

Triple Ectopic Thyroid on Pertechnetate Scintigraphy

Sir,

A 5-year-old female child was brought to the outpatient department when her parents noticed a midline neck swelling for the past few days. On examination, the swelling moved with deglutition. Biochemically, the child was subclinically hypothyroid (T3, 1.34 ng/ml; T4, 6.62 ug/dl; and TSH, 7.55 uIU/ml). Ultrasonography of the neck showed a lingual thyroid lesion and a soft tissue nodule anterior to the thyroid cartilage. However, bilateral lobes of thyroid gland were not visualized in thyroid bed. The clinician suspected a thyroglossal cyst, and before proceeding with a Sistrunk operation, a thyroid scan was planned to look for functioning thyroid tissue.

Thyroid scan with 3mCi of Tc-99m pertechnetate was done which revealed two abnormal focal radiotracer uptakes in the base of the tongue in planar images [Figure 1a and b]. This was further evaluated with low-dose Single photon emission computed tomography-computed tomography (SPECT-CT) to further characterize the abnormal focal radiotracer uptake on planar imaging. This was done to confirm the sites of ectopic thyroid tissue which could potentially enlarge and cause dysphagia and airway obstruction. Low-dose CT and fused SPECT-CT (axial sections shown in Figure 1c-h, and sagittal sections in Figure 1i and j corresponding to the three ectopic thyroid tissue) revealed an ill-defined hyperdense lesion (10.9 × 8.9 mm) at the base of the tongue with increased radiotracer uptake [Figure 1c and d, white arrow]. Another hyperdense structure (8.2 × 6.3 mm) was noted in the prehyoid region with increased radiotracer uptake [Figure e and f, white

arrow]. A third hyperdense lesion (13.9 × 10.5 mm) was seen anterior to the thyroid cartilage towards the right side with increased radiotracer uptake [Figure 1g and h, white arrow, corresponding to the palpable swelling). No normally located thyroid gland was seen.

The thyroid gland normally descends from the foramen caecum to its normal pretracheal location through the thyroglossal duct by the 7th week of gestation.^[1] Failure in descent or any aberration in normal descent leads to ectopic location of thyroid gland. Mutation in gene transcription factors such as ITF-1 (Nkx 2-1), Foxe1 (TITF-2), and PAX-8 leads to abnormal thyroid morphogenesis and are involved in the abnormal migration of thyroid gland.^[2] There are various reports of dual thyroid ectopia, one reported by Harishankar *et al.* in a 4-year-old girl with SPECT-CT localizing the ectopic thyroid tissue to sublingual location and suprahyoid location.^[3] Triple thyroid ectopia is rare, however, few cases have been reported previously presenting in different age groups,^[4-6] one of them reported by Rahalkar *et al.* was in a 42-year-old woman where thyroid tissue was present over the surface of posterior tongue, anterosuperior to the body of hyoid bone and anterior to thyroid cartilage.^[4] Another case of triple thyroid ectopia was in a 16-year-old female with ectopic thyroid tissue in the clinically palpable nodule at the level of tongue and at the level of hyoid bone.^[5] A third case was in a 10-year-old girl with ectopic thyroid tissue near the base of tongue, prehyoid, and pretracheal region.^[6] According to a large retrospective review of 100 cases of thyroglossal cysts by Kessler *et al.*, radionuclide scanning is justified in cases

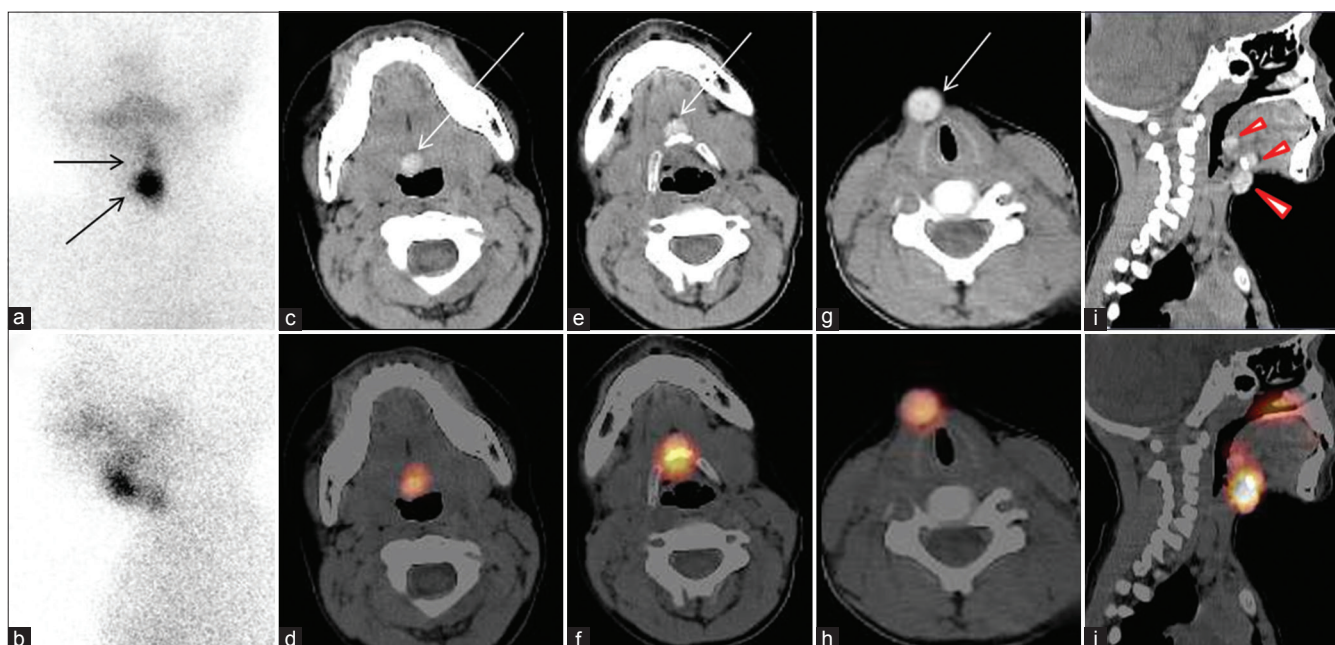


Figure 1: Planar Images of thyroid scan shows two abnormal foci of uptake in the region of the base of tongue (a and b). Low dose SPECT-CT (axial sections (c-h) and sagittal sections (i and j) show three ectopic hyperdense lesions with tracer uptake at the base of tongue (fig c and d white arrow), in the prehyoid region (fig e and f white arrow) and anterior to thyroid cartilage (fig g, h white arrow). No normally located thyroid gland was seen

of lingual thyroid and where a normally located thyroid gland cannot be detected.^[7] We used the same principle in this case and SPECT/CT showed an additional ectopic site.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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