PLUNGING GOITER IN A 60-YEAR-OLD MALE: A CASE REPORT

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ABSTRACT

The authors are reporting a case of a 60-year-old male who presented with a huge goitre of 15 years duration, associated with compressive dyspnoea, dysphagia and neck deformity. Fine Needle Aspiration Cytology suggested a follicular neoplasm. The Chest and neck CT scan revealed a bilateral plunging goitre, slightly more on the left. Upon injection of the contrast medium, it appeared heterogeneous and multinodular, with areas of calcification and hypodensity.
Total thyroidectomy was performed using an exclusively cervical approach, and the postoperative period was uneventful. Signs of tracheoesophageal compression were improved after the excision of the goitre. The perioperative and postoperative periods were uneventful. The tumour weighed 2.2 Kg. Histopathologic examination reported a multinodular follicular thyroid adenoma. The six-month follow-up was satisfactory, with no signs of recurrence.

Keywords: *Plunging goitre, signs of compression, total thyroidectomy.*

INTRODUCTION

Plunging goitre corresponds to a localised or generalised hypertrophy of the thyroid gland, which extends behind the sternum to sit partially or entirely within the mediastinum. Though no consensual definition has been adopted, many authors describe it as a goitre with no palpable lower limit on surgical position. Plunging goitre is a rare thyroid disease, and its frequency in the human population is very low.[1] It is associated with adjoining structures' compression and aesthetic implications due to neck deformity. Significant challenges are associated with the compression of the oesophagus, the subclavian vessels, but most importantly with respiratory distress due to potential life-threatening compression of the trachea.[2] The management of plunging goitre is mainly surgical and multidisciplinary.
We are reporting a case of plunging goitre, describing the reasons for the delayed presentation in our environment, presenting the diagnostic and surgical considerations, and highlighting the multidisciplinary approach to management.

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CASE PRESENTATION

It was a case of a 60-year-old male, Niger Republic national and a customs officer residing in an urban environment, who presented to our unit on account of a massive anterior neck swelling. The patient was apparently well until about 25 years prior to presentation when he noticed a small swelling in the anterior neck region. There was no history of associated pain or fever. The swelling gradually increased in size without periods of regression (Figure 1). There was no family history of goitre. There was no past history of radiation therapy, diabetes mellitus or hypertension, iodine deprivation or staying in an endemic zone. Other past medical or surgical histories were not contributory.
There was a positive history of ingestion and topical application of herbal medications with no improvement. The patient initially did not seek medical attention due to fear of surgical interventions and their possible complications. Eight months prior to presentation, he started experiencing dysphagia and dyspnoea on lying, which prompted his presentation to our ENT unit.
On presentation, the patient was stable as evidenced by good hemodynamic and ventilatory parameters. Physical examination revealed a huge thyroid mass involving both lobes. The right lobe extends from the posterior border of the sternomastoid to the midline, while the left lobe extends from the midline to the posterior border of the left sternomastoid. Vertically, the lesion extends from the lower 2/3 of the left sternomastoid to the root of the neck. The lower limit was not palpable. The overlying skin had multiple scars. (Figure 1**).**

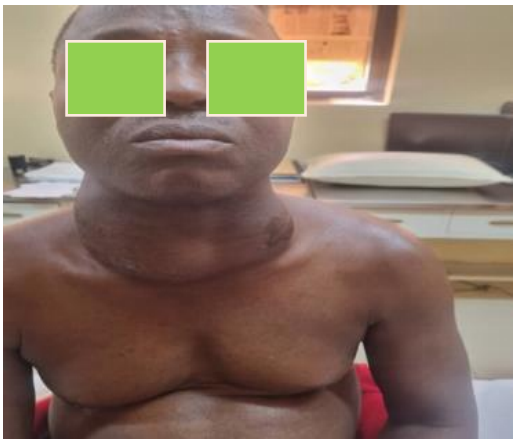

Figure 1: Cervical swelling with cutaneous scars.

This swelling was firm in consistency, painless, mobile on swallowing, with no evidence of cervical lymph node enlargement. There was no other significant examination finding.
A chest and neck CT scan revealed an enlarged thyroid gland, with the right lobe measuring 116 x 100 x 68 mm, while the left lobe measured 111 x 89 x 67 mm. The lesion appeared heterogeneous and multinodular, with areas of calcification and hypodensity evident upon injection of the contrast medium. The mass was plunging into the anterior and superior regions of the mediastinum (Figure 2).

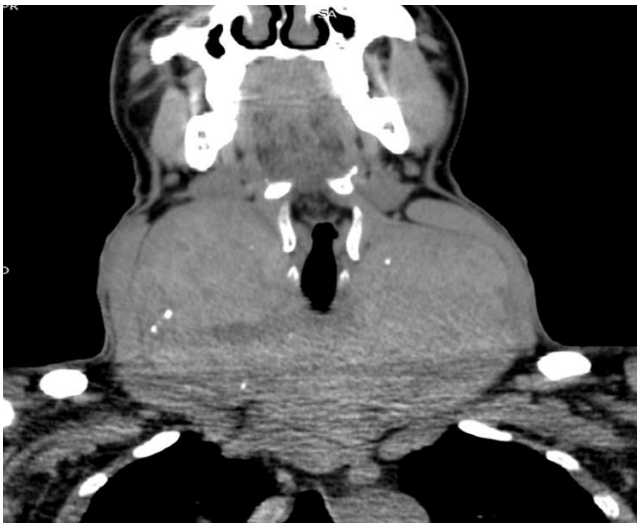

Figure 2: Coronal view of chest and neck CT scan showing a plunging goitre.

Fine Needle Aspiration Cytology (FNAC) findings, according to the Bethesda 2023 guidelines, suggested a follicular neoplasm. Thyroid hormone levels were in keeping with euthyroidism. In view of these clinical and investigation findings, a diagnosis of euthyroid plunging goitre was made. A multidisciplinary assessment by ENT and cardiothoracic surgeons recommended a total thyroidectomy using a cervical approach. A preoperative nasal fibreoptic examination showed normal vocal cords and no evidence of laryngeal nerve paralysis. A total thyroidectomy was performed under general anaesthesia using an exclusively cervical approach by a combined team of ENT and cardiothoracic surgeons. Visual identification of the recurrent laryngeal nerve was systematic; great vessels, displaced laterally, were carefully retracted during the dissection of the tumour; parathyroid glands were looked for, identified and preserved. The excised mass, sent for histopathological examination, weighed 2.2 Kg (Figure 3).

The postoperative period was uneventful, and the patient was discharged on Day 3 postoperatively on life hormone replacement therapy (L-Thyroxin). Signs of tracheo-oesophageal compression improved after the excision of the goitre. The histopathological report concluded that the goitre was benign and multinodular, without features of malignancy. Follow-up showed no evidence of complications up to 6 months postoperatively (Figure 4). Informed consent was obtained from the patient for this article.

Figure 3: A) An intraoperative photograph showing the extraction of a plunging goitre. B): Excised mass weighing 2.2 kg.

Figure 4: Six (6) months postoperative photograph.

DISCUSSION

Plunging goitres represent rare medical conditions in developed countries, largely due to the early detection and management of thyroid masses.[1] The plunging goitre is different from the endothoracic goitre as the former grows downwardly with the thyroid gland in cervical position, while the latter may develop from ectopic thyroid tissues

nonrelated to the cervical thyroid gland, hence the difference in their respective blood supply,[3] Affected patients present at an older age than those with the cervical goitre as the plunging goitre is asymptomatic and grows slowly.[4] The frequency of goitre in males is relatively low. However, the risk of malignant goitre is higher in males, particularly in those with no family history of goitre.[1]

A plunging goitre is often an incidental finding during a radiological investigation or on account of compressive signs such as dyspnoea, dysphonia and dysphagia. Our discovery of a plunging goitre associated with such compressive signs strongly suggests a delayed presentation. This is supported by previous studies from Niger, specifically from Niamey[5] and Zinder[6] which reported a delayed diagnosis of goitre in our country with a mean duration of 8 years before presentation. The delayed presentation in our case can be attributed to the initial attempt at treating the condition using traditional herbal remedies, which is often responsible for similar delays in our environment. In addition, ignorance, poverty and fear of surgery and perioperative deaths are contributing to the development of large, compressive and/or malignant goitres necessitating a multidisciplinary management[5]. Furthermore, the painless nature of goitre is another factor favouring delays in presentation. In our case, the patient reported ignorance and fear of surgery.

Imaging is an essential tool in the diagnosis of plunging goitres. A chest and neck CT scan or Magnetic Resonance Imaging (MRI) can establish this diagnosis, as well as showing the evidence of the thoracic extension of plunging goitres. A CT scan can reveal these thoracic extensions, their number, significance, liquid or solid content, relationship with vessels, as well as with the trachea and the oesophagus.[7] In our case, a CT scan was used to establish a treatment plan and choose a surgical approach.

Management of a plunging goitre is surgical. Absolute indication for surgical intervention is considered in case of life-threatening acute respiratory distress or compression of the trachea.[8] Surgery is also indicated even in cases of asymptomatic plunging goitres due to the risk of sudden and dramatic development of respiratory distress, dysphagia or vascular compression.[9] Early surgery can reduce the surgical challenges associated with the excision of a plunging goitre, particularly with regard to the need for sternotomy [10]Two surgical approaches are possible, depending on the extensions of the goitre; the exclusive cervical approach and cervicotomy with sternotomy or thoracotomy.[1] Collaboration with cardiothoracic surgeons is particularly valuable for cases presenting with significant intrathoracic extensions or a close relationship with great vessels.

The most recommended surgical approach is the cervicotomy. Sternotomy or anterolateral thoracotomy is indicated in cases of plunging goitres. This is particularly necessary for plunging goitres with multiple extensions, revision surgeries, failed cervical approach and posterior goitres.[11] In our case, we were able to achieve a complete excision of the goitre via an exclusive cervical approach, after visual identification and dissection of the recurrent laryngeal nerve. The anterosuperior position of the mediastinal extension of the goitre, along with a careful digital manoeuvre, made the cervical approach sufficient. The postoperative period was satisfactory.

Recurrent nerve paralysis is one of the commonest post-operative complications of a plunging goitre.[1] Some authors recommend Intraoperative Nerve Monitoring (IONM) and find it very beneficial in the prevention of recurrent nerve paralysis associated with massive goitre surgeries. However, it was not used in our case.[12] The risk of hypoparathyroidism is higher with cervical goitre surgeries.[13] This is because the parathyroid gland identification is more difficult as the gland lies at a deeper plane in relation to the thyroid gland.[13]

CONCLUSION

Plunging goitres are a rare thyroid disease, most commonly affecting males. In our environment, its discovery is usually associated with a delayed medical consultation. A chest and neck CT scan remains the gold standard for assessing and diagnosing plunging goitres, as well as for treatment planning. Surgery is indicated in view of the life-threatening risks. This case report highlights the need for improved patient awareness and behavioural changes towards adopting early medical consultation in the event of any cervical mass.

Conflict of interest: None declared.

Authors' contribution: All authors have contributed to this article. They also declare having read and approved the final version of this manuscript.

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