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Case Report

Riedel's thyroiditis

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ABSTRACT

This article describes an unusual case of Riedel's thyroiditis and discusses its imagery, pathology, and treatment.

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Riedel's thyroiditis is a rare benign pathology of unclear etiology, characterized by a densely fibrotic inflammatory process involving the thyroid gland and the adjacent neck tissues [1]. In this article, we describe an unusual case of Riedel's thyroiditis and discuss its imagery and pathology.

A 45-year-old man was admitted for vomiting and epileptic crisis with delirium tremens. Physical examination revealed a stone-hard, painless, voluminous mass of the neck, responsible for stridor, and dysphagia. CT scan showed an enlarged and heterogeneous thyroid gland, with heterogeneous early enhancement and late homogeneous enhancement on contrast, invading the posterior wall of the oropharynx and compressing the trachea and the esophagus. The vascular structures were displaced but not compressed. Fine-needle aspiration revealed atypical cells of undetermined origin prompting suspicion of thyroid papillary carcinoma, with differential diagnosis being another malignancy or Riedel's thyroiditis. Total thyroidectomy revealed a solid, wood-looking thyroidal mass which invaded the first tracheal ring. Histologic analysis diagnosed Riedel's thyroiditis. The patient suffered no complication and was discharged.

Riedel's thyroiditis is extremely rare (1.06/100,000; [2]). It involves a possibly autoimmune inflammation and fibrosis of the thyroid gland and its surrounding tissues, with distant organs being sometimes also involved. This presentation, and the presence of IgG4+ plasma cells and thyroidal autoantibodies in some patients suffering from Riedel's thyroiditis led some authors to consider Riedel's thyroiditis as part of multifocal fibrosclerosis [1,3–6], linking it to the IgG4–sclerosing disease group.

The rarity of Riedel's thyroiditis adds to the difficulty to differentiate it from malignancy, notably because of their overlapping symptomatology and imagery. Symptoms usually arise from compression of the adjacent structures (trachea, esophagus, carotid arteries and jugular veins, with possible thrombosis), leading to Riedel's thyroiditis being sometimes referred to as invasive fibrous thyroiditis. Imagery, notably ultrasonography and tomodesintometry (CT scan) will only suspect Riedel's Thyroiditis [1,3,7]. Ultrasonography typically shows a diffuse, hypoechogenic, sometimes homogeneous, hypovascular mass which invades the adjacent structures, and CT scan is used to assess the extension of the mass

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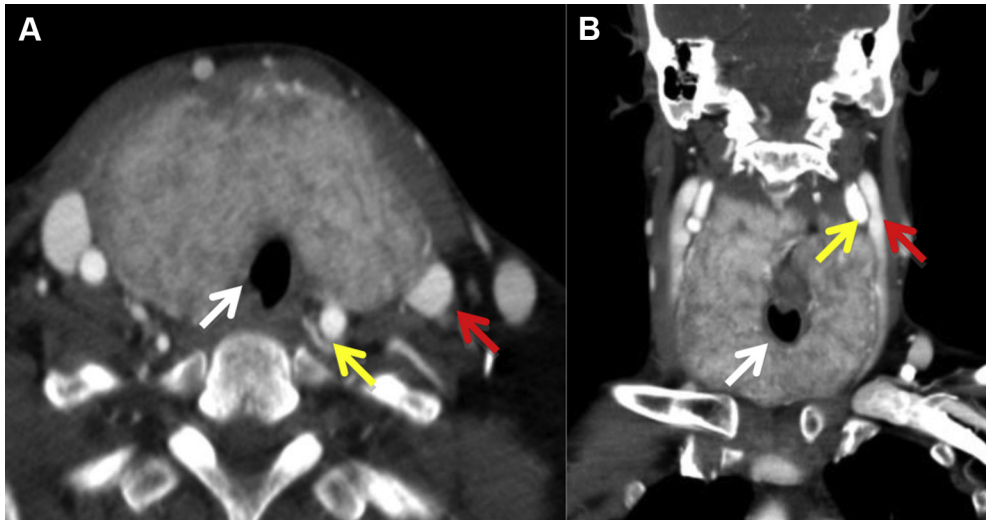


Fig. 1 – (A, B) Typical CT scan of Riedel's thyroiditis showing a heterogeneous thyroidal mass invading and compressing the adjacent structures (white arrow, trachea; yellow arrow, left common carotid artery; red arrow, left internal jugular vein).

(typically showing an enlarged heterogeneous thyroid gland with lower to normal density (Figs. 1A and 1B)) and to evaluate other fibrotic areas. Other imaging techniques have also been used: ultrasonographic elastography showed more stiffness in the gland, 18-Fluoro-deoxyglucose positron emission tomography/CT showed an increased uptake by the lesion, inconsistently decreased by corticoids [7], 99 mTc thyroid scan showed low radioactive uptake [1,7] and magnetic resonance imaging findings differed greatly between authors. Despite the numerous imaging technics used, clinicians remain unable to differentiate Riedel's thyroiditis from other thyroidal pathologies including neoplasms [1,8,9] and its diagnosis remains based on surgical biopsy, which will show the following findings [1]: (1) inflammatory process in the thyroid extending into the surrounding tissues; (2) no giant cells, lymphoid follicles, oncocytes or granulomas in the infiltrative, inflammatory tissue; (3) evidence of occlusive phlebitis, and (4) no evidence of malignancy (Figs. 2A and 2B).

After diagnosis, Riedel's thyroiditis treatment includes corticosteroids and tamoxifen [1]. Surgery may be performed in order to relieve tracheal or esophageal compression, although extensive surgery is not recommended and complete resection of the thyroid gland is almost always

impossible [1,7,10]. In our case, however, total removal of the gland was possible and revealed a solid, wood-looking mass seemingly respecting the thyroid capsule with an exception being the invasion of the first tracheal ring (Fig. 3).

The case we present here shows that there is still a lack of knowledge on Riedel's thyroiditis, especially about its pathophysiology and etiology. The many differences between the results of the imaging examinations of different cases of Riedel's thyroiditis, the presence or not of thyroidal autoantibodies or IgG4+ plasma cells and its association to another thyroidal disease or fibrotic entity as well as the different response to medical treatment reported in the literature have risen the question of a possible staging of Riedel's thyroiditis [3] warranting further research. The fact that we were able to completely remove the gland could in fact be due to the presence of an early stage of the disease and could add some weight to the hypothesis of such a staging.

Another extremely important point remains the diagnosis of Riedel's thyroiditis. Because of its overlap with malignancy, including the possible co-occurrence of these pathologies or the risk of one mimicking the other, efforts must be done in improving preoperative diagnosis of Riedel's thyroiditis, using either fine-needle aspiration or imaging.

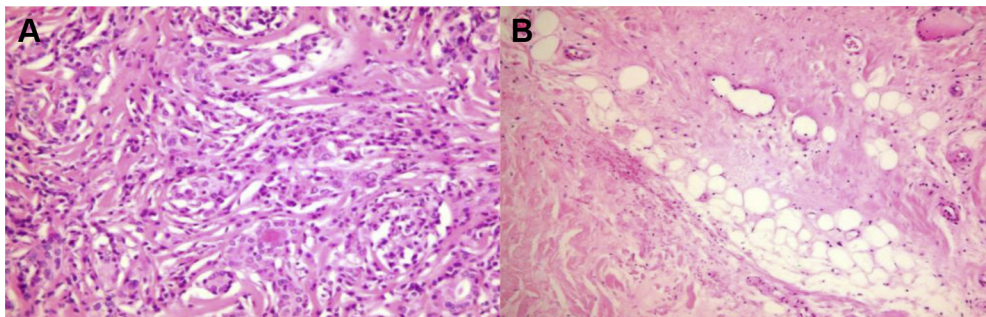


Fig. 2 – (A, B) Typical histopathology of Riedel's thyroiditis showing atrophy and inflammation of the thyroidal parenchyma with dense fibrosis extending in the adjacent tissue.



Fig. 3 – A rare case of complete resection of Riedel's thyroiditis with a wooden-looking aspect due to fibrosis of the thyroid gland.

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