CASE REPORT

Video-assisted thoracoscopic thyroidectomy for obstructive sleep apnoea

I. F. Oey*, B. D. Richardson† and D. A. Waller*

*Department of Thoracic Surgery, Glenfield Hospital, Leicester, U.K. and †Department of Respiratory Medicine, Northampton General Hospital, Northampton, U.K.

INTRODUCTION

Obstructive sleep apnoea (OSA) is caused by upper airway collapse during sleep. In few case reports, a goitre has been found to be a contributing factor for sleep apnoea (1). Thyroidectomy improved symptoms in these patients. However, in these cases the goitre was mainly localised in the neck requiring a standard cervical collar incision for the operation. We describe a patient who had a goitre localised in the posterior mediastinum, which was subsequently resected using video-assisted thoracoscopic surgery (VATS). Partial thyroidectomy resulted in complete resolution of his symptoms.

CASE HISTORY

A 65-year male patient was referred to a chest physician with a history of daytime somnolence, excessive snoring and nighttime wakening. A sleep study confirmed OSA. There was a prolonged episode of cyclical desaturation in the hour before waking where he was having significant apnoeas and hypopnoeas.

A routine chest X-ray showed possible pleural thickening for which a CT scan chest was arranged. The CT scan showed normal pleura but did reveal a 5 x 3-cm solid mass lying behind the trachea, causing indentation, and extending from the thoracic inlet to the level of the aortic arch. Thyroid scintigraphy showed normal uptake in the region of the thyroid gland in the neck with no extension of thyroid tissue into the mediastinum.

We proceeded to VATS via three 2 cm and one 6 cm axillary incisions. A large posterior mediastinal mass posterior to the trachea and lateral to the oesophagus was found extending superiorly into the root of the neck. The lesion was non-cystic and appeared consisted with a thyroid gland. The lesion was excised thoracoscopic. The base of the mass was ligated using Endoloop and the EZ45 stapling gun (Ethicon Endo-Surgery, OH, U.S.A.) (Fig. 1).

The patient was discharged on the sixth postoperative day. When reviewed in the outpatient clinic 2 weeks after surgery, his symptoms of OSA had completely resolved. Histology confirmed a benign colloid thyroid nodule.

DISCUSSION

In surgical series of thyroidectomies, up to 10% of patients were found to have a thyroid mass inferior to the thoracic inlet (2). Distinction needs to be made between a goitre originating in the neck but which extends downwards into the mediastinum and ectopic intrathoracic thyroid (3). A so-called plunging goitre can extend down towards superior, anterior or posterior mediastinum. A mediastinal goitre can be asymptomatic or cause symptoms of obstruction on the trachea with resulting stridor, dyspnoea, hoarseness and persistent cough, and on the oesophagus causing dysphagia (2).

OSA is normally caused by upper airway collapse during sleep because of anatomical and physiological factors (4). In few case reports, a goitre has been found to be a contributing factor for sleep apnoea (1). Thyroidectomy improved symptoms in these patients. However, in these cases, the enlarged thyroid gland was mainly located in the neck. Patency of the upper airway is usually considered to be maintained by the activity of muscles in the head and neck; these include cervical muscles that provide caudal traction on the upper airway. It may be that OSA, in these cases, was caused by direct interference of cervical structures such as muscles and hyoid bone (4). Our case of OSA is an unusual presentation of an intrathoracic goitre. As the patient did not have enlarged thyroid tissue in the cervical region interference of cervical structures could obviously not be the cause of his symptoms. However, the thorax also applies caudal traction to the upper airway. In a study on dogs, the resistance of the upper airway increased when all caudal...
ventrolateral cervical structures mechanically linking the thorax to the upper airway were severed (5). It may be that not only changes in the normal anatomy but also in the normal physiology of the upper airway may predispose to OSA. Reflexes with afferent receptors in the narrowed trachea, may alter the upper airway resistance through action on respiratory muscles (4).

Traditionally, mediastinal thyroids are excised by cervical approach with or without a thoracic approach; thoracic approach includes median sternotomy or posterolateral thoracotomy (2). Video-assisted thoracoscopy is becoming a more common way to investigate and remove mediastinal masses. One case has been described where an ectopic superior mediastinal thyroid tumour, causing problems of stridor, was excised thoracoscopically (3).

Because of the negative thyroid scintigraphy, we did not expect to find a goitre. Most intrathoracic goitres do have thyroid function; one study showed a sensitivity of thyroid scintigraphy of 93% (6). Therefore, we used VATS first as a diagnostic tool as we needed to exclude a foregut remnant or lymphoma.

Although in this case a diagnosis of intrathoracic thyroid was not made preoperatively, thyroidectomy with or without a cervical approach may be a new indication for VATS.

REFERENCES