

## Case study of 13- year-old boy suffering from papillary thyroid cancer in stage pT3aN1bMX.

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### INTRODUCTION

- **Thyroid cancer in children** in Poland constitutes only **2.3%** of all diagnosed thyroid cancers (Polish National Cancer Registry 2003-2013).
- Nevertheless, a **growing trend** in the number of new cases worldwide has been reported. It is now the eighth most frequently diagnosed cancer in boys and the second most common among girls between 15 and 19 years old.
- **Papillary thyroid carcinoma (PTC)** constitutes 83-90% of all differentiated thyroid cancer (DTC) child cases and is characterized by very good prognosis (cause-specific survival=97.5%).
- **The risk factors of DTC include:**
  - **prior exposure to radiation** (over 10 times more cases in Belarus, Russia, and Ukraine following the Chernobyl incident in 1986)
  - **inherited syndromes** (Li-Fraumeni syndrome, McCune-Albright syndrome, Peutz-Jeghers syndrome, Werner syndrome, Beckwith-Wiedemann adenomatous polyposis)
  - Autoimmune thyroid disease such as **Hashimoto's thyroiditis** is reported to have a significant impact on PTC prevalence.

### CASE

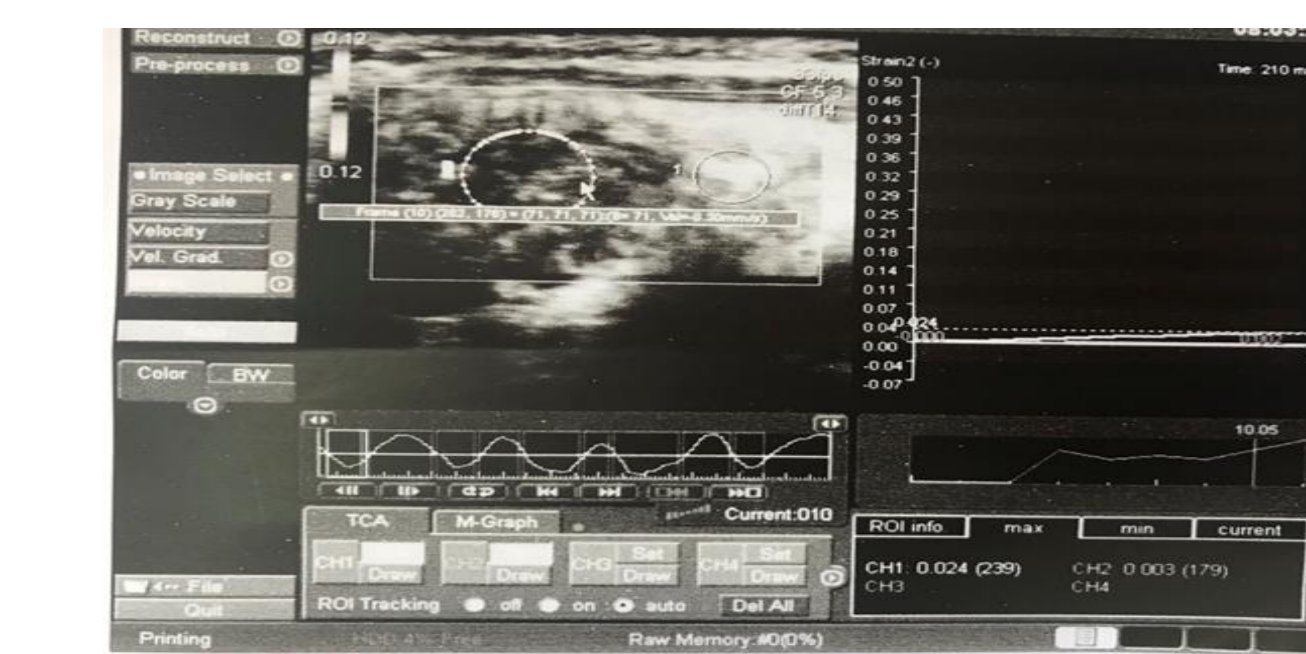
#### Patient medical history:

Age: 13 years old

- Gender: male
- Referred to an Endocrinology Outpatient Clinic due to a partially empty sella syndrome in MRI
- ADHD
- school phobia
- negative family history of endocrine diseases
- 14-year-old sister- allergy and GER, 5-year-old brother- autism

#### Physical examination & laboratory tests

clear stretch marks on the hips  
goitre stage 1  
thyroid hormone values -within normal ranges:  
TSH – 2,1 uIU/l  
fT4 – 1,3 ng/dl

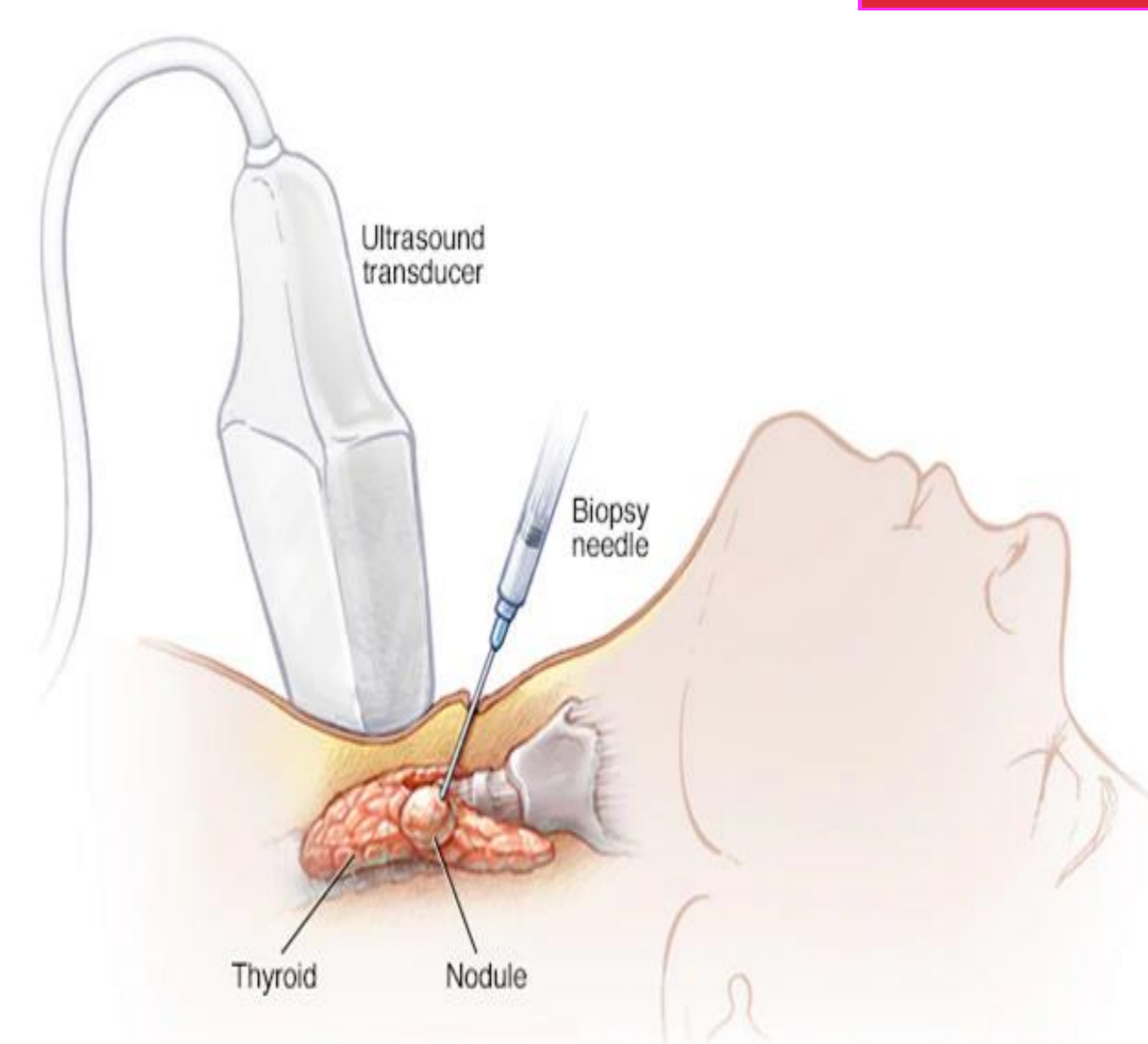


In addition, on the border of isthmus and the right lobe, a hypoechoic area (7x7x4 mm) was noticed. Lymph nodes on the right side were enlarged.

Ultrasound examination of the thyroid gland showed a **large hypoechoic area** of 15 x 17x 19 mm (without vascularization) covering the entire right lobe with a centrally located **hyperechoic area** (6x4.5 mm in size) and numerous changes in the form of **micro- and macro calcifications**.

**In elastography ROI 1 / ROI 2 = 10.**

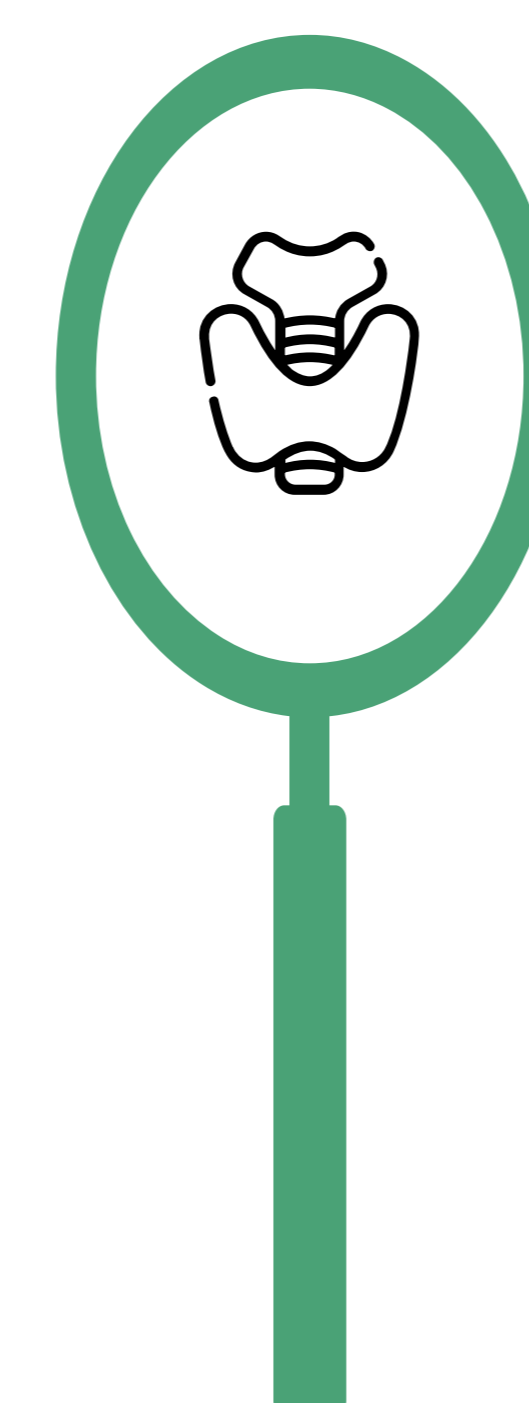
### METHOD



In order to intensify the diagnostics of changes in the thyroid gland **fine needle aspiration biopsy (FNAB)** was performed. Microscopic image confirmed suspicion of **papillary carcinoma (Bethesda VI / VI)**.

The patient was referred to the **Maria Skłodowska-Curie Memorial Cancer Centre and Institute of Oncology in Gliwice**, where he underwent total thyroidectomy with central neck dissection.

Bilateral cervical lymphadenectomy of the II-V group of neck lymph nodes was performed due to lymph nodes metastases detected by open, intraoperative surgical biopsy with frozen section.



The **histopathology examination** confirmed the diagnosis of **papillary thyroid cancer** (diffuse sclerosing variant) with huge **metastases** to the central lymph node compartment (10/13) and lymph node metastases to lateral compartments lateral bilateral (1/23 left side; 2/45 right side)

- **pT3aN1bMX.**

### THERAPY

Postoperative hypocalcemia was observed. He required high-dose **calcium and vitamin D3 supplementation** (Calcium 6x1000mg, Alfacalcidol 3 x 1ug).

During the first postoperative follow-up **PTH level was 17,3 pg/ml; Ca2+ 1,18 mmol/l and reduction of supplementary therapy was performed** (Calcium 1000 mg).

Two months after surgery **radioiodine I-131** at a dose of 100 mCi was given as a **complementary treatment (RAI)**. No active cancer was found in follow-up scintigraphy.

A suppressive dose of **l-thyroxine** (100 ucg/d) was used therapeutically to maintain TSH values in the range of 0.1-0.4 µIU / ml.

### CONCLUSIONS

1. Thyroid cancer in children is a **rare** condition. Nevertheless the number of cases is increasing.
2. Detailed diagnostic process using advanced tools such as **ultrasonography, fine needle aspiration biopsy or elastography** should be proceeded among children with risk factors, in order to detect cases of thyroid cancer and implement surgical as well as pharmacological treatment quickly and efficiently.

