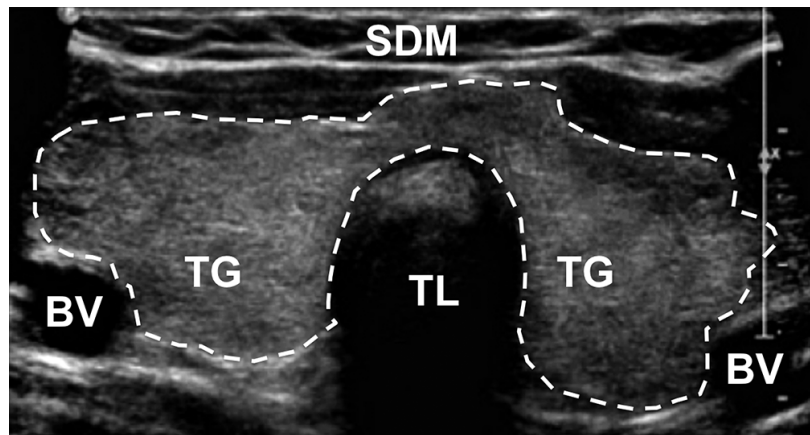
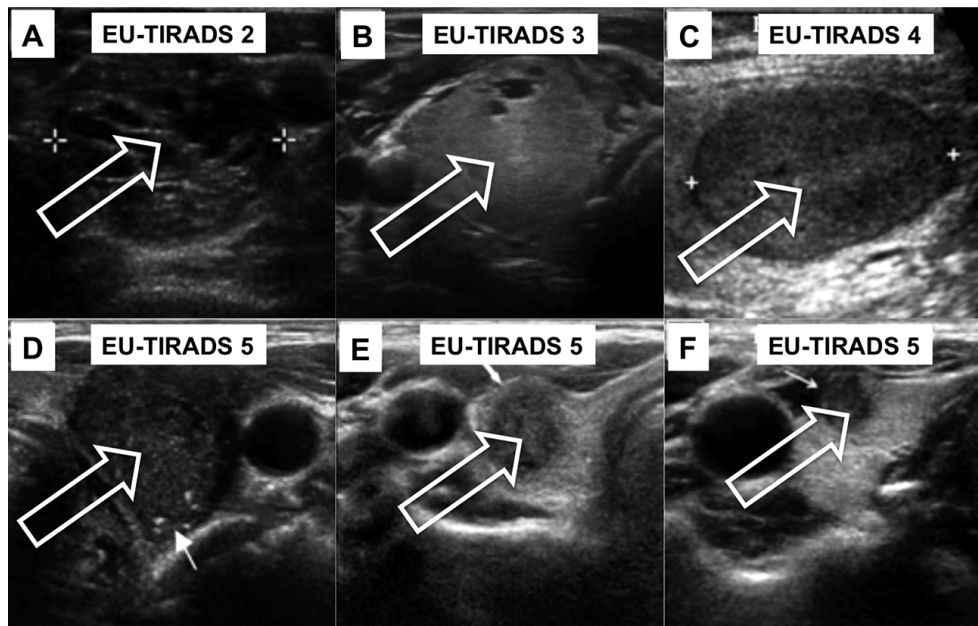


Supplemental File 1: Ultrasound evaluation of goiter



Ultrasonography of a diffuse, non-nodular goiter (axial view). Outline of the thyroid gland is indicated by the broken line. Inhomogeneous ultrasound pattern, without clear nodules but with isoechoic and hypoechoic pseudonodules. TG: thyroid gland (right and left lobes). SDM: skin, dermis and muscles forming the superficial layer in the neck. TL: tracheal lumen. BV: major blood vessels of the neck.

Supplemental File 2: examples of different ultrasound scores of thyroid nodules according to EU-TIRADS criteria of the European Thyroid Association



Ultrasound features of thyroid nodules (indicated by open arrows) according to EU-TIRADS criteria. A) spongiform nodule; B) isoechoic solid nodule; C) mildly hypoechoic nodule; D) hypoechoic nodule with microcalcifications (small white arrow); E) hypoechoic nodule with taller-than-wide shape and extrathyroidal extension (small white arrow); F) markedly hypoechoic nodule with extrathyroidal extension (small white arrow). Cytology of nodules in A), B), and C) was consistent with benign (colloid) nodules, whereas nodules depicted in D), E), and F) were papillary thyroid carcinomas.

Supplemental File 3: Classification of Hypothyroidisms

Primary hypothyroidism

Congenital

- Thyroid dysgenesis
 - Aplasia; hypoplasia; ectopic gland
- Thyroid dyshormonogenesis
 - Sodium-iodide symporter defect; thyroid peroxidase defect; hydrogen peroxidase generation defects (DUOX2, DUOX2 gene mutations); pendrin defect; thyroglobulin defect; iodotyrosine deiodinase defect
- Resistance to TSH binding or signaling
 - TSH receptor defect; G protein defect (type 1A and 1B pseudo-hypoparathyroidism)

Acquired

- Thyroiditis
 - Autoimmune
 - Hashimoto's thyroiditis (goiter and atrophic forms)
 - Painless and post partum thyroiditis (transient, rarely permanent)
 - Subacute thyroiditis (transient, rarely permanent)
- Thyroid infiltration
 - Amyloidosis; hemochromatosis; sarcoidosis
- Iodine deficiency; goitrogens in foodstuffs; pollutants
- Iodine excess
- Iatrogenic
 - ¹³¹I-iodide therapy
 - Surgery
 - External irradiation for nonthyroidal malignancy
 - Drugs
 - Antithyroid drugs (methimazole, carbimazole, propylthiouracil)
 - Amiodarone, lithium, iodide, interferon- α , tyrosine kinase inhibitors

Central hypothyroidism

Congenital

- Isolated TSH deficiency
- Congenital hypopituitarism (combined pituitary hormone deficiencies)

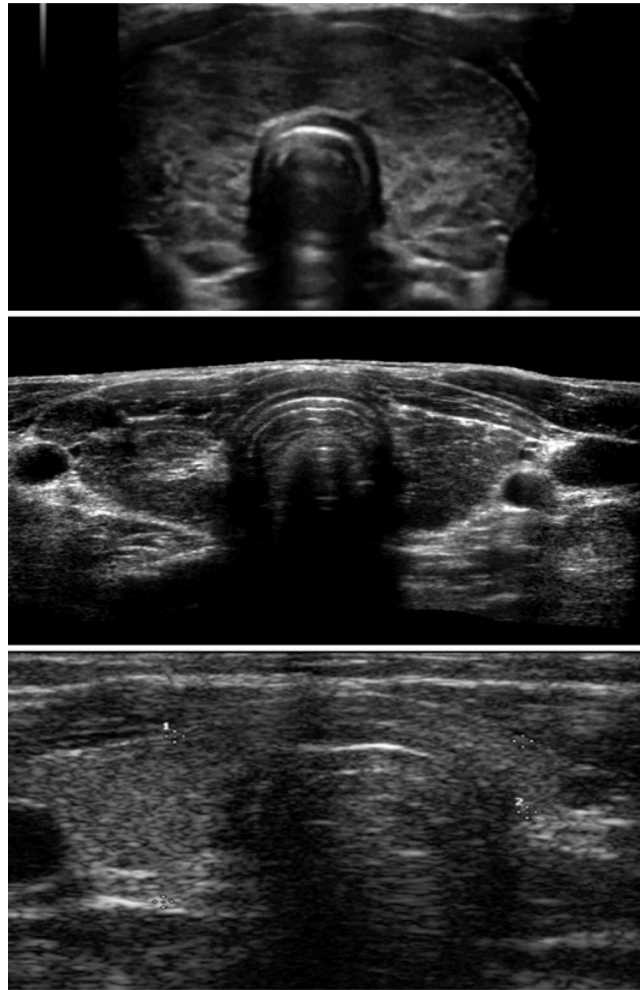
Acquired

- Pituitary (secondary) or hypothalamic (tertiary) disorders
- Bexarotene (retinoid X receptor agonist)
- Dopamine or severe illness

Peripheral congenital hypothyroidism

- Thyroid hormone cell membrane transport defect (MCT8 gene mutations)
- Thyroid hormone resistance (thyroid hormone receptor α e β gene mutations)

Supplemental File 4: examples of ultrasound patterns in hypothyroidism



Ultrasound patterns observed in hypothyroidism (axial views). Upper panel: chronic autoimmune thyroiditis, showing enlarged thyroid lobes with diffuse, moderate hypoechogenicity and marked inhomogeneity. Middle panel: chronic autoimmune thyroiditis, showing the atrophic form. Lower panel: thyroid hemiagenesis, showing a normal right lobe and isthmus, but completely absent left thyroid lobe.