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When Typhoid Attacks Thyroid: A Notorious Metastatic Thyroid Abscess

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Abstract: ***Thyroid abscess is an uncommon but serious condition where there is formation of pus within the thyroid gland. It is usually of a bacterial origin and involves one or both the lobes of the gland. Often, the underlying reasons are congenital anatomical defects or pre-existing thyroid nodules, which are highly susceptible to bacterial infections. Rarely, the underlying cause is hematogenous, where the patient has an infective focus somewhere else in the body, which finally gets seeded onto one of the lobules of the thyroid gland. The case which we are discussing here, is one such, that too in a normal thyroid gland. In this report, we describe the case of a 58-year-old man who presented with fever, jaundice and a neck swelling. After proper investigation, the causative underlying agent was found to be Salmonella typhi, which caused bacteremia followed by hematogenous seeding of the bug in the thyroid gland, leading to thyroid abscess. The patient was successfully treated with timely antibiotics and proper incision and drainage.***

Keywords: Neck swelling, Thyroid gland, Thyroid abscess, Hematogenous, Bacteremia, Timely Antibiotics, Incision and drainage

1. Introduction

Thyroid abscess is a rare condition, owing to its anatomical location and physiological characteristics. The butterfly-shaped normal thyroid gland is inherently protective in nature. As a key endocrine organ, it regulates metabolic rate, growth, heart function and body temperature. It has a unique resistant mechanism to infections [1]. The protective fibrous capsule of the gland, rich blood supply and dense lymphatic drainage are said to be responsible for this resistance.

In some immunosuppressed patients, patients with pre-existing thyroid disease or congenital anomalies, such abscesses are sometimes encountered. When these abscesses happen, most common causative organisms involved are the Gram-positive bacteria, mainly Staphylococcus and Streptococcus [2]. Fungus and tuberculosis are rare agents associated with such infections [3,4].

Thyroiditis due to Salmonella is a very rare entity and needs early diagnosis because a delayed diagnosis can be quite detritus.

2. Case Report

A 58-year-old, retired mechanical engineer came up to the Surgery Department of our institute with on and off fever and neck swelling in the left side. He was already a diagnosed and treated case of Typhoid fever by the time he reached our set up.

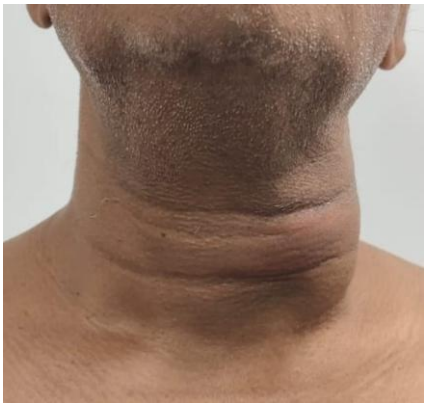
He gave us a history of high temperature (100-101 F) which was accompanied with confusion. Previously he was examined in a different hospital and got admitted there. His blood tests there revealed the presence of Salmonella typhi in blood and he was treated for the same and discharged in a week. He did not develop any neck swelling by then.

At our institute, his neck swelling was evaluated and few tests were suggested like, FNAC from the swelling for HPE & Culture and sensitivity. Also, the patient was asked to get his USG done for neck and abdomen, Typhi Dot IgM from serum and a repeat blood culture.

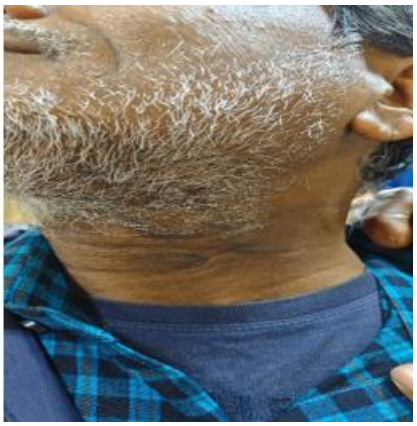
The USG neck showed structurally a normal thyroid gland with the presence of a cystic swelling in the Left lobe of Thyroid gland with extra thyroid extension, while that of abdomen revealed the presence of cholelithiasis and cholecystitis.

The HPE showed features of nonspecific abscess while the culture and sensitivity report of both the pus and blood declared the presence of Salmonella Typhi with similar sensitivity pattern.

It was a confirmed case of a metastatic abscess in an absolutely normal thyroid gland, post Salmonella bacteremia. The patient was given antibiotic according to the culture and sensitivity report. Meanwhile, an incision drainage was planned for and performed a week later. The patient was discharged later and was doing fine on further follow-up.



Swelling of the left lobe of thyroid gland on presentation



Post-op picture of the neck swelling

3. Discussion

Acute suppurative thyroiditis by Salmonella is an extra-intestinal focal pyogenic infection. It is a metastatic abscess where a secondary pocket of pus forms in a new body part when bacteria travels from an original, primary site of infection through bloodstream or lymphatic system. It can involve many other organs too including soft tissues like the skin, parotid gland, parathyroid gland, breast, inguinal node and branchial sinus [5].

An underlying cause may not be identified in all cases of thyroid abscesses, but presence of a pre-existing piriform sinus fistulae, immuno-suppression, goitre and thyroid malignancies can increase the chances for such thyroid abscesses. [6,7]

Diagnosing this condition at an early stage is most crucial and is of utmost importance. Any delay in diagnosis will lead to delayed treatment, thus, increasing the chances of the spread of infection and this can be quite detrimental. Clinicians should be made aware about the possibility of metastatic Salmonella thyroid abscess in immunocompromised as well as immunocompetent patients who present with acute onset of neck swelling and dysphagia without any gastrointestinal manifestations.

Treatment options of thyroid abscesses vary. It is dependent on the size of the abscess, severity and response to initial management. A conservative treatment alone with appropriate antibiotics is sufficient in most of the cases [8]. The regression of the abscess can be easily monitored by serial ultrasound scans [9]. Surgical drainage is required only when there are no signs of improvement or when complications occurs.

In our case, combination of needle aspiration and appropriate antibiotics brought about complete recovery in our case due to early diagnosis and timely management although there are no clear guidelines or treatment algorithms available from the literature.

The interesting fact about this particular case is that, while often we encounter metastatic abscesses in thyroid glands with underlying abnormality, but such finding in an absolutely healthy thyroid gland is really rare.

Also, we encounter thyroiditis, post bacteremia, but formation of a thyroid abscess that too post typhoid in itself is a rare entity.

4. Conclusion

Salmonella thyroid abscess is a rare infection of the thyroid gland and often is associated with immuno-compromised patients. But, even in patients with a healthy thyroid gland, metastatic abscesses can happen. The hematogenous route remains the most common mechanism of spread. Antibiotics and surgical drainage remain the mainstay of treatment although thyroidectomy may be considered if extensive necrosis occur [10].

A formal incision and drainage might not be necessary in the absence of complications. Surgery in these situations might carry a higher risk of bleeding and injury to the recurrent laryngeal nerve. On the other hand, surgery might be necessary if there is a high suspicion of malignancy, or persistence of infection [11].

Early diagnosis and prompt surgical intervention is the keystone for the rapid cure of such cases.

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