



region (Figure 1). He had recognized a bulging mass in the submental region from the past six years, which has been gradually more prominent in the last two years. He was also suffering from hypothyroidism from 11 years ago and was receiving levothyroxine for two months. He did not have any difficulty in breathing or swallowing. On neck examination, there was a non-tender, soft,  $3 \times 3$  cm mass below the chin, which moved freely on swallowing and tongue protrusion with no signs of infection.

On biochemical examination, the thyroid function test was normal while receiving levothyroxine therapy. (TSH =  $1.81 \mu\text{IU/ml}$ ,  $T_3 = 98 \text{ ng/dl}$ ,  $T_4 = 4.8 \mu\text{g/dl}$ , anti-TPO =  $8 \text{ IU/ml}$ ). Ultrasonography was performed before the scan and revealed a mass measuring  $4.2 \times 2.7 \times 2.6 \text{ cm}$  in the submental region near to midline. A hypoplastic thyroid was also detected in the thyroid bed,  $0.5 \times 0.4 \text{ cm}$  and  $0.4 \times 0.4 \text{ cm}$  corresponding to the right and left lobes, respectively. Thyroid scan was performed by dual-head Siemens gamma camera, 15 minutes after IV injection of  $185 \text{ MBq}$  ( $3.5 \text{ mCi}$ ) of Tc-99m-pertechnetate, and static images (anterior, lateral) were obtained in the supine position (Figures 2 and 3) The scan did not show any uptake in the thyroid region. A zone of tracer activity was noted in the central neck, compatible with the palpated mass in the submental region.

Computed tomography (CT) scan was performed for the precise localization of the ectopic thyroid tissue. CT images showed a hyperdense soft tissue in the submental region, which was adjacent to the base of tongue



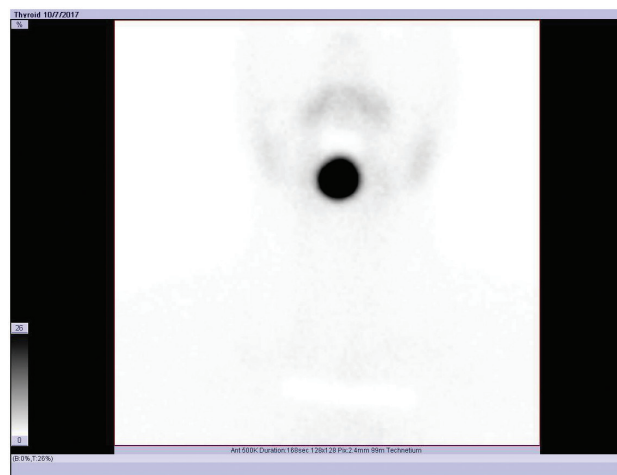
**Figure 1.** Image of the patient in lateral view, showing a visualized soft tissue mass in submental region.

(Figure 4). There was no visible thyroid tissue in the thyroid bed region.

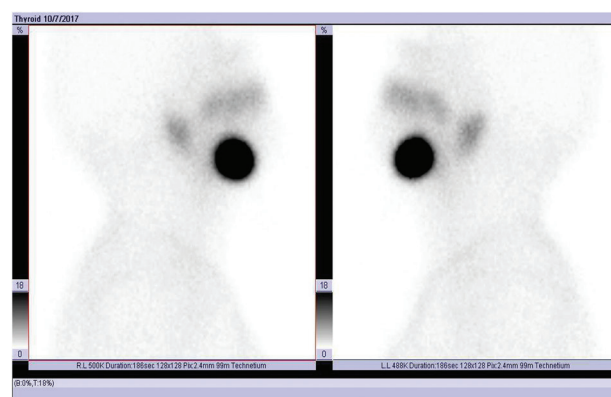
There was no salivary abnormality or adenopathy in the rest of the neck. Surgery and observation were the two treatment options. He did not have any obstructive symptoms, so the surgical approach was withheld, and the patient was observed for the possible enlargement of the mentioned mass while receiving thyroxine therapy.

**Discussion**

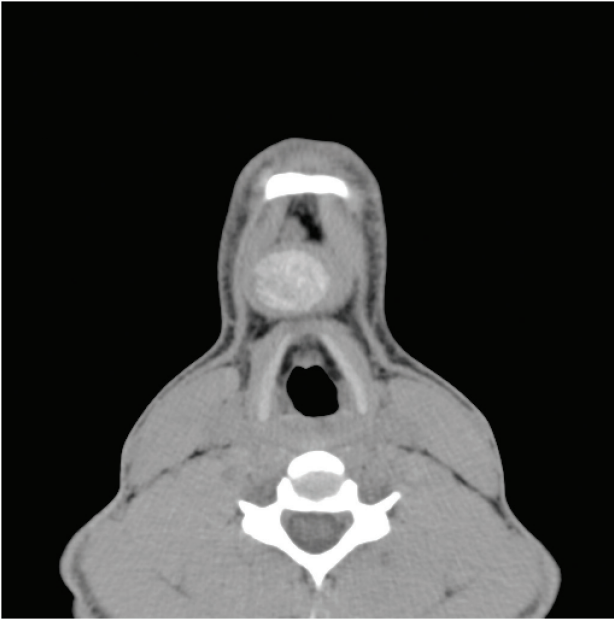
Thyroid ectopia is a rare condition with an incidence of about 1 in 100,000 populations, and it should be kept in mind during the evaluation of neck masses [1]. There are some clinical pathologies that can imitate thyroid ectopias, such as epidermoid and dermoid cyst, thyroglossal duct cyst, lymphadenopathy, lipoma, lymphangioma, mucous retention cyst, adenoma, hemangioma, subhyoid bursitis, midline bronchial cyst, salivary gland tumors, vascular malformation, and neoplasms [2,10]. Various diagnostic procedures and imaging modalities have been introduced to date including ultrasound, CT scan, nuclear scintigraphy, and MRI [1–2].



**Figure 2.** Thyroid scan in anterior view showing thyroid tissue in submental region.



**Figure 3.** Thyroid scan in lateral view, confirming thyroid tissue in submental region.



**Figure 4.** Ct scan performed from the neck region, showing a hyperdense soft tissue in the sub-mental region, adjacent to the base of tongue.

The main drawback of ultrasound is its low detection rate for thyroid ectopia [11]. If the thyroid tissue is not seen in its normal region, on sonography, a thyroid scan is required to differentiate thyroid agenesis from ectopia [11]. Thyroid scintigraphy is the most important diagnostic modality, as well as the best non-invasive imaging for the evaluation of thyroid ectopia and differentiates it from other causes of neck mass [2,5,6,8,10,11]. It has high sensitivity and specificity and can identify any thyroid tissue throughout the body [5]. FNA has also been used with an accuracy of 95%–97%, especially when there is a suspicion of malignancy [1].

Because the ectopic thyroid tissue is usually the only functional thyroid tissue in these patients, excision will make the patient hypothyroid [1]. For asymptomatic and euthyroid patients, no surgical and medical treatments are needed and follow-up is recommended [2].

Treatment is dependent on thyroid function and the patient symptoms [1]. If the patient has symptoms that are related to mass effects, such as obstructive symptoms, bulk reduction with thyroid hormone replacement is indicated even if the patient is euthyroid [1–2].

Levothyroxine leads to achieve euthyroid status and decreases the size of ectopic tissue [5]. In cases of suspicious or proven malignancies, and patients with mass-related symptoms, such as dyspnea, dysphagia, dysphonia, and hemorrhage, surgery is indicated [1].

#### List of Abbreviations

CT Computed tomography  
MRI Magnetic resonance imaging

#### Consent for publication

Informed consent was obtained from the patient for the publication of this case report and any accompanying images.

#### Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

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**Summary of the case**

1	<b>Patient (gender, age)</b>	Man-18 y/o
2	<b>Final diagnosis</b>	Thyroid ectopia
3	<b>Symptoms</b>	Submental mass
4	<b>Medications</b>	Leothyroxine therapy
5	<b>Clinical procedure</b>	Thyroid scintigraphy
6	<b>Specialty</b>	Nuclear medicine