Redefining Anatomy in a Case of Midline Subhyoid Ectopic Thyroid

Kiran Naik

Received: 6 September 2012 / Accepted: 16 January 2013 / Published online: 18 April 2013
© Association of Surgeons of India 2013

Abstract Ectopic thyroid is an uncommon embryological aberration of the thyroid descent. Subhyoid median ectopic thyroid gland is a result of incomplete descent of the thyroid anlage and is characterized by a cosmetically unacceptable ovoid mass of thyroid tissue in the midline overlying the thyroid cartilage and thyrohyoid membrane. A normally placed thyroid gland is not detectable and in most cases all functioning thyroid tissue is located within the mass. Most of the ectopic thyroids are usually mistaken for a thyroglossal cyst and excised. Severe myxedema follows removal. Many cases have been reported in the literature, none of which was recognized prior to operation. All patients were operated upon for removal of a thyroglossal duct cyst. The diagnosis was missed at operation and in these cases severe myxedema was universal. The cause of the myxedema was not always immediately recognized. Therefore, many diagnostic tests including thyroid function test, ultrasound of the neck, and thyroid scanning had been recommended in the preoperative evaluation of a thyroglossal cyst. Here, we present a case of ectopic thyroid mass which was the only thyroid tissue present in the neck. So, division and repositioning of the thyroid mass thereby redefining the anatomy was done with good cosmetic results.

Keywords Ectopic · Midline · Subhyoid · Thyroid · Surgical repositioning

Case Report

A 14-year-old girl had noticed a mass in the anterior midline of the neck for 7 years. She had no pressure symptoms, and the mass had gradually increased in size over the years. She was first seen in the ENT clinic at Tumkur and was advised for a neck ultrasonography. Enlarged pyramidal lobe of thyroid was diagnosed on ultrasound. Then, the patient came to ENT OPD in Adichunchanagiri Institute of Medical Sciences, Bellur, Mandya where a 5.0×5.0 cm ovoid, soft, encapsulated mass was palpated overlying the thyrohyoid membrane in the midline (Fig. 1). It was freely movable in the horizontal plane but restricted in vertical motion. The thyroid gland could not be palpated in its normal position, but the patient was clinically euthyroid with normal growth and development. However, the radioactive scintigram plainly revealed that all of the patient's functioning thyroid tissue was located within the midline mass. The ultrasound neck showed an ovoid mass in the midline just above the thyroid cartilage and both the thyroid lobes were not visualized. Hence, a diagnosis of subhyoid midline ectopic thyroid was made and was prepared for surgical repositioning of the thyroid tissue.

A single collar incision was made and a solid mass of tissue identified. The mass resembled a normal thyroid tissue. No thyroid tissue could be found laterally (Fig. 2). The gland was split longitudinally (Fig. 3) and each half of the mass was then moved laterally into a tunnel created beneath the strap muscles without sacrificing the blood supply which appeared to enter predominantly from the inferolateral margins (Fig. 4). There were no complications and the patient has been well, pleased with the cosmetic result (Fig. 5). Thyroid function tests were repeated at 1, 3, and 6 months postoperatively, which were in normal limits

K. Naik (✉)
Adichunchanagiri Institute of Medical Sciences & Research
Center, B.G. Nagar, Nagamangala,
Mandya, Karnataka, India
e-mail: dr_kirannaik@rediffmail.com

Fig. 1 Midline subhyoid thyroid

suggesting the normal functioning of the gland. Also, ultrasound was repeated at 6 months postoperatively, which suggested the presence of both neo lobes with normal echotexture.

Discussion

Ectopic thyroid is an uncommon embryological aberration of the thyroid descent and characterized by the presence of thyroid tissue in a site other than its usual pretracheal region. It occurs along the path of descent of the developing thyroid primordium from the foramen cecum. Most commonly, the gland completely fails to descend and presents as a lingual thyroid and this is the only thyroid tissue in 70 % of cases [1]. This is in contrast to a sublingual thyroid; in which case, there is incomplete descent of the gland where the final resting point may be high in the neck or just below the hyoid bone [2].

Fig. 2 Midline ectopic thyroid

Fig. 3 Bisected longitudinally

When the thyroid gland is located in its normal position in the lower neck, fragments of the thyroid tissue representing ectopic thyroid may still be found anywhere along its course.

More than 400 cases of lingual thyroid have been documented in the literature, but the reported cases of sublingual thyroid are substantially lower. Ectopic thyroid is subject to same diseases as the anatomically correctly positioned thyroid, such as nodular hyperplasia and rarely neoplastic degeneration [3]. Asymptomatic mass lesion is the usual presentation of ectopic thyroid, but obstructive symptoms, hypothyroidism, and very rarely hyperthyroidism have been documented [4].

We believe that the preoperative recognition of such an anomaly is mandatory not only to avoid the mistaken diagnosis of thyroglossal duct cyst, and thus render the patient myxedematous by removal of his only thyroid tissue, but also to assure the patient of a well planned, elective, and cosmetic procedure. During examination, the surgeon must make a definite decision

Fig. 4 Repositioning the lobes

Fig. 5 Postoperative neo-thyroid

as to whether a given mass is solid, either in part or in whole, and determine by palpation if a normal thyroid gland is present. If there is any doubt concerning either of these structures, a radioactive iodine scintigram should be done. Thyroid scintigraphy is the best method in identifying all sites of a functioning thyroid tissue, but routine thyroid scan is not necessary [5].

Having determined that the midline mass contains all of the patient's thyroid tissue, we believe that a safe cosmetic procedure can be recommended to the patient if he/she so desires. We would agree with Gross and Haller that the gland should be split longitudinally in the midline and each half moved laterally to a normal position beneath the strap muscles [6].

McGirr and Hutchison [7] believe that minimal hypothyroidism is an essential feature of ectopic thyroid anomalies, and that the ectopic thyroid becomes prominent because of excessive stimulation by thyrotropic hormone. If the mass is not excised, they predict the future possibility of hyperplastic changes including nodular goiter and carcinoma.

We do recommend that follow-up be continuous, and if any hyperplastic changes are detected, thyroid extract should be given in order to reduce thyrotropic stimulation.

Summary

A subhyoid median ectopic thyroid gland is a rare anomaly which must be distinguished from a thyroglossal duct cyst either prior to or at the time of operation in order to avoid excision with subsequent myxedema. If a midline subhyoid mass is suspected of containing a solid component or if a normally placed thyroid cannot be palpated, a radioactive iodine scintigram should be done. Thus, if all of the patient's thyroid tissue is proven to be contained within the midline tumor, a safe cosmetic operation can be offered. The gland should be split longitudinally in the midline and each half moved laterally to its normal position beneath the strap muscles. Hypothyroidism has not been encountered following this plastic procedure. If future hyperplastic changes are encountered, treatment with thyroid hormone is recommended.

References

1. Baik SH, Choi JH, Lee HM (2002) Dual ectopic thyroid. *Eur Arch Otorhinolaryngol* 259:105–107
2. Hazarika P, Siddiqui SA, Pujary K et al (1998) Dual ectopic thyroid: a report of two cases. *J Laryngol Otol* 112:393–395
3. Pang YT (1998) Ectopic multinodular goitre. *Singap Med J* 39:169–170
4. Abdallah-Matta MP, Dubarry PH, Pessey JJ et al (2002) Lingual thyroid and hyperthyroidism: a new case and review of the literature. *J Endocrinol Invest* 25:264–267
5. Lim-Dunham JE, Feinstein KA, Yousefzadeh DK et al (1995) Sonographic demonstration of a normal thyroid gland excludes ectopic thyroid in patients with thyroglossal duct cyst. *Am J Roentgenol* 164:1489–1491
6. Gross RE (1953) *The surgery of infancy and childhood*. Saunders, Philadelphia, Ch 66
7. McGirr EM, Hutchison JH (1954) The value of radioiodine (I^{131}) in juvenile myxedema due to ectopic thyroid tissue. *Arch Dis Child* 29:561