

# Carotid Encasement by a Benign Multinodular Goiter

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## ABSTRACT

Great vessels in the neck and upper mediastinum are involved either by invasion or encasement in malignant thyroid disease. Rarely benign conditions, like Riedel's thyroiditis, may involve them due to extensive extracapsular fibrosis. We report a rare case of carotid artery engulfment due to benign goiters, which is a largely unknown entity.

**Keywords:** Carotid artery encasement, Benign multinodular goiter.

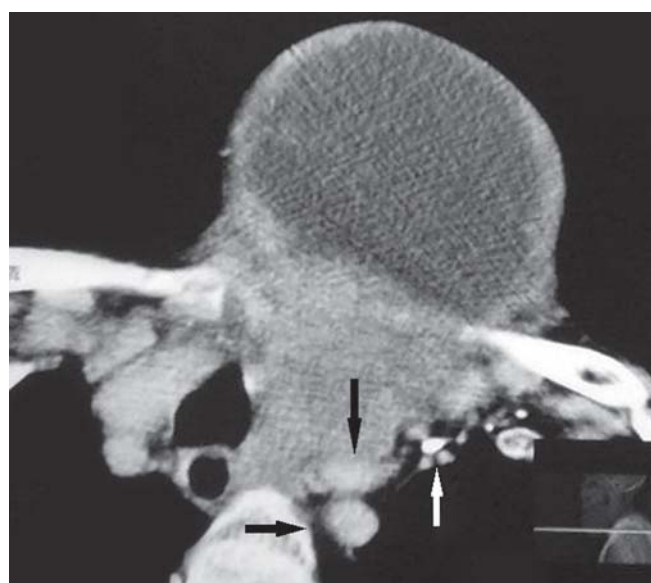
## INTRODUCTION

A 65-year-old lady presented with a large nontoxic goiter of 25 years duration and history of hoarseness of voice for 4 months without sudden increase in size of goiter. On clinical examination, it was a large goiter with predominant left lobe enlargement (Fig. 1) and right-sided tracheal deviation. There was no retrosternal extension. Fine needle aspiration cytology was suggestive of a colloid goiter and thyroid profile was within normal limits. Indirect laryngoscopy revealed left-sided vocal cord paresis. Computerized tomography of neck and upper mediastinum revealed 210° encasement of the left common

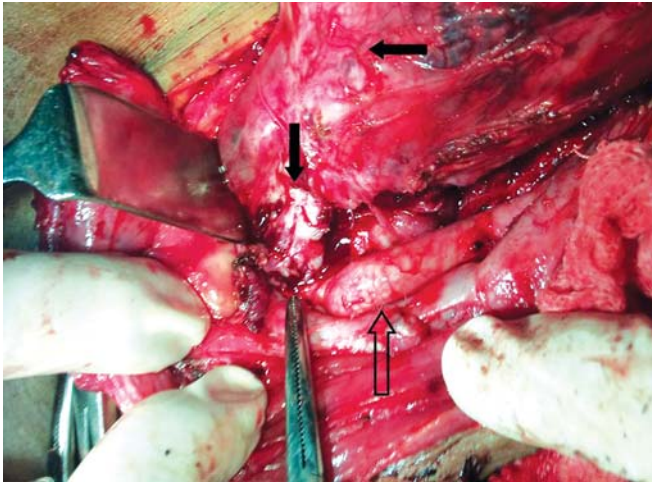
carotid artery without a distinct fat plane with the goiter at D1/2 level (Fig. 2). There was no other malignant features, like vascular or tracheal invasion or jugular lymphadenopathy. Doppler ultrasound of carotids revealed normal blood flow on both sides. On surgical exploration, with the intent of total thyroidectomy, there was dense adhesions and stony hard calcification in the left lower pole of thyroid, which was encasing 210° of left common carotid artery (Fig. 3). Surprisingly, left internal jugular vein was free of invasion. In view of benign nature of goiter and elderly age of patient, we did right lobectomy and debulking (> 90%) on the left side leaving the goiter and fibrous tissue encasing the carotid *in situ*.



**Fig. 1:** Large multinodular goiter



**Fig. 2:** CT scan of neck showing carotid artery encasement (black down arrow), left subclavian artery (horizontal arrow) and coarse calcification (white arrow)



**Fig. 3:** Intraoperative view of carotid artery encasement (down arrow), goiter (horizontal arrow) and common carotid artery (hollow arrow)

Histopathology of specimen was confirmed as a benign multinodular colloid goiter.

Involvement of carotid arteries due to thyroid disease occurs rarely and usually caused by invasive thyroid cancer or anaplastic thyroid cancer.<sup>1</sup> Occasionally, Riedel's thyroiditis<sup>2</sup> can cause great vessel engulfment due to extensive invasive fibrosis. At times, certain benign skull base tumors, such as glomus jugulare and schwannomas, may engulf carotid artery necessitating planned resection.<sup>3</sup> But, benign thyroid nodular diseases are not known to involve carotid arteries, in spite of

reaching gigantic sizes as they tend to push them away and, moreover, carotid sheath is an effective barrier for tissue invasion. Carotid encasement in thyroid cancer is considered unresectable with a rare possibility of curative resection<sup>4</sup> and carotid resection or reconstruction carries a high morbidity.<sup>5</sup> In view of benign nature and elderly age, resection of carotid artery was not done in our case. This case highlights a rare radiologic and operative surprise of carotid encasement by a benign multinodular goiter.

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