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CASE REPORT

Riedel's Thyroiditis – A Case Report with Histopathological Perspective

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Abstract

Riedel's thyroiditis (RT) is a rare, chronic fibroinflammatory disease of the thyroid gland characterized by dense hyalinized fibrosis, often extending into adjacent soft tissues and mimicking invasive thyroid carcinoma. The etiology remains uncertain, although recent evidence suggests that it belongs to the spectrum of IgG4-related systemic diseases.We present a case of a 41-year-old female with a progressively enlarging neck mass and compressive symptoms, ultimately diagnosed as RT on histopathology. This case highlights the diagnostic challenge and the indispensable role of histopathology in distinguishing RT from mimicking conditions like thyroid malignancy.

Key Words

Riedel's Thyroiditis, Histopathological Examination, Thyroid Malignancy.

Introduction

Riedel's thyroiditis was first described by Bernhard Riedel in 1896 as a "ligneous" (wood-like) thyroid due to its extremely hard consistency[1]. It is a rare condition with an incidence of approximately 1.06 cases per 100,000 and constitutes less than 0.05% of thyroid surgeries. The disease is more common in middle-aged women, with peak incidence between the fourth and sixth decadesof life[2].

Here, we report a case of RT, emphasizing the clinicopathologic features, differential diagnosis, and review of the literature.

Case Prsesentation

A 41-year-old female presented to our outpatient department with acomplaint of a slowly enlarging anterior neck swelling fortwo years. The swelling was associated with progressive dysphagia to solids and intermittent dyspnea on exertion. She denied fever, weight loss, or radiation exposure history. There was no family history of thyroid disorders.

On examination, the thyroid gland was hard, ill-defined, and immobile, extending to the lower neck. The mass was non-tender and fixed to underlying structures, raising a strong clinical suspicion of carcinoma. There was no cervical lymphadenopathy. Laboratory tests showed TSH (2.08 mIU/L), mildly elevated free T4 (12.9 ng/dL), and slightly low serum calcium (8.4 mg/dL). Neck ultrasonography revealed a hypoechoic, ill-defined thyroid enlargement with decreased vascularity and extension into surrounding soft tissue planes andit was reported as suspicious for malignancy (figure 1). Fine-needle aspiration cytology (FNAC) was inconclusive.

Given the compressive symptoms and inconclusive cytology, a right hemithyroidectomy was performed, and specimen was sent for histopathological examination.

Grossly, thespecimen measured 2.6 × 2 × 1 cm. The external surface was encapsulated grey white, and the cut surface appeared firm, gray-white, and fibrotic (figure 2). Microscopy revealed atrophic thyroid follicles

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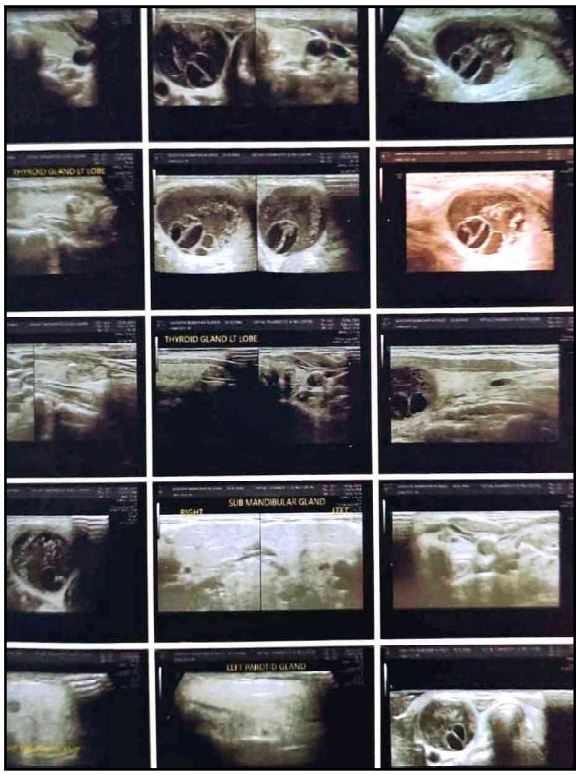

Figure 1: USG neck showing hypoechoic, ill-defined thyroid enlargement with decreased vascularity.

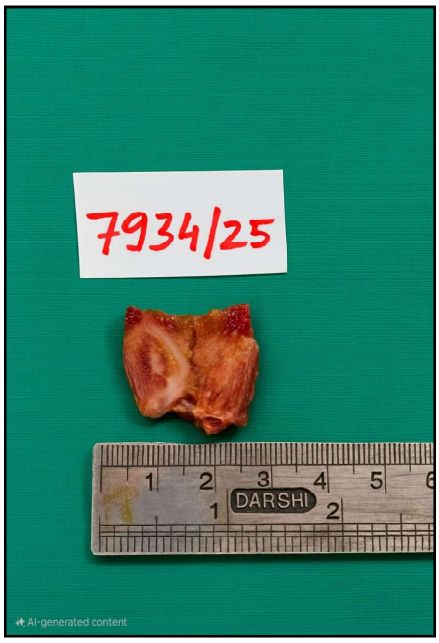

Figure 2: Gross examination showing firm, gray-white, fibrotic cut surface.

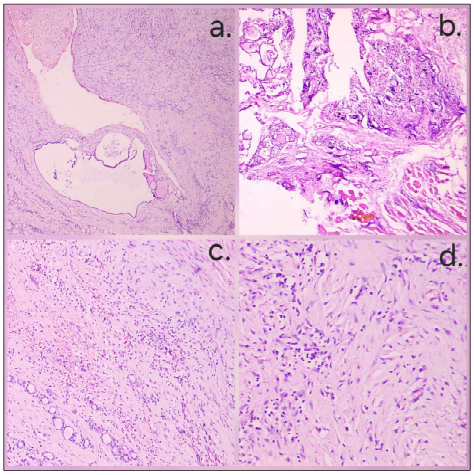

Figure 3: Photomicrographs (H&E, 100×): (a) Extensive fibrosis; (b) Dense inflammation encroaching adjacent muscle; (c–d) Attenuated follicles with lymphoplasmacytic inflammation.

compressed by extensive fibrosis, along with an inflammatory infiltrate composed of numerous lymphocytes with lymphoid follicles and plasma cells. At places, pigmented macrophages werenoted. Focal areas showed cystic change with hemorrhage inside (figure 3). Based on these microscopic features diagnosis was offered as Riedel's thyroiditis. One month of follow up of the patient is uneventful.

Discussion

Riedel's thyroiditis is a rare fibroinflammatory process with significant diagnostic challenges[3]. Clinically, RT manifests as a hard, fixed thyroid mass with compressive symptoms such as dysphagia, dyspnea, hoarseness, and hypoparathyroidism in advanced cases[4]. These features frequently raise suspicion of anaplastic carcinoma or thyroid lymphoma, creating a diagnostic dilemma[5].

FNAC is usually non-diagnostic, as observed in our patient, due to extensive fibrosis.Histopathology remains the gold standard[6]. The defining features include dense storiform fibrosis replacing normal parenchyma, extension beyond the capsule into adjacent neck structures, chronic inflammatory infiltrate with lymphocytes, plasma cells, and eosinophils, and obliterative phlebitis[7].

Several studies now classify RT within the spectrum of IgG4-related systemic diseases. Features supporting this include storiform fibrosis, obliterative phlebitis, and increased IgG4-positive plasma cells[8].

Differential diagnosesinclude fibrosing Hashimoto's thyroiditis, which is confined to the gland and anaplastic

carcinoma, which shows highly pleomorphic tumor cells[9,10].

Therapeutic options include glucocorticoids and tamoxifen, with surgery reserved for severe compressive symptoms. Rituximab has been used in steroid-resistant IgG4-related disease cases.

Conclusion

Riedel's thyroiditis is a rare mimicker of thyroid carcinoma. The combination of clinical suspicion, inconclusive FNAC, and histopathology with IgG4 immunostaining is crucial for accurate diagnosis. Awareness of this entity is important to avoid misdiagnosis and unnecessary radical surgery.

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