CASE REPORT

IMPAIRED VOCAL CORD MOBILITY IN THE SETTING OF ACUTE SUPPURATIVE THYROIDITIS

Charles M. Boyd, MD, Ramon M. Esclamado, MD, Steve A. Telian, MD

Department of Otolaryngology, University of Michigan Medical Center, 1500 E. Medical Center Dr., Ann Arbor, Michigan 48109

Received 26 February 1996; accepted 18 June 1996

Abstract: Background: Acute suppurative thyroiditis is an increasingly rare entity, accounting for less than 0.1% of thyroid surgery. This is the first report in the literature of acute thyroiditis causing a unilateral reversible vocal cord paralysis.

Methods: A 41-year-old woman was initially seen with a unilateral vocal cord paralysis resulting from acute suppurative thyroiditis.

Results: The vocal cord paralysis resolved following surgical drainage of the thyroid abscess and treatment with intravenous antibiotics.

Conclusions: We present this case to emphasize the need for a complete and thorough head and neck exam including preoperative documentation of vocal cord mobility.

Keywords: acute suppurative thyroiditis; vocal cord paralysis

Acute suppurative thyroiditis is an increasingly rare entity. First described by Bauchet in 1857, thyroid abscesses accounted for only 0.1% of thyroid surgery in the preantibiotic era. Today, with the widespread use of antibiotics, the incidence is even lower. This is the first published case of acute suppurative thyroiditis causing a unilateral, resolvable, vocal cord paralysis.
A computed tomographic (CT) scan of the neck demonstrated a large, multiloculated enhancing mass involving the left lobe of the thyroid gland and extending to the left aryepiglottic fold (Figure 1). The patient was taken to surgery for incision and drainage of her left thyroid abscess. A drain was left in place, and she was treated with seven days of IV antibiotics. Her cultures grew Fusobacterium nucleatum, Prevotella buccae, and numerous Bacteroides species. Vocal cord paralysis resolved during her hospital stay, and thyroid function tests returned to normal.

DISCUSSION

Thyroiditis is the infiltration of the thyroid gland by inflammatory cells. This results from a very diverse group of both infective and inflammatory diseases. Currently thyroiditis is classified in the following categories: acute suppurative, subacute granulomatous (de Quervain), subacute lymphocytic, chronic invasive fibrous (Riedel’s), and chronic lymphocytic (Hashimoto’s). By far the rarest is acute suppurative, which is usually due to bacterial infections (68%), followed by fungal disease (15%), mycobacterial infections (9.4%), parasitic infestations (5%), and gummas (3%). The most common bacterial organisms are Group A β-hemolytic Streptococci, Staphylococci, and Pneumococci species. Additional organisms cultured from thyroid abscess cavities include E. coli, Pseudomonas aeruginosa, Bacteroides melanogenicum, Hemophilus influenzae, Peptostreptococcus, Eikenella corrudens, Corynebacterium, Aspergillus fumigatus, Mycobacteriae chelonei, and Streptococcus viridans. More rarely Salmonella, syphilis, tuberculosis, actinomycosis, and bacteroides species are involved.

Many routes of infection have been postulated: lymphatic and hematogenous, direct penetration from adjacent structures (such as fistulae arising from fourth pharyngeal pouch remnants, a persistent thyroglossal duct), or trauma. The process usually arises in a previously normal gland, not infrequently occurring in a multinodular goiter. Histologic assessment of the gland reveals a marked infiltration of polymorphonuclear leukocytes and lymphocytes in the acute phase, which may be associated with frank necrosis and abscess formation. The clinical presentation is typically a short nonspecific prodrome followed by fever, intense pain, and erythema in the area of the thyroid, resulting in dysphasia and odynophagia. Generally women between the ages of 20 and 40 years are more susceptible to thyroid suppuration, although it has been reported in all age groups and in both sexes. Thyroid function is usually normal, as is radioactive iodine uptake (RAIU). However, should an abscess develop, an area of decreased uptake on thyroid scan will be evident.

The differential diagnosis includes: subacute thyroiditis, Hashimoto’s thyroiditis, acute suppurative lymphadenitis, thyroid carcinoma or cyst, infected thyroglossal duct cyst or branchial cleft cyst, anterior neck abscess or cellulitis, Ludwig’s angina, dissecting retropharyngeal abscess, and laryngeal carcinoma with cartilage invasion. These entities can usually be distinguished by history, clinical exam, and diagnostic imaging (CT or magnetic resonance imaging).

Following proper diagnosis, early initiation of intravenous antibiotics and prompt surgical drainage are key to minimizing complications. Complications can include: sepsis, tracheal or esophageal rupture, internal jugular vein thrombosis, airway obstruction, laryngeal chondritis and perichondritis, and recurrent nerve or sympathetic trunk paralysis. Needle aspiration can be done to confirm suppuration and provide bacteriologic information prior to imaging. Nonetheless, a CT scan is key to confirming the diagnosis, mapping the extent of neck involvement,
assessing adjacent tissue planes, and evaluating other key structures in the neck prior to surgical intervention.6

The first step in the operating room is to control the airway. This should be accomplished by a skilled practitioner using fiberoptic intubation. Sometimes an emergent tracheotomy may be required; however, it should be avoided because it can cause aspiration of pus and mediastinitis. In most cases, the abscess can be managed with surgical drainage and thyroid biopsy, thus avoiding total or subtotal thyroidectomy in an already inflamed tissue bed. This provides adequate drainage, decreases operating room time, and avoids potential injury to the recurrent laryngeal nerves and parathyroid glands as well as the need for permanent hormone replacement therapy.

Following surgery, the patient is still at risk for thyroid and parathyroid hormone abnormalities and should be monitored with thyroid function tests and calcium levels. It is also recommended that the patient have hormone levels checked routinely for up to 1 year following the acute event.9

This case illustrates that a unilateral vocal cord paralysis can result from acute suppurative thyroiditis. The mechanism of paralysis in this case was likely due to an inflammatory neuritis or neuropaixia, although inflammatory changes of the cricoarytenoid joint is also a possibility due to the size of the abscess. To prevent the complications associated with rupture of a thyroid abscess, prompt diagnosis—including careful documentation of vocal cord function, antibiotic administration and surgical intervention, when needed—is essential.

REFERENCES