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Differential diagnosis and management of airway obstruction in Riedel's thyroiditis: A case report

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Abstract

A case of Riedel's thyroiditis, which required differential diagnosis from malignant tumor of the thyroid gland, and the strategy of surgical treatment is reported. Differential diagnosis prior to the treatment was difficult, but the diagnosis was decided by the histopathological findings of an open biopsy specimen obtained simultaneously in an emergent tracheostomy required for progressive airway stenosis. First-choice treatment for Riedel's thyroiditis has been reported to be steroid administration, however, this treatment was difficult for the present case due to continuous steroid treatment for complicated neuro-Behçet's disease. Therefore, vaporization of the lesion using KTP-LASER and T-tube placement was chosen for the surgical treatment strategy of this patient. After 1 year of follow-up since the operation, the T-tube was removed and the tracheostoma was closed, and the patient has remained symptom free for $4\frac{1}{2}$ years. Careful long-term follow-up is still needed for this patient to prevent recurrence of the disease, subsequent complications of autoimmune diseases, and thyroid malignancies.

Keywords: Riedel's thyroiditis; Airway stenosis; Dysphagia; Surgical treatment; LASER; T-tube

1. Introduction

Thyroid diseases have various histopathologies (e.g., inflammation, benign tumor, malignant tumor) and they are usually diagnosed by local findings, laboratory data, radiological findings, and cytological findings prior to the treatment. Treatments for thyroid diseases vary, and include medication, various procedures of surgery, irradiation, isotope therapy. Therefore, the desired treatment for patients with thyroid diseases must be planned by the pre-treatment diagnosis.

We herein present a case of Riedel's thyroiditis, whose differential diagnosis prior to the treatment was difficult. The surgical treatment was chosen due to the difficulty of medical treatment because of the complication. Differential diagnosis and strategy of surgical treatment for this rare thyroid disease are discussed.

2. Case report

A 50-year-old female was referred to our clinic, complaining of dysphagia for 11 months and hoarseness for 1 month. Inspection and palpation showed hard swelling of right thyroid gland lobe (48 mm × 38 mm), and laryngeal fiberscopy showed right vocal cord paralysis. A computed tomography (CT) showed diffuse swelling of the right thyroid lobe with invasion into the trachea and other surrounding tissue (Fig. 1left). A magnetic resonance imaging (MRI) revealed a hypointense lesion in the right thyroid lobe in T1 and T2 weighed images (Fig. 2right). Blood examination showed normal T3 and T4 levels, high TSH titer (17.38 IU/ml), and negative results both for microsome test and thyroid test. The patient had been treated with prednisolone for 5 years (starting at 60 mg/day and tapered to 5 mg/day during 15 months, then continued) for neuro-Behçet's disease at the department of neurology of our university clinic.

During the planning of treatment with suspicion of malignant thyroid tumor, emergency admission was

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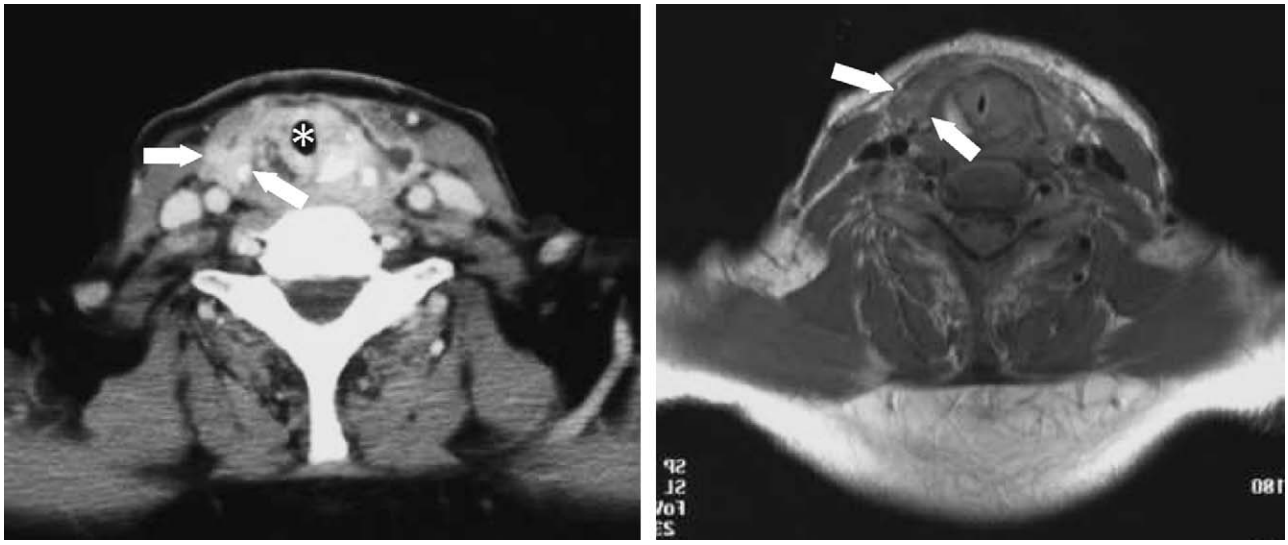

Fig. 1. Left: An axial view of enhanced CT. A mass lesion in the right thyroid lobe invaded the surrounding tissue (arrows), and tracheal stenosis (*) was observed. Right: An axial view of T2 weighed MRI. A hypotense lesion (in T2 weighed images; arrows) was seen in the right thyroid lobe. Tracheal stenosis was also seen.

required 1 month after the first visit because of appearance and progress of dyspnea. Emergency tracheostomy, followed by open biopsy for a histopathological diagnosis of the mass lesion, was carried out because diagnosis could have not been obtained from the fine needle aspiration biopsy (FNAB). The mass lesion was hard and fibrous, had replaced the right thyroid lobe, and invaded the trachea and the strap muscles (Fig. 2). Histopathological diagnosis of the frozen section specimen was fibrosis, and prepared subsequent thyroidectomy was suspended. The histopathological findings revealed fibrosis, growth of hyalinized dense collagen tissue with involvement of muscles and nerve fibers, atrophy of thyroid tissue, and the final diagnosis was inflammatory fibrosclerosis (Riedel's thyroiditis; Fig. 3).

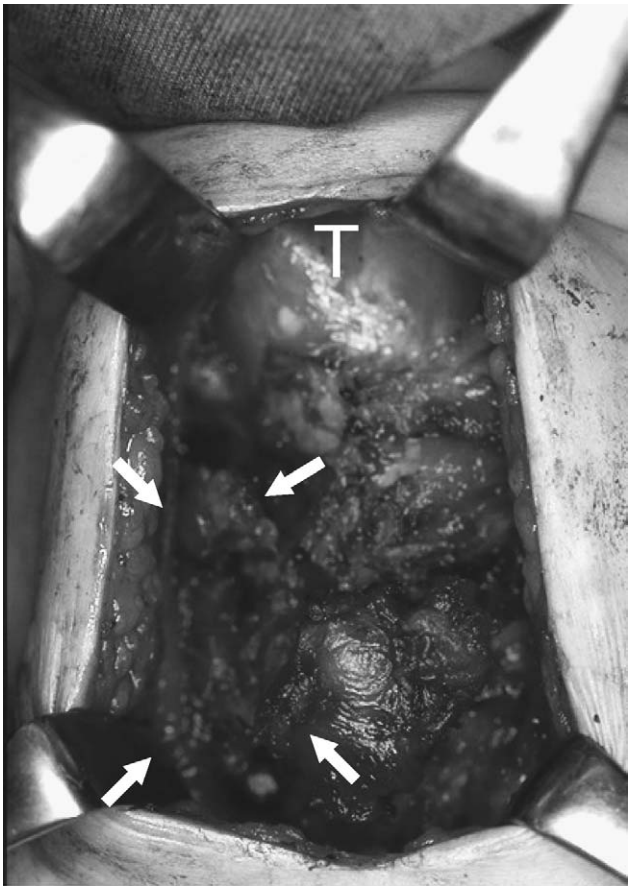

Fig. 2. Intraoperative finding of the first operation. The mass lesion replaced the right thyroid lobe (arrows) and invaded the trachea and the strap muscles (T: thyroid cartilage).

As the dyspnea re-increased slowly with increasing tracheal stenosis, re-operation was carried out 3 months after the first surgery. The anterior tracheal wall was incised at the midline superiorly from the tracheostoma, the fibrous mass in the trachea and paratracheal region was vaporized using KTP-LASER, and a silicone T-tube was inserted (Fig. 4). Steroid administration (prednisolone, 5 mg/day) was continued for complicated neuro-Behçet's disease.

One year after the first surgery (9 months after the LASER vaporization and T-tube insertion), the T-tube was removed and the tracheostoma was closed since no regrowth of the fibrous lesion had been observed. The patient has been followed-up with no additional surgical treatment for $4\frac{1}{2}$ years in our clinic.

3. Discussion

Riedel's thyroiditis is a rare disease, and the incidence has been reported to be 0.06% of the thyroid surgeries [1], 1 in over 700 reviewed thyroidectomy specimens [2], 1.06 in for every 100,000 people [1]. The occurrence is believed to be decreasing [2]. Its higher incidence in female than male (4:1), and its common occurrence in patient aged between 30