UNIVERSITÄTSKLINIKUM
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Hyperfunctioning Thyroid Nodule in an Adolescent

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Background

In adults, autonomously functioning thyroid nodules (AFTN) rarely require cytologic evaluation and hyperthyroidism is often treated with radioactive iodine (131J). In American children and adolescents with AFTNs thyroid carcinoma was identified in about 10% [3].

Case presentation

An 17-years-old adolescent presented with symptoms of hyperthyroidsm. She suffered from agitation, headache and hair loss. No change in her weight or bowel habits was noted. Her medical history was unremarkable, no history of radiation exposure.

17 years old female adolescent	Height 163 cm (- 0,8 SD) Weight 64 kg, body mass index 24,3 kg/m2 (+1,0 SD). Blood pressure 125/76 mmHg, heart rate 80 bpm
Clinical symptoms	Visible swelling of the left lobe of her thyroid with a palpable compact nodule. No palpable lymphadenopathy. No compressive symptoms. Further clinical examination without pathological findings.
Laboratory	
TSH	suppressed 0,10 mIU/ml (reference range (r) 0,51- 4,3)
fT3	elevated 4,9 ng/l (r 2,3 -4,2)
fT4	normal 11,8 ng/l (r 8,9 -17,6)
TSH-receptor-antibodies	negativ < 0,3 IU/l (r < 1,76)
Calzitonin	normal 1,58 ng/l (r 5,17-9,82)
Thyroglobulin	elevated 725 µg /l (r 3,5 -77)
Thyroid ultrasound	showed a large hypoechoic tumor with cystic transformation 3,6 x 2,3 x 1,7 cm in the left lobe. Hilar vascular flow.
Neck ultrasound	No specific lymph node alteration.
Medical therapy	Carbimazole 10 mg/day, subsequently 5 mg/day
Surgical therapy	Hemithyroidectomy on the left side
Histopathologic analysis	Follicular adenoma, diameter 3,1 cm with partial regressive transformation. No invasion/interruption of the (thin) capsule by tumor, no vascular invasion.

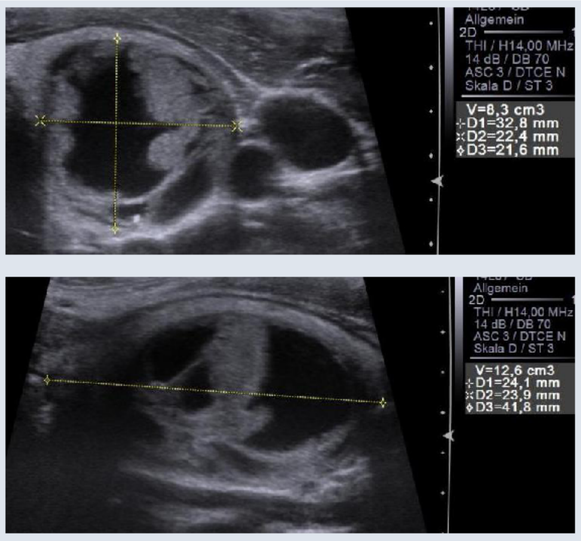

Abb. 1 Thyroid Ultrasonography, left lobe

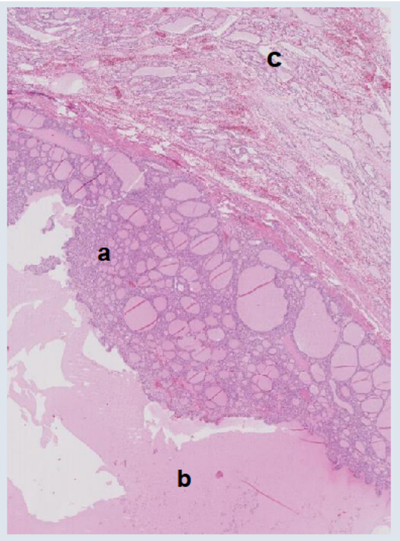

Abb.2 Histologic features of the tumor: Encapsulated follicular nodule, micro(a)- and macrofollicular (b) with lateral compression of regular thyroid parenchyma (c)

Discussion

A suppressed TSH in thyroid nodules is usually not indicative for thyroid cancer since thyroid cancer cells uncommonly produce thyroid hormones. However, it is known, that cancer may occur in AFTN. There are case reports in adolescents with follicular variant of papillary carcinoma presenting as AFTN [1—3].

Clinical features associated with malignancy include large nodule size and palpable nodule [4], like in our patient. An algorithm for the approach to thyroid nodule with suppressed TSH in children proposes a radionuclide scan to identify a hyperfunctioning nodule [5]. We decided against thyroid scan, because a hot nodule does not rule out the possibility of thyroid cancer [3]. A fine-needle aspiration cytology (FNAC) was not recommended [5]. A hot nodule is by definition a follicular neoplasia and FNAC cannot discriminate between follicular adenoma and carcinoma [1].

Conclusion

We describe an adolescent with a hyperfunctioning nodule due to a follicular adenoma. Hemithyroidectomy was performed because of the visible nodule and the nodule size. Presence of a palpable nodule and large nodule size is associated with an increased risk for malignancy. Detection of an autonomously functioning thyroid nodule in children and adolescents does not rule out the possibility of thyroid cancer entirely.
Surgery may serve as diagnostic as well as therapeutic tool.

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Wissen schafft Gesundheit

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