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Case Report

Paediatric thyroidectomy: a case report

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ABSTRACT

Paediatric thyroid surgery, in benign or malignant lesions nowadays is an established intervention with rare untoward sequel, short hospitalization and an excellent outcome. At most centers high volume surgeons perform thyroidectomy in patients belonging to this age group while at some, is undertaken by the below high-volume surgeons but those adept and specialized in paediatric surgery. In surgical fraternity it is emphasized that high volume paediatric and adult endocrine surgeons to be the ideal interventionists. In our opinion paediatric thyroid surgery ideally should be carried out by high-volume surgeons well conversant in knowledge of anatomy of the neck. Thereby having a favourable outcome with minimal morbidity. Subtotal thyroidectomy was undertaken in a 4-year-old female where FNAC was suggestive of benign follicular nodule. Post intervention the voice and calcium levels were normal.

Keywords: Thyroidectomy, Paediatric thyroid surgery, Thyroid disease, Thyroid cancer, Benign follicular nodule, Multinodular goiter

INTRODUCTION

Conservative modalities antithyroid medications, radioiodine ablation and partial resections were earlier adopted in children and adolescents for thyroid disease, due to limited surgical skills. Congenital hyperthyroidism, Grave's disease, toxic adenomas and goitre are the benign, while well differentiated papillary, follicular and medullary carcinomas the malignant lesions that necessitate surgery. Malignant nodules of thyroid in paediatric population have an incidence of 25%, with a higher risk at a lower age.[1,2] Intervention in this age group requires a high level of dexterity and is undertaken by either the adult head neck or the paediatric surgeon. The latter though familiar with other pathologies of this age group.[3,4] Thyroid nodules children require diagnostic ultrasonography and fine needle aspiration as recommended by the American thyroid association (ATA).[5] Otorhinolaryngology, endocrinology, anaesthesia, paediatrics, pathology and nuclear medicine, specialties are involved in pre ,intra and postoperative management of individuals taken up for thyroidectomies.

CASE REPORT

A 4-year-old female child presented with gradual onset progressively increasing right sided anterior triangle neck swelling for the last 1 year. It was associated with change in voice. There was no pain, fever, trauma, dysphagia or odynophagia. The 4×3 cm, non-tender, smooth firm swelling the moved-on deglutination, but not on tongue protrusion. There was neither skin fixity nor cervical lymphadenopathy. USG guided FNAC was suggestive of benign follicular nodule, Bethesda category 2, with large well circumscribed heterogeneous lesion having both solid and cystic components just superior to right lobe of thyroid, seen the swelling was crossing the midline. It measured approximately 4×1.5 cm. CECT revealed right

thyroid lobe enlargement 1.9×2.7×1.9 cm, isthmus -0.9 cm, left lobe measured 0.9×0.9×1.9 cm with multifocal enhancing solid cystic nodule. There was no evidence of internal calcifications (Figure 1a). Mild tracheal shift was noted without any narrowing. The thyroid profile was normal. She was taken up for subtotal thyroidectomy under general anesthesia. Intraoperatively the lesion involved mainly the right lobe which was approx. 4×3.5 cm. Right hemithyroidectomy with isthmectomy along with part of left lobe of thyroid undertaken under microscopic visualization. Bilateral parathyroid and recurrent laryngeal nerves were identified and preserved. (Figure 2a, b, c). Post-operative period was uneventful with normal voice and serum calcium levels (Figure 1b).

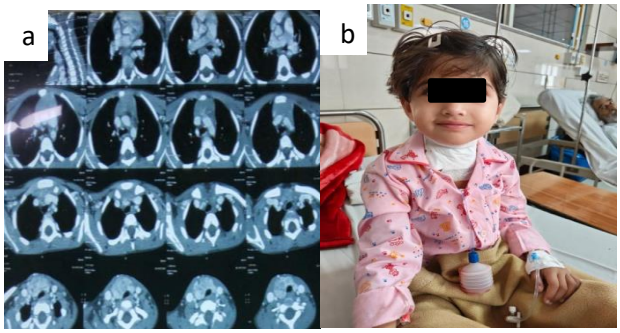

Figure 1: (a) CT neck. Sagittal, coronal and axial cuts showing thyromegaly; and (b) post subtotal thyroidectomy of the 4-year-old child.

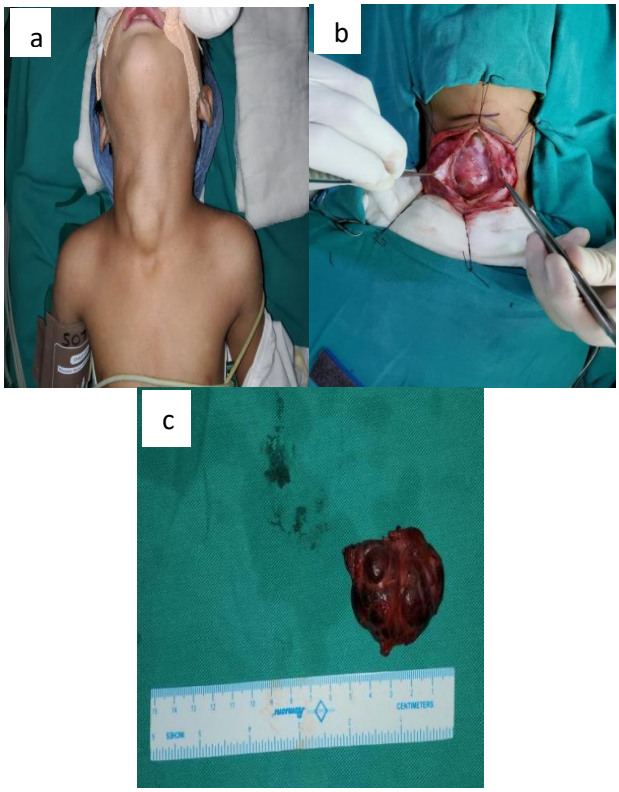

Figure 2: (a) Hyperextended neck showing right thyromegaly; (b) exposed thyroid gland after raising flaps; and (c) resected specimen.

DISCUSSION

Thyroidectomy is vital in management of benign thyroid pathologies in children and adolescents and is the basic treatment for thyroid cancer. Literature documents a female predominance of thyroid pathology. Even our patient was a young lady. Early symptomatology of dysfunction of the thyroid is usually absent and pathology is suspected and diagnosed late on manifestation as a solitary nodule or thyromegaly. Unusually the presentation in children is asymptomatic. Our patient had no specific complain of change in her voice.

Dysphagia and feeling of strangulation, tightness or neck heaviness are the symptoms of enlarged thyroid. Palpitations and loss of weight are due to hyperthyroidism. On the contrary, cold extremities are because of hypothyroidism. Benign pathologies are treatable by hormonal replacement, suppression therapy and thyrostatics with endocrinological collaboration. In adept hands the untoward sequel of paediatric thyroidectomy is nil to minimal.[6] The comparatively smaller diameter of the recurrent laryngeal nerves wrt in adults makes its demarcation difficult, necessitating visualisation under magnification. Microscope and binocular loupe nerve localisation are reliable.[7] In global literature on paediatric thyroidectomy the documented complications are wound infections, recurrent nerve trauma and hypocalcaemia. Hypocalcaemia being the commonest.[8,9] 15% to 30% have transient and mild, while only 1% to 7%, severe hypocalcaemia.[10]

Recurrent nerve trauma with consequent cord paresis or paralysis manifests with dysphonia, but is amenable to voice therapy, early reinnervation, and injection or medialization thyroplasty with or without arytenoid adduction. Fortunately, post operatively our child had a normal voice and no sign and symptoms of hypocalcemia and a normal serum calcium level. As paediatric thyroid pathology usually indicates malignancy lymph node dissection is usually carried out at the same sitting.

Surgical literature suggests that high volume surgeons to undertake thyroidectomy in the paediatric age group while few emphasized on below high-volume ones but those specialized in paediatric surgery Some stress that high volume paediatric and adult endocrine surgeons to be the ideal interventionists. We propose paediatric thyroid surgery to be carried out by high-volume surgeons well conversant with the neck anatomy with consequent minimal morbidity.

CONCLUSION

Paediatric thyroidectomy, partial, subtotal or total is unique and rarely undertaken, for fear of nerve injury, hypokalemia and wound infection. Nowadays healthcare facilities have adept surgical interventionists and endocrinologists; the former under magnification, loupe

or microscopic deliver the thyroid easily and the latter maintain the calcaemic levels.

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