

EVALUATION OF CHILDREN WITH INTRATHYROIDAL ECTOPIC THYMUS

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INTRODUCTION

The relatively increasing use of ultrasound (US) examination in children and advances in imaging technologies may increase the detection of more thyroid lesions than there used to be.

Intrathyroidal ectopic thymus (IET), a benign lesion due to aberrant thymic migration during embryogenesis, is often discovered **incidentally**.

AIM

We aimed to present the US features, diagnostic methods, and follow-up of IET in children and adolescents.

METHOD

We searched our database of patients under 18 years old with a nodular thyroid lesion detected by US, between January 2007 and December 2019.

In 30/255 (11.7%) IET was diagnosed.

We retrospectively studied the clinical and US findings: the reason for referral, age, duration of follow-up, levels of thyroid stimulating hormone (TSH), free T4 and thyroperoxidase antibody (TPOAb), US features of IET, and interventions (FNA and surgery).

RESULTS

The mean age at the first examination: 5 years (0.1-12.2, median 5.6)

The indications that led to the initial US: cervical lymphadenopathy (n=6), congenital hypothyroidism (n=2), elevated serum TSH concentration (n=4), 'thyroid nodule' found by US performed elsewhere (n=17), and follow-up imaging after hematological cancer treatment (n=1)

None of the children had a **palpable** thyroid nodule or clinical evidence of thyroid malignancy

We observed **34 IETs in 30 patients** as four patients had IETs bilaterally.

19 IETs (55.9%) were in the **left lobe**, and most (79%, 27/34) in the **midportion**.

The mean **longest diameter** of IET: 6.4 mm (2.5-21, median 4.5)

88% (30/34) were <1 cm.

85.3% (29/34) had well-defined margins.

Four patients were receiving **L-thyroxine therapy** for primary hypothyroidism (2 congenital, 2 acquired).

TPOabs were positive in 1 of the 21 patients.

A total of **25 children with 27 lesions** were followed up with a mean follow-up time of **2.7 years** (0.3-7.5, median 2.1)

No change in size in one lesion after 4.1 years.

13 (48%) lesions showed an increase by 0.3-4 mm

A decrease in size or complete regression was observed in 13 (48%) lesions after a mean time of 2.4 years (0.3-7.5, median 1.5)

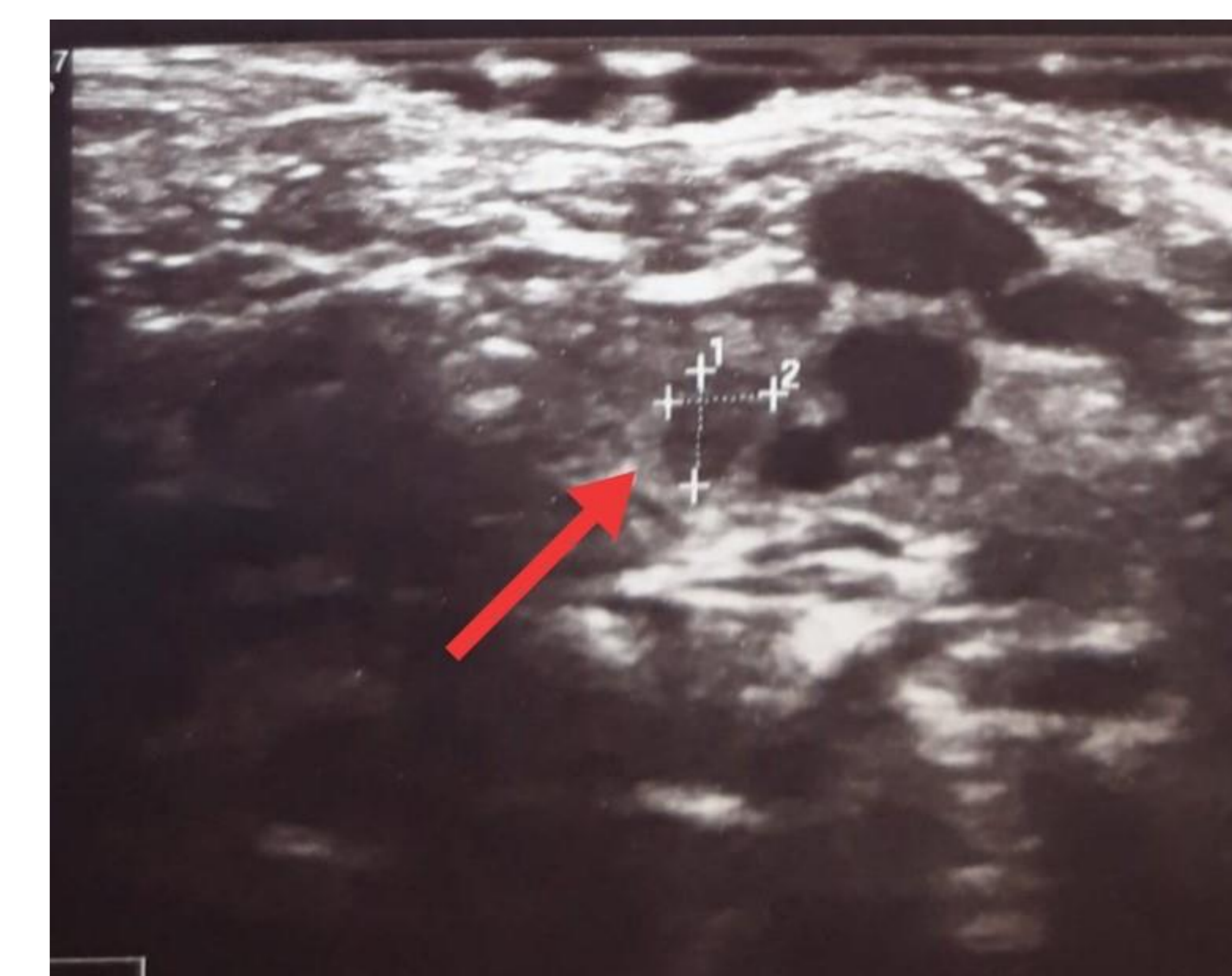
FNA was performed in **5/30** patients.

The patients with FNA were older (8.7 vs. 4.3 y) and had lesions with a larger longest diameter (8.2 vs. 6.1 mm) compared to the patients without FNA.

Cytologic analysis revealed **benign-appearing lymphocytes** in all FNAs.

In one patient, **hemithyroidectomy** was performed after two months of observation, and the histological examination confirmed the presence of IET.

Fig.1 Intrathyroidal ectopic thymus of patient 11



On US examination, IET appeared as a **round, oval, or irregular hypoechoic area, with regular linear and punctate bright internal echoes**.

The lesions had a typical echo pattern consistent with the descended thymus.

CONCLUSIONS

IET may be more common than previously thought and should be considered in the differential diagnosis of incidental thyroid lesions and nodules in children and adolescents, keeping in mind that the US characteristics of IET can suggest a malignant nodule.

Awareness of this entity with long-term follow-up can reduce the need for FNA or unnecessary surgery.

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