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Follicular Adenoma of the Thyroid Gland in Children

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Summary

Follicular adenoma is the most frequent cause of a solitary thyroid nodule in children. We reviewed our own patient material and the literature and discuss etiology, available diagnostic methods, differential diagnosis, natural course and clinical management. In spite of the fact that the great majority of solitary thyroid nodules are benign, the treatment strategy is completely dominated by the risk for malignancy.

Key words

Thyroid - Adenoma - Child

Introduction

Surgery does not play an important role in the treatment of diseases of the thyroid gland in children. Besides remnants of the thyroglossal duct and an exceptional case of goitre, which does not regress adequately on medical treatment, a solitary thyroid nodule is the most frequent indication for surgery. The interest in solitary thyroid nodules is dominated by the risk for malignancy. Nevertheless, only a small proportion of solitary nodules turn out to be malignant and the majority are benign lesions. In the group of benign lesions, which present as a solitary nodule, more than half are follicular adenomas. Reviewing the literature on follicular adenoma, it is striking that hardly anything is known about follicular adenomas, especially in children. Based on our patient material and the available literature we discuss the etiology, diagnostic methods, differential diagnosis, clinical course and management.

Material and methods

In the period from January 1976 till January 1992 in the Pediatric Surgical Center and the Department of Pediatrics 5 patients were seen with a solitary thyroid nodule which, after excision and histologic examination, proved to be a follicular adenoma (Table 1). Age ranged from 11 months till 18 years. There were 4 girls and 1 boy. Three adenomas were in the left and two in the right thyroid lobe. The mother and a niece of one of the girls (Case 2) and the father of the boy (Case 1) were treated in the past also for a thyroid nodule. The mother of another girl (Case 5) was treated for hyperthyroidism.

Discussion

Although solitary thyroid nodules in children are much less common than in adults (12), there is a considerably higher risk of malignancy (20). In the literature the reported
The incidence of carcinoma in a solitary nodule in children is reported to be about 20% (4, 13, 18). This means that the majority are benign lesions and that the need for operative therapy can be questioned (22). In large series of histologic examination (4, 13, 18), follicular adenomas are noted to be follicular adenomatous (4, 13, 18), showing a distinctive histologic and microscopic differentiation (17). Follicular adenomas may be solitary but also multiple adenomas are observed (22). These adenomas may be seen in the thyroid gland in children. They are characterized by: (A) a benign histologic appearance; (B) no association with hyperplasia; (C) no association with radiation therapy; (D) no association with goiter; and (E) a history of radiation therapy.

Radioactive iodine scanning is a useful diagnostic tool for identifying malignancy. The accuracy of radioactive iodine for diagnosis of various lesions in children is excellent (11). However, FNA can be used to identify the pathologic nature of a follicular lesion in children (12). In children, FNA can be useful in identifying the pathologic nature of a follicular lesion (12).

Fig. 1a. Typical histology of follicular adenoma showing encapsulated nodular growth pattern (A). The capsule and interstitial tissue are normal. There is no distortion of normal follicles or colloid. (B) A follicular adenoma showing encapsulated nodular growth pattern (A). The capsule and interstitial tissue are normal. There is no distortion of normal follicles or colloid. (C) A follicular adenoma showing encapsulated nodular growth pattern (A). The capsule and interstitial tissue are normal. There is no distortion of normal follicles or colloid. (D) A follicular adenoma showing encapsulated nodular growth pattern (A). The capsule and interstitial tissue are normal. There is no distortion of normal follicles or colloid. (E) A follicular adenoma showing encapsulated nodular growth pattern (A). The capsule and interstitial tissue are normal. There is no distortion of normal follicles or colloid.
The surgical literature unanimously advises operative excision. Because of the risk of malignancy and the limited value of frozen-section diagnosis during operation (19), enucleation as was proposed (1) does not seem a wise option. At least a subtotal thyroid lobectomy should be done, which gives the opportunity of studying the node with its environment. To avoid a later reoperation a total thyroid lobectomy seems preferable. Although thyroid suppression preoperatively is controversial (8), several authors recommend postoperative suppression therapy as recurrence prophylaxis (1, 21). The mean recurrence rate after benign lesions of the thyroid is reported to be 3% (1). Although some authors advised suppression therapy as a routine, others only do so in case of an elevated TSH-level (21). In accordance with the literature in our patients follicular adenomas were found predominantly in girls and diagnosis was made around puberty. However, we saw one girl 11 months of age. Three adenomas were left-sided and two on the right. In three patients on histologic examination two nodes were identified in the resected thyroid lobe. All the nodes were cold on scanning. Four patients had a total thyroid lobectomy and one patient a subtotal thyroid lobectomy. There were no postoperative complications.

Our patients did not receive suppression therapy. Two patients developed a second adenoma in the other thyroid lobe, respectively ten and twenty-four months after the first operation. In one of them there was an elevated TSH level postoperatively; in all the others we found normal values.

Conclusions

Although most solitary thyroid nodules are benign, there is a definite risk for malignancy. With the exception of clear signs of malignancy, like irregular hard consistency, definitive adherence to the trachea, cervical lymphnodes or a lesion of the recurrent laryngeal nerve, it is as a rule impossible to make a clinical distinction between benign and malignant lesions. Thyroid function tests are mostly normal with exception of elevated calcitonin levels in medullary carcinomas. Ultrasonography is of ultrasonic investigation of solid thyroid tumors with grey-scale and real-time scanning: The Halo Sign. Appl Radiol 6 (1977) 105-177

References

9 Harlowe SP, Dunn RB, Bauer KD: Diagnostic utility of DNA content (flowcytometry in follicular neoplasms of the thyroid. J Surg Oncol 50 (1992) 1-6
10 Hassani N: Ultrasonic investigation of solid thyroid tumors with gray-scale and real-time scanning: The Halo Sign. Appl Radiol 6 (1977) 105-177
14 Kaster A, Jayaram B: Thyroid tumors: Cytomorphology of follicular neoplasms. Diagn Cytopathol 7 (1991) 406-172

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