



Nasolacrimal Duct Obstruction on ¹³¹I SPECT/CT: Atypical False-positive Paranasal Radioiodine Uptake as a Complication of Single-dose RAI Treatment

¹³¹I SPECT/BT'de Nazolakrimal Kanal Tıkanıklığı: Tek-doz RAI Tedavisinin Bir Komplikasyonu Olarak Atipik Yanlış Pozitif Paranasal Radyoiyot Tutulumu

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Abstract

Nasolacrimal duct obstruction (NLDO) is a rare complication after radioiodine therapy and may cause false positive ¹³¹I uptake at the point of obstruction in ¹³¹I whole body scan. Here, we report a 59-year-old female patient with papillary thyroid cancer treated with total thyroidectomy followed by ¹³¹I therapy. ¹³¹I whole body scan revealed focal uptake in the head. Single photon emission computed tomography/computed tomography (CT) showed focal uptake at the right proximal nasolacrimal duct. The ophthalmologic examination and the diagnostic maxillofacial CT confirmed the diagnosis of NLDO.

Keywords: ¹³¹I, radioiodine therapy, nasolacrimal duct obstruction, thyroid cancer

Öz

Nazolakrimal kanal tıkanıklığı (NLKT), radyoiyot tedavisi sonrası nadir görülen bir komplikasyondur ve ¹³¹I tüm vücut tarama sintigrafisinde tıkanma noktasında yanlış pozitif ¹³¹I tutulumuna neden olabilir. Burada, 59 yaşında papiller tiroid kanserli, total tiroidektomi ve ardından ¹³¹I tedavisi uygulanan bir kadın hasta sunuldu. ¹³¹I tüm vücut tarama sintigrafisinde kafada odaksal bir ¹³¹I tutulumu izlendi. Tek foton emisyon tomografisi/bilgisayarlı tomografi (BT) sağ nazolakrimal kanal proksimal kesiminde fokal ¹³¹I tutulumu gösterdi. Oftalmolojik muayene ve tanısal maksillofasial BT, NLKT tanısını doğruladı.

Anahtar kelimeler: ¹³¹I, radyoiyot tedavi, nazolakrimal kanal tıkanıklığı, tiroid kanseri

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Received: 10.03.2021 **Accepted:** 08.07.2021

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Molecular Imaging and Radionuclide Therapy published by Galenos Yayınevi.

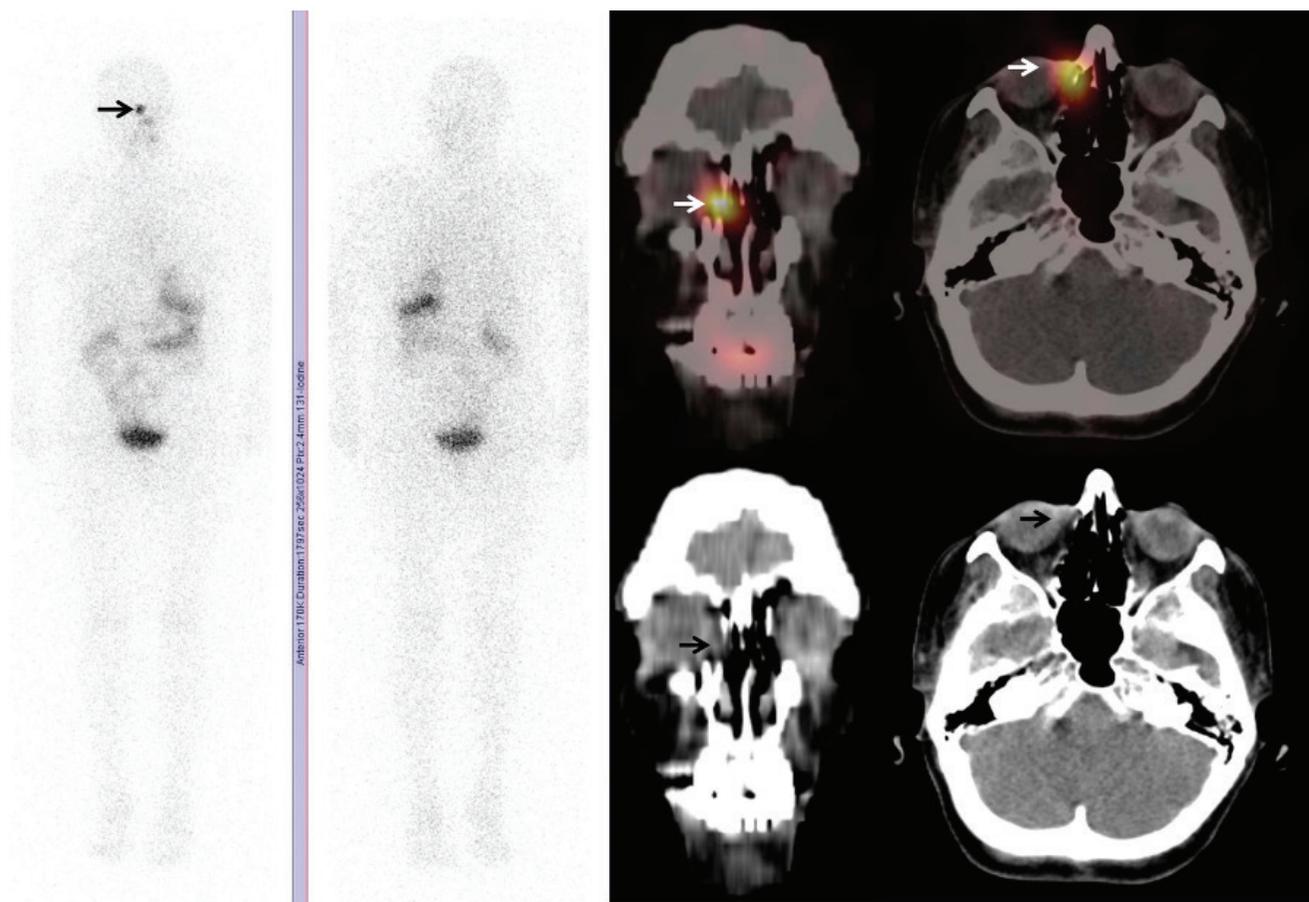


Figure 1. ^{131}I whole body scan was performed on a 59-year-old female patient with papillary thyroid cancer (T3N1bM0), who was treated 5 years ago with total thyroidectomy followed by a single dose 150 mCi ^{131}I therapy. A planar ^{131}I whole body scan with single photon emission computed tomography/computed tomography (SPECT/CT) and spot neck pinhole images were obtained at the 48th hour after 5 mCi ^{131}I oral administration. At the time of imaging, stimulated thyroid-stimulating hormone level was 280 IU/mL, thyroglobulin (Tg) level was 0.20 ng/mL and anti-Tg antibody level was <0.9 IU/mL. The patient had no symptoms at the time of imaging. Planar ^{131}I whole body scan showed no significant radioactivity uptake that may be compatible with residual thyroid tissue or recurrent thyroid cancer, on the other hand a suspicious focus of intense increased uptake was noted at the right paranasal region, which mimics a metastatic lesion (arrow in planar images). SPECT/CT images revealed 7x4 mm sized soft tissue density lesion-demonstrating ^{131}I uptake, in the right infraorbital region next to the lateral wall of ethmoid sinus (arrows in fused SPECT/CT images) suggesting nasolacrimal duct obstruction (NLDO). Subsequently, an ophthalmologic examination and a diagnostic maxillofacial CT were performed to confirm the diagnosis. ^{131}I has been used for many years as a valuable treatment in thyroid diseases such as hyperthyroidism and differentiated thyroid carcinomas (1,2,3). NLDO is an uncommon complication of ^{131}I therapy, especially rarely occurs after a single dose of radioiodine treatment. Morgenstern et al. (4) reported that the cells of the lacrimal drainage system have the same Na/I symporters expressed by the cells of the thyroid gland and eventually the accumulation of ^{131}I in these cells results in radiation induced damage. Fibrosis and obstruction of lacrimal drainage system will cause ^{131}I uptake at the point of obstruction in whole body ^{131}I scan and that may be misinterpreted as a metastasis (5,6). SPECT/CT can be useful to discriminate these false positive findings of planar ^{131}I whole-body imaging, as in this study (7). Beside that early identification of these lesions may hasten the subsequent appropriate treatment of the patients and improve quality of life (8).

Ethics

Informed Consent: Informed consent form was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: N.F., K.Ö., S.Ö., O.B., T.Y.E.,
Concept: N.F., T.Y.E., Design: N.F., T.Y.E., Data Collection or
Processing: N.F., K.Ö., Analysis or Interpretation: N.F., T.Y.E.,
Literature Search: N.F., T.Y.E., Writing: N.F., S.Ö.

Conflict of Interest: No conflict of interest was declared
by the authors.

Financial Disclosure: The authors declared that this study
received no financial support.

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