi which is the cause for enteric fever producing thyroid abscess is very rare.

Incidence of suppurative thyroiditis is equal in both males and females. Thyroid abscess and acute suppurative thyroiditis represent only 0.1 to 0.7% of surgically treated thyroid pathologies.<sup>6</sup> This condition is more frequent in the immunocompromised population like human immunodeficiency virus (HIV) infection, patients on chemotherapy or steroids and transplant recipients.<sup>7,8</sup> Clinically, thyroid abscess often presents with an acute onset of pain and swelling frequently after an episode of URTI. This may be associated with dyspnoea, hoarseness, dysphagia / odynophagia, fever and chills. Infrequently the condition may present with vocal cord paralysis. A differential diagnosis which should be considered in these patients would be viral thyroiditis, and more often is preceded by an attack of URTI. Painful thyroid may also be seen in neoplasms, amyloidosis, amiodarone associated thyrotoxicosis, intranodular hemorrhage, Grave's disease, and infarction of a thyroid nodule.10

Patients with suppurative thyroiditis have leukocytosis, an elevated ESR and thyroid hormone profile which is normal or mildly hyperthyroid. USG is helpful in identifying the underlying abscess and its extent. It can guide the FNAC needle into the cavity for aspiration. Thyroid scans often demonstrate hypofunctional areas with decreased tracer uptake. In young patients and for those with recurrent abscess formation, CT scan and barium swallow is particularly useful to investigate for anatomic defects or fistulous tracts. It can be a supported by the control of the cavity for aspiration.

Suppurative thyroiditis can lead to destruction of the thyroid or parathyroid glands, internal jugular vein thrombophlebitis, vocal cord palsy, abscess rupture or fistula formation into the esophagus or trachea, local or hematologic spread to other organs and sepsis. 2,8-10 Surgery with excision of the affected lobe or debridement, resection of a fistulous connection if present would be the primary modality of treatment. This is combined with use of appropriate antibiotics against the causative organism. High index of suspicion is essential for the early recognition of this rare clinical condition. Appropriate timely intervention will avoid the devastating complications of the disease process.

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