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Giant Cervico-Thoracic Goiter: A Case Report from Kamenge University Hospital

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Abstract

An intrathoracic goiter is an enlargement of the thyroid gland whose lower border is not palpable, with the particularity of extending beyond the upper aperture of the chest and descending into the thorax. In our case, the management consisted of total thyroidectomy via a cervical approach, associated with a sternotomy. This sternotomy technique was performed for the first time in our department. The postoperative course was uneventful.

Subject Areas

Pathology

Keywords

Intrathoracic Goiter, Thyroidectomy

1. Introduction

An intrathoracic goiter is an enlargement of the thyroid gland whose lower border is not palpable, with the particularity of extending beyond the upper aperture of the chest and descending into the thorax. This definition remains non-uniform to this day [1]. For some authors, plunging goiters are goiters whose inferior border reaches or crosses the plane of the subclavian vessels. The most commonly used definition considers a plunging goiter to be any goiter that does not rest in the cervical region in the operative position and has a lower extension of more than two fingerbreadths below the manubrium sterni [2]. Its clinical presentation varies depending on the extent of the tumor. An intrathoracic goiter, through its development, can cause asphyxiation by compressing the trachea [3].

Its endothoracic position gives it particular severity. This location can lead to the compression of vital organs such as the trachea, esophagus, and large vessels, and also complicates surgery.

This article presents the clinical, radiological, and therapeutic aspects of a case treated at the Kamenge University Hospital Center, and compares them with data from the literature.

2. Case Report

We report the case of a 53-year-old female patient who consulted the ENT department of Kamenge University Hospital for an anterior cervical swelling evolving over about 15 years, progressively worsening dyspnea for 2 months, and dysphagia to solids for 1 month.

Vital signs were: BP: 120/80 mmHg, respiratory rate: 22 cycles/min; heart rate: 90 beats/min, oxygen saturation: 94%. Pulmonary auscultation was unremarkable.

The cervical examination noted a firm, painless cervical mass, mobile with swallowing, with an impalpable lower border. The overlying skin was healthy.

A cervico-thoracic CT scan was requested and showed a voluminous multinodular goiter predominantly in the right latero-cervical region with calcifications, plunging into the intrathoracic region down to the lateral border of the right ventricle, in contact with the large cervical and thoracic vessels without engulfing them (See **Figure 1**, **Figure 2**).

The thyroid hormone panel was requested, and the patient was euthyroid.

The patient underwent a total thyroidectomy via a cervical approach coupled with a sternal manubriotomy. The recurrent laryngeal nerves and parathyroid glands were identified and preserved. A Redon drain was inserted and removed the next day.

The postoperative course was uneventful, and the patient was discharged three days later.

The histological examination of the surgical specimen showed no sign of malignancy (See **Figures 3-6**).

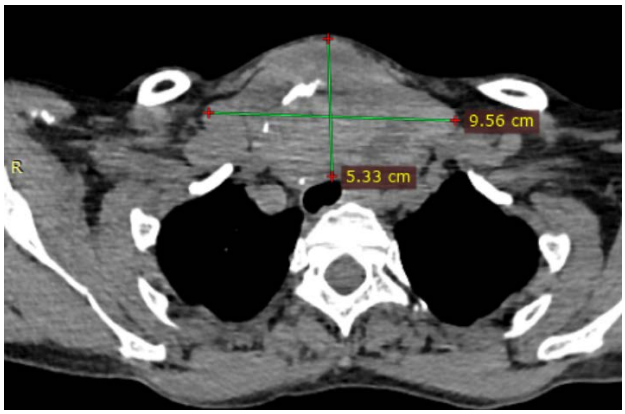

Figure 1. Cervico-thoracic CT scan: Axial view: Coronal. plunging goiter in the mediastinum compressing the trachea.

Figure 2. Cervico-thoracic CT scan: view cervical and plunging goiter at 10.50 cm.

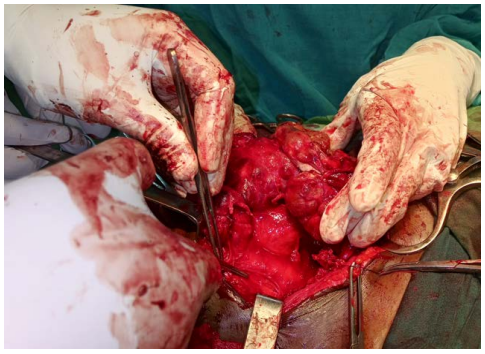

Figure 3. Right recurrent nerve.

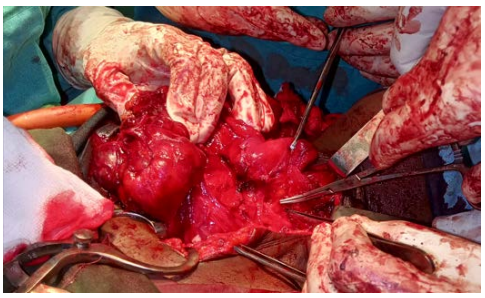

Figure 4. Left recurrent nerve.

Figure 5. Post-operative view.

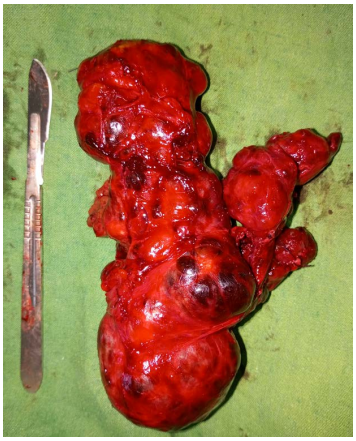

Figure 6. Surgical specimen.

3. Discussion and Literature Review

Intrathoracic goiters account for 5% of mediastinal tumors. They are reported to affect about 5% of the world's population [4].

Our patient consulted late; indeed, the consultation delay is often long, exceeding 4 years. It was 52 months in the series by Amor *et al.* [5].

Our patient was female; thyroid pathology is a common condition, which is consistent with observations in the literature that establish a link between hormonal factors and the prevalence of these disorders in women [6].

In our patient, the swelling had been evolving for 15 years. In other series, such as that by Zaghre N *et al.*, the duration of evolution was about twenty years [7]. This is explained by the slow migration of goiters into the chest, as the literature affirms [8].

Intrathoracic goiter can present with compression symptoms such as dyspnea from tracheal compression, dysphonia from recurrent laryngeal nerve compression, or dysphagia from esophageal compression [6] [9]. Our patient presented with all three signs, but it was primarily the dyspnea that prompted her to seek consultation.

The CT scan has become the reference examination for the diagnosis of plunging goiters. It specifies the size of the tumor, its relationship with the large intrathoracic vessels, and the aero-digestive axis. In our case, a cervico-thoracic CT scan was performed in accordance with literature recommendations. Indeed, it helps to evaluate the number of prolongations, their extent, their fluid or solid content, and their position in relation to the vessels, trachea, and esophagus. It also clarifies their relationship with the cervical thyroid, which is often also nodular [6] [10]. The descent is frequent on the right. According to Zainine, the progression of the goiter occurs more often towards the right. This is due to the absence of anatomical obstacles on this side, unlike the left where the presence of large vessels makes its descent more difficult [11].

The treatment for plunging goiters is exclusively surgical, as numerous studies have demonstrated the ineffectiveness of medical alternatives, such as hormone

therapy or radioactive iodine therapy [12] [13]. Two approaches are described: Kocher cervicotomy, or a cervicotomy associated with a sternotomy [14]. For our patient, we performed a Kocher cervicotomy, an attempt at cervical excision was made and was unsuccessful because a large part of the goiter plunged into the mediastinum. In collaboration with the thoracic surgeon, the plunging portion was accessed via a sternotomy, after which a total thyroidectomy was completed. Our approach aligns with the recommendations of the literature. Indeed, a sternotomy is considered inevitable in the presence of a goiter with more than 70% of the mass in the mediastinum, according to Flati *et al.* [15]. Other authors, like de Perrot *et al.*, have emphasized the need for a sternotomy for plunging goiters larger than 10 cm [16].

Pre-operatively, it is crucial to identify patients who may need a sternotomy beforehand. This allows for proper planning, including assembling a multidisciplinary team with a thoracic surgeon if needed, and ensures the patient is fully informed about the potential surgical approach.

According to the literature, the treatment of plunging goiter is exclusively surgical, as was the case in our patient. Our approach is consistent with that of other authors such as Touiheme [17].

Both the recurrent laryngeal nerves and the parathyroid glands were identified and preserved.

A histological examination of the surgical specimen was performed and showed no signs of malignancy.

4. Study Limitations

Even though a single case report, particularly one like ours as described above, has limitations because its findings cannot be generalized, it is still valuable as it contributes to the medical literature by documenting rare clinical presentations.

5. Conclusion

Intrathoracic goiters represent a rare thyroid condition; their extension into the chest can lead to signs of compression. The diagnosis is often clinical and confirmed by a thoracic CT scan. Based on our case, the management consisted of a total thyroidectomy via a cervical approach, associated with a sternotomy. The postoperative course was uneventful.

Conflicts of Interest

The authors declare no conflicts of interest.

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