Thyroid Abscess Associated with a Longstanding Multinodular Goiter
A Case Report

Authors: *Dr. D. Paramhans, ** Dr. Batra Ankur, ***Dr. Raj K Mathur
* Principal investigator, ** Literature Review, ***Case Analysis

Institution: Department of Surgery, M.G.M. Medical College, Indore, MP, India.

Corresponding Author:
dparamhans@gmail.com

Abstract

OBJECTIVE The authors report a rare case of thyroid abscess associated with a longstanding multinodular goiter.

METHODS Case reports and a review of the world literature concerning thyroid abscess are presented.

RESULTS Thyroid abscess is a rare disease entity, accounting for only 0.1% of surgical pathologies of the thyroid gland. Being more common in children than adults, thyroid gland infections are rare due to its isolated anatomical location, fibrous capsule, rich blood supply, generous lymphatic drainage and high content of iodine. When such an infection does occur, an underlying anomaly of the thyroid gland should be suspected. Pre-existing thyroid disease may predispose to suppurative thyroiditis with more than two-thirds of cases found in women.

CONCLUSION Acute suppurative thyroiditis is not a common complication in multinodular goiter. Source of infection may be from surrounding sepsis or anatomic abnormality such as pyriform sinus. The management must include complete excision of suppurated tissues along with underlying thyroid pathology.

Introduction

Acute suppurative thyroiditis is an uncommon condition, the majority of which were reported in children with predisposing factors such as pyriform fistulas or thyroglossal duct anomalies. Pre-existing thyroid disease is also a known predisposing factor in adults, including longstanding thyroid goiter and thyroid malignancies. Diabetes mellitus and immunosuppression may also precipitate thyroiditis. Organisms commonly responsible for bacterial thyroiditis are those that colonize the skin and oropharynx. Staphylococcus aureus is the most common organism cultured from thyroid
abscesses. 

Fulminate cases may lead to septicemia, osteomyelitis or septic thrombophlebitis. Early biopsy and cultures are needed for prompt antimicrobial therapy. Surgical drainage is required for a large abscess. We report a case of 50-year-old female with multinodular goiter, who presented with acute suppurative thyroiditis with impending abscess.

Case Report

A 50-year-old female presented with swelling in the anterior neck for 20 years. She had a history of palpitations and was easily fatigued. The swelling had slowly increased in size (Fig 1). The patient developed hoarseness of voice and difficulty in swallowing over the past month. The patient had normal vocal cord function with mild edema which produced the hoarseness. Skin discoloration and pain were present for one month prior to initial presentation. She had no history of dyspnea, respiratory tract infection or contact with tuberculosis.

Figure 1: Thyroid Abscess in a Multinodular Goiter

On examination, she was of thin build and well oriented. Her thyroid gland was enlarged to a dimension of 12 by 10 cm. It had a 2 by 2 cm mass with overlying indurated skin with irregular margins. The left side of the lobe was predominantly enlarged, tender and cystic, anteriorly. No engorged veins or lymphadenopathy were identified. Deglutition was painful. Her sleeping pulse rate was 80 per min and she was euthyroid. Soft tissue neck x-ray showed tracheal compression by a homogenous soft tissues density pushing the trachea to the right. The retropharyngeal space was normal. Ultrasound examination of the thyroid showed a multinodular goiter with a cystic lesion near the surface. The largest nodule measured 8 by 8 by 6.5 cm. There were no calcifications in the abscess cavity wall. Indirect laryngoscopy was normal with no evidence of pyriform sinus or cord abnormalities. Needle aspiration yielded brown pus.

Broad spectrum antibiotics were given and she was scheduled for surgery. A transverse elliptical incision was created which included the infected skin over the goiter [Fig. 2]. The superficial nodule of the multinodular goiter had a cystic cavity filled with pus. It was excised and a hemithyroidectomy was performed [Fig-3]. She had an uneventful recovery. The culture of the pus yielded Staphylococcus aureus, sensitive to Piperacilin. Histopathology of abscess wall revealed dense fibrous tissue and necrosis with inflammatory cells. The other nodules were compatible with a benign nodular goiter. At one month follow up, she was not hoarse and had a minimal scar. Patient did not require thyroxin or calcium supplement.

Enlarged Pictures Are At The End of The Manuscript

2010 Volume 3(1)
Discussion

Thyroid abscess is a rare disease entity, accounting for only 0.1% of surgical pathologies of the thyroid gland.\(^4\) Thyroid abscess may follow apparent subacute thyroiditis or acute suppurative thyroiditis.\(^6\) Being more common in children than adults, they are associated with a wide range of clinical symptoms. Since 1950, Schweitzer and Olson noted that only 39 cases of thyroid abscess have been reported in the medical literature. Out of the 39 cases of abscess, 16 were in children.\(^4\) Acute suppurative thyroiditis due to infection from pyriform sinus fistula has been reported in 15 patients by Takai, et al., in 1976. The parenchyma of the thyroid gland or perithyroid soft tissue may harbor the fistulous tract originating from the pyriform sinus. These infections occur due to the accumulation of contaminated secretions in the pharynx, usually after upper respiratory tract infections.\(^5,6\) They respond well to fistulectomy, drainage and antibiotics.

Thyroid gland infection is rare due to its isolated anatomical location, fibrous capsule, rich blood supply, generous lymphatic drainage and high content of iodine. Thus, the thyroid gland is extremely resistant to acute bacterial infections, and when such an infection does occur, an underlying anomaly of the thyroid gland should be suspected.\(^8,9\) Immunocompromised patients are prone to get infections from remote sources. Concomitant tubercular and cryptococcal as well as gram negative infections have been reported forming thyroid abscesses.\(^10,11\) The route of infection may be via hematogenous or lymphatic seeding or may occur directly from the oropharynx, contagious cervical tissue, esophagitis, foreign bodies or patent thyroglossal duct fistula.\(^12\) Pre-existing thyroid disease may predispose to suppurative thyroiditis with more than two-thirds of cases found in women.\(^13,14\) A high incidence of thyroid abscess, 10.7% over 10 years (9 of 84 cases), has been reported by Nmadu, Ameh and Sabo to develop in multinodular goiters in Zaria, Nigeria.\(^7\)

Various pathogens have been isolated on culture examinations. The most common organisms are Staphylococcus aureus, Streptococcus species and anaerobes.\(^15\) Escherichia coli and Bacteroids fragilis may originate from perineal infections.\(^16\) Duraker, et al., have reported salmonella to cause vocal cord paralysis in a patient presenting with stridor and thyroid abscess.\(^17\) However, mycobacteria and fungi have also been documented.\(^18,19\) Rarely, Lemierre’s syndrome (post anginal septicemia due to anaerobes) and infectious mononucleosis in adolescents have been reported with thyroid abscess.\(^20\)

The management of acute suppurative thyroiditis consists of intravenous antibiotics and incision and drainage of the abscess. It is best to excise the abscess cavity without rupture. If it is ruptured during surgery, it could result in spread of the infection or possibly produce a sinus or external fistula. In our case
report, because of a longstanding multinodular goiter, a hemithyroidectomy was performed. The suppurative skin and perithyroidal tissue was included in the excised specimen. The skin was closed primarily which produced minimal scaring. The patient’s mild postoperative dysphagia and hoarseness rapidly resolved.

Conclusion

Acute suppurative thyroiditis is not a common complication in multinodular goiter. The source of infection in our patient was not known. Thyroid abscesses may be from surrounding sepsis or anatomic abnormality or spread from a distant site. Bacteria may spread via a hematogenous route and can produce positive blood cultures. The management may include complete excision of the suppurated tissues along with underlying thyroid pathology.

Summary

- We report a rare case of thyroid abscess associated with a longstanding multinodular goiter.
- A 50-year-old female had swelling in the front of the neck for 20 years.
- Her thyroid gland was enlarged to a dimension of 12x10 cm. It had a 2 by 2 cm mass with overlying indurated skin with irregular margins.
- On investigation she was euthyroid.
- USG thyroid showed multinodular goiter with a cystic lesion near the surface.
- A transverse elliptical incision was created including the infected skin over the goiter. The superficial nodule of the multinodular goiter had a cystic cavity filled with pus. It was excised and a hemithyroidectomy was performed.
- She had an uneventful recovery.

References


2010 Volume 3(1)


