

Recurrent Laryngeal Nerve Palsy in a Patient with Acute Hemorrhagic Thyroid Cyst

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ABSTRACT

We report a case of acute hemorrhagic cyst of the thyroid gland in a female patient presenting with recurrent laryngeal nerve (RLN) palsy that was treated surgically, with resolution of her symptoms. Cystic lesions of the thyroid are very common, and most patients present with minimal symptoms. Rarely, acute hemorrhage into a thyroid cyst can cause pain and mild dysphagia, but acute dysphonia is uncommon. Treatment is usually conservative in simple cystic lesions but those with compressive symptoms require intervention, with aspiration or rarely surgery.

Keywords: Aspiration, Cyst, Laryngeal nerve palsy, Surgery, Thyroid.

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INTRODUCTION

Cystic thyroid lesions are very common and usually dealt with conservatively. When seen in the clinical setting, most are usually asymptomatic and regress spontaneously. However, in some patient's acute hemorrhage may cause the cyst to expand rapidly, thereby causing compressive symptoms, such as some pain and mild dysphagia. Very rarely, the airway may be compromised as a result of the acute hemorrhagic cyst.¹ The hemorrhage into the cyst may be the result of trauma, which may be blunt or following needle aspiration, following severe exertion and trauma.²⁻⁴ Occasionally, management of these becomes challenging. We present a patient who was followed up with a cyst of the thyroid presenting with hemorrhage into the cyst resulting in unilateral recurrent laryngeal nerve (RLN) palsy.

CASE PRESENTATION

A 48-year-old female was referred to the endocrine surgery clinic with an asymptomatic incidental right thyroid nodule, seen on imaging of her spine for neck pain. She had no history of any compressive symptoms or any family history of thyroid disease. On examination, a right-sided large thyroid nodule was palpable with a mild tracheal shift to the left. A bedside ultrasound demonstrated a right-sided large cyst of the thyroid with some peripheral solid components, measuring 4.8 cm in maximal diameter. A smaller solid cystic nodule of very low suspicion was noted on the left lobe of the thyroid as well. Aspiration cytology on the large cyst confirmed a benign colloid nodule (Fig. 1). Initially, the cystic lesion was managed conservatively with needle aspiration; however, this recurred a couple of more times over the year. In view of the recurrent cyst, the patient was offered a right hemithyroidectomy which she declined and opted for conservative management.

One year later, she presented to the emergency department with an acutely enlarged neck lump associated with pain and odynophagia. She also had progressive dysphonia. Thyroid biochemistry was normal. Thyroid ultrasound showed the right-sided cyst was enlarged and was at 5.8 cm in maximal diameter with dependent layering echoes suggestive of a recent bleed. She denied any use of antiplatelet or anticoagulant medication or any

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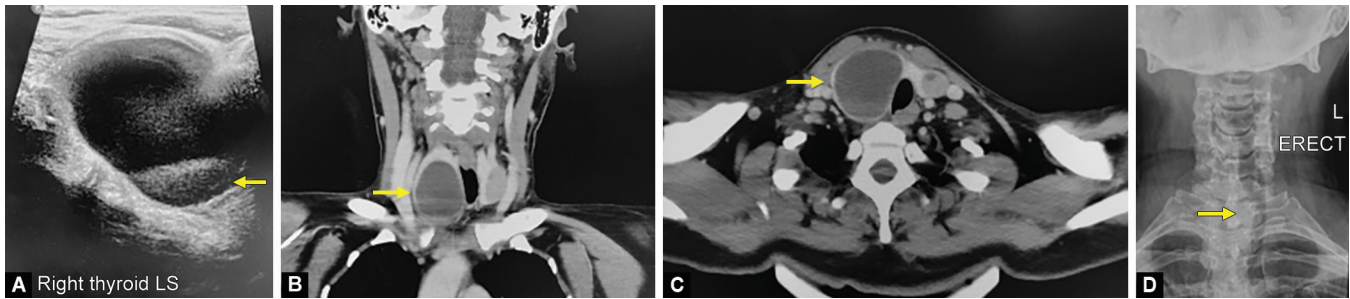
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trauma over the previous few days. Fiberoptic nasolaryngoscopy revealed a right vocal cord palsy (Fig. 2). Because of her acute symptoms, aspiration was performed with aspiration of 60 mL of dark color fluid aspirated from the cyst.

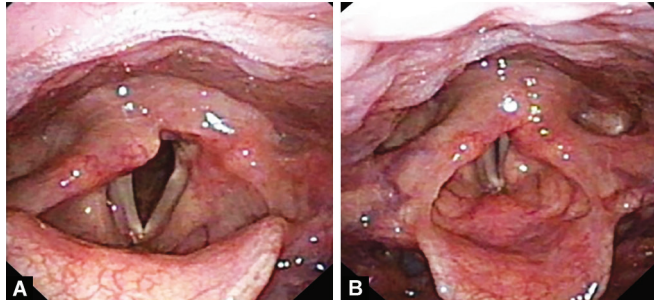
Her acute compressive symptoms subsequently improved but the dysphonia persisted. She underwent elective right hemithyroidectomy 3 weeks later, and at surgery, a large cystic nodule was seen in the right lobe of the thyroid. Unfortunately, the right vagus nerve or RLN which were anatomically intact, did not yield a signal on IONM pre- or post-resection. The postoperative period was unremarkable and underwent voice physiotherapy for nearly 2 months. Her voice subsequently improved without any other interventions and a nasoendoscopy confirmed the complete recovery of the right RLN at 3 months. She continues to be symptom free.

DISCUSSION

Cystic nodules of the thyroid are known to develop from the degeneration of solid thyroid nodules. These cysts frequently have some element of the solid component. Alexander et al. in their series of 1128 patients reported the prevalence of mostly



Figs 1A to D: (A) Cystic thyroid nodule on the right thyroid lobe with dependent layering; (B and C) Isodensity in same nodule on CT at presentation with hemorrhage; (D) Preoperative cervical spine X-ray with left tracheal deviation



Figs 2A and B: (A) Glottic view; (B) Right VC palsy causing a gap at closure

cystic nodules (cystic component >75%) to be 14% of all thyroid nodules.⁵ Presentation of cystic nodules is like solid thyroid nodules albeit with a recent increase in the size of a thyroid lump associated with pain as in this patient. A rapid increase of a cystic thyroid nodule with pain may point to an episode of hemorrhage in a cyst. Purely cystic nodules are essentially benign, but those that contain some solid component may represent a nodule with a very low to low suspicion of cancer according to 2015 ATA guidelines.⁶

Uncomplicated small thyroid cysts are best managed conservatively with observation alone, but large or enlarging symptomatic cysts require intervention. Aspiration of cysts is widely accepted but reaccumulation of thyroid cysts is very common.⁷ Kim described the complete collapse of cysts in 34% of cystic lesions at 3 months following complete aspiration.⁸ Ethanol ablation and radiofrequency ablation are other modalities of intervention to manage thyroid cysts.⁹ In the event of failure of these interventions, or recurrent cystic lesions hemithyroidectomy is required. Our patient was managed conservatively with aspirations, but needed a hemithyroidectomy in view of her compressive symptoms, although be it a couple of weeks post-acute presentation and aspiration of the cyst.

The occurrence of VC palsy in benign thyroid disease is very rare, with a reported incidence of around 1–5%.^{10,11} Most series that report vocal fold palsy in benign thyroid disease have been in solid thyroid nodules and thyroiditis, with only one case report in that of a patient with a benign thyroid cyst.¹² In our patient, a hemorrhage caused the cyst to enlarge within a few days, probably exerting direct pressure on the right RLN. Pressure, along with the surrounding inflammation in the thyroid bed may have caused neuropraxia, resulting in temporary VC paralysis. Persistent pressure may cause permanent nerve palsy, and this can be avoided with intervention. An extensive survey of literature did not yield data on rates of complications or the course of cysts of the thyroid. Similar

to the case presented by Zheng et al., our patient recovered fully at 2 months postoperatively.¹²

This case presents valuable lessons on managing largely cystic thyroid nodules. Aspiration of the cysts is a minimally invasive, less expensive approach to managing cysts, yet in our experience, hemorrhage into the cyst is higher when aspirated and allowed to collapse completely. Repeat aspirations tend to be futile as recurrence rates are high. Ablative techniques are relatively safe when a volume of colloid is aspirated earlier and major complications like voice change are rare.⁹ In this era, a hemithyroidectomy is a very safe procedure in the hands of experts for a recurrent or large cyst of the thyroid. However, during surgery, one may encounter significant inflammation which increases the risk of bleeding. A large cyst may require aspiration intraoperatively to make excision easier.

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