

# Thyroiditis: unusual mimics

Arun Shirali<sup>1,2</sup>, Priyanka Arun Shirali<sup>3</sup>, Santhoor Vijendra Shenoy<sup>4</sup>, Mulki Pandurang Kamath<sup>5</sup>

## Abstract

Thyroiditis can be due to infection/autoimmunity with different clinical presentations. Correctly diagnosing and initiating treatment is a challenge to the treating physician. We present two cases of thyroiditis, who approached the physician for different complaints. The first was a female with a change in voice, foreign body sensation in throat, laryngoscopy showing left vocal cord paralysis, reduced thyroid stimulating hormone. An ultrasound neck was suggestive of thyroiditis, and a contrast enhanced computed tomography scan showed a bulky thyroid with enlarged cervical lymphadenopathy. The second patient was a female with high-grade fever, chills and the inability to take fluids-food. Assessment revealed bilateral enlarged, inflamed tonsils-membranous exudate, tender jugulo-digastric lymphadenopathy and a Technetium-99 thyroid scan suggestive of thyroiditis. Patients were admitted, treated with steroids, antipyretics, antibiotics, cured and discharged. At the three-month follow-up, they were asymptomatic, video laryngoscopy showed normal vocal cords with equal mobility in the first patient and the thyroid profile within normal range for both patients. These cases highlight that thyroiditis can co-exist with benign vocal cord palsy or occasionally also with inflammations of local tissues, such as the tonsils.

## Correspondence to:

Arun Shirali  
Department of General  
Medicine  
Kasturba Medical College  
Hospital, Attavar  
Mangalore – 575001  
India

## Email:

arun.s@manipal.edu

**Keywords:** benign vocal cord palsy, pain in swallowing, thyroiditis, tonsillitis, voice change

**Financial and Competing Interests:** No conflict of interests declared.

**Informed Consent:** Written informed consent for the paper to be published (including images, case history and data) was obtained from the patient for publication of this paper.

## Introduction

Inflammation of the thyroid gland, clinically termed 'thyroiditis', can be due to bacterial or viral infection, or as a result of autoimmune reaction. The clinical presentation in each case scenario, however, can be different. Making a correct diagnosis and initiating the treatment as soon as possible can prevent morbidity and save patients' time by avoiding frequent hospital visits. Identifying the underlying cause in obscure scenarios can be a challenge to the treating physician. Here, we present two scenarios of unusual presentation of thyroiditis, with patients approaching the healthcare setup for different sets of symptoms.

## Case presentation

The first patient was a 45-year-old female who attended the Outpatient Department with a history of foreign body sensation in the throat for three months, which was associated with a change in voice for the last three months. The patient had initially tried homemade remedies to alleviate symptoms, but later approached the Tertiary HealthCare

Centre due to pain in the front of the neck, a sore throat for one week and fever. There was no history of past illnesses or prolonged medications, and family history was negative for thyroid-related disorders. On examination, the patient was febrile, pulse rate 92/min, respiratory rate 25 cycles/min, blood pressure 138/86 mmHg on right-hand supine position. The patient had a diffuse swelling in the front of neck, which was tender and firm and moved with deglutition. There was no local adenopathy clinically. The fibre optic assessment and video laryngoscopy showed total paralysis of the left vocal cord, without any other local pathology. Neurological examination did not reveal focal neurological deficits or long tract signs. Routine blood investigations revealed a raised erythrocyte sedimentation rate (ESR) of 55, with a reduced thyroid stimulating hormone (TSH) of 0.164 (normal range 0.27–4.2 mIU/L) and normal values for T3 and T4. A neck ultrasound was suggestive of thyroiditis with decreased echogenicity. Associated subcentimetric cervical lymphadenopathy was documented. For further evaluation, a contrast enhanced computed tomography scan of brain, with base of skull, and chest showed bulky thyroid with enlarged

<sup>1</sup>Associate Professor, Department of General Medicine; <sup>2</sup>Faculty of Department of Medical Education; <sup>3</sup>Assistant Professor, Department of Physiology; <sup>4</sup>Professor and Head of Department, Department of Otorhinolaryngology, Kasturba Medical College, Mangalore, Manipal Academy of Higher Education, (MAHE), Manipal, India; <sup>5</sup>Professor of Otorhinolaryngology, Department of Otorhinolaryngology, Kasturba Medical College Hospital, Mangalore, India

cervical lymphadenopathy of level IA and IIB with left vocal cord palsy, with unremarkable findings of neural parenchyma and chest. A fine needle aspiration cytological study of the thyroid revealed lymphocytic thyroiditis.

The patient was started on oral steroids of 0.5 mg/kg/day, along with antipyretics and oral antibiotics. Oral steroids were continued and gradually tapered. The patient symptomatically improved. At the three-week follow-up, the patient was asymptomatic and an ESR returned within normal limits. At the three-month follow-up, the patient was asymptomatic and video laryngoscopy showed normal vocal cords with equal mobility. The thyroid profile showed values within the normal range.

The second patient was a 38-year-old female who presented with a history of high-grade fever with chills, associated with difficulty in swallowing for nearly one week. The patient was initially treated on an outpatient basis by the family physician who had prescribed a course of oral antibiotics with symptomatic medications. Since the symptoms did not resolve and she was unable to take fluids and food adequately, she attended hospital. On examination, the patient was febrile with bilateral enlarged and inflamed tonsils, with membranous exudate and tender jugulo-digastric lymphadenopathy. Systemic examination was unremarkable. She was admitted and was started on injectable antibiotics (co-amoxycylav), intravenous fluids, antipyretics and analgesics. Laboratory parameters revealed elevated total leucocyte count (13,000 cells/cumm), which was neutrophil predominant. Other febrile workup tests were normal. ESR was elevated (76 mm after one hour) and the patient continued to have throat pain and fever. In view of this, a throat swab was collected for culture and sensitivity, and a thyroid profile was carried out, which revealed a very low TSH (0.005 mIU/L) and elevated T3 (3.71 [normal range 0.8–2.0 pmol/L]) and T4 (24.86 [normal range 5.1–14.1 pmol/L]) levels. Gram staining showed raised polymorphonuclear cells. It did not reveal any significant bacterial growth; however, the initial staining showed Gram-positive cocci, which could possibly be due to the course of antibiotics prescribed by the family physician. Blood culture reports were negative. In view of the possibility of co-existing thyroiditis, Technetium-99 thyroid scan imaging was carried out, which revealed poor uptake in thyroid gland suggestive of thyroiditis.

The patient was initiated on a course of steroids and antibiotics and her symptoms improved dramatically. She was afebrile in two days with no odynophagia, and repeat oral examination showed the clearance of the tonsillar exudate. Blood tests were repeated, which showed normalising leucocyte counts. The patient was discharged. Upon follow-up one week later, she was asymptomatic with reducing ESR values. She continued on a tapering dose of steroids and attended a follow-up after four weeks, which showed the thyroid function tests and routine blood analysis had returned to within the normal range.

## Discussion

The first case highlights the presence of thyroiditis possibly as a causal association with vocal cord palsy due to recurrent laryngeal nerve oedema or thrombosis of blood vessels. Evaluation of vocal cord palsy to rule out other aetiologies needs to be carried out. Vocal cord palsies can occur due to trauma, neoplasms, inflammation and mechanical, toxic or idiopathic causes. For benign lesions to cause vocal cord palsy, the mechanism is unclear. In a series of 1,200 cases, association of benign thyroid disease and vocal cord palsy was said to be 0.69%.<sup>1</sup> Most commonly, pressure on the nerve against the trachea can result from large goitre, calcification or inflammation. The possibility of perineural fibrosis in chronic cases has also been postulated. As a complication of subacute thyroiditis, vocal cord palsy is noted, which may persist even after clinical and laboratory recovery.<sup>2</sup>

Vocal cord palsy, even after nine months, has a poor prognosis.<sup>3</sup> The resolution of the palsy with resolving thyroid inflammation also hints towards a causal link. Thus, as seen in this case, not all lesions causing vocal cord palsy are malignant and, on immediate treatment, it is reversible. The primary modality of treatment for immune-related thyroiditis is oral corticosteroids. On immediate start of treatment, the symptoms spontaneously regress.

The thyroid gland has a shield-like presence over the trachea and shows high imperviousness to infections/inflammations because it does not have direct contact with oral structures, it is surrounded by a thick capsule, and it has sufficient blood supply and lymphatic drainage with rich parenchymal iodine and peroxide concentrations of hydrogen which have bactericidal properties. However, due to reasons that need to be studied, the thyroid may be co-affected in inflammations that occur in local tissues, like the tonsils. The second case highlights the co-existence of these entities, which has been seldom reported.


It also emphasises the need for a high degree of suspicion towards the presence of thyroiditis in a case of non-responding, obvious tonsillitis, exudative in this case. Occurrence of both entities simultaneously is not very common, and physicians normally see each of these individually. A literature review showed co-existing thyroiditis and tonsillar infection in case reports dating back to 1922.<sup>4</sup> The presence of exudates on the tonsils, with features of leukocytosis and high-grade fever, necessitated the need for antibiotics to treat the exudative tonsillitis, also keeping in mind the possibility of microbial inflammatory thyroiditis. The initial Gram stain in the second patient showed Gram-positive cocci, but there was no significant bacterial growth in the cultures. Imaging did not reveal features of abscess. There was not much symptom relief with non-steroidal anti-inflammatory drugs and because of the persistent elevated ESR and radio-uptake study suggestive of thyroiditis, the patient was also started on oral steroids.

To evaluate co-existing thyroiditis, we used Technetium-99m scan.<sup>5</sup> Studies reveal that an initial unnoticed viral/bacterial infection can cause thyroid tissue inflammation leading to thyroiditis.<sup>6</sup> Thyroiditis can therefore present with varied symptoms, posing a diagnostic challenge, and is often unsuspected as an additional or co-existing entity. In the second patient, symptoms linked to hypermetabolism related to thyroiditis were mainly in the form of tachycardia, which improved upon initiation of steroids; therefore, beta blockers were not initiated.

The treating physician needs to keep an open mind when arriving at a diagnostic conclusion. Equally essential are

imaging and blood investigations to initiate proper treatment and monitor the prognosis of the patient.<sup>7,8</sup>

## Conclusions

This case report emphasises that vocal cord palsies are not always malignant and can be potentially reversible, especially with masquerading underlying thyroiditis. It also highlights that a simple-looking obvious tonsillitis may have an underlying hidden thyroiditis, which should be suspected and investigated if symptoms do not resolve as expected or if there are atypical features. 

---

## References

- 1 Holl-Allen RTJ. Laryngeal nerve paralysis and benign thyroid disease. *Arch Otolaryngol* 1967; 85: 335–7.
- 2 Yasmeen T, Khan S, Patel SG et al. Clinical case seminar: Reidel's thyroiditis: report of a case complicated by spontaneous hypoparathyroidism, recurrent laryngeal nerve injury and Horner's syndrome. *J Clin Endocrinol Metab* 2002; 87: 3543–7.
- 3 Kallmeyer JC, Hackmann R. Vocal cord paralysis associated with subacute thyroiditis. *S Afr Med J* 1985; 67: 1064.
- 4 Carling ER. Case of recurring thyroiditis without other disturbances. *J Roy Soc Med* 1922; 15: 30–1.
- 5 Ramos CD, Zantut Wittmann DE, Etchebehere EC et al. Thyroid uptake and scintigraphy using 99mTc pertechnetate: standardization in normal individuals. *Sao Paulo Med J [Internet]* 2002; 120: 45–8.
- 6 Bartalena L. Sight-threatening Graves' ophthalmopathy. (updated 3 Jan 2019). In: Feingold KR, Anawalt B, Boyce A, et al. eds. *Endotext [Internet]*. South Dartmouth, MA: MDText.com, 2019.
- 7 Sweeney LB, Stewart C, Gaitonde DY. Thyroiditis: an integrated approach. *Am Fam Physician* 2014; 90: 389–96.
- 8 Fariduddin MM, Singh G. Thyroiditis. In: *StatPearls [Internet]*. Treasure Island, FL: StatPearls, 2020.