An unusual false-positive uptake of radioiodine caused by pulmonary vasculature: The usefulness of SPECT/CT

Figure 1. A 25-year-old woman with differentiated papillary thyroid cancer was referred for $^{131}$I therapy after total thyroidectomy and cervical lymph node dissection. The patient was administered 3.7GBq of $^{131}$I. Anterior (A) and posterior (B) whole body images obtained 8 days after $^{131}$I administration revealed increased activity in the left dental caries, thyroid bed, and left IV-zone cervical lymph node and in the right chest (arrows). To clarify the nature of the focal activity in her right chest, SPECT/CT images were acquired.

Figure 2. CT (A, B) and SPECT/CT (C, D) localized the activity to the pulmonary vasculature of the basal segment of the right lower lobe (arrows). CT demonstrated no abnormal density shadow. The thyroglobulin level was 18.64ng/mL, the TgAb >500u/mL, the TSH >150uIU/mL, and the patient had no complaint related to her lung.
There are numerous conditions that may cause false-positive findings on iodine scintigraphy, such as vascular structure, mediastinum, bronchiectasis, cystic lesions, and mature cystic teratoma [1-8]; however, many of their mechanisms remain to be elucidated [9, 10]. Single photon emission computed tomography/computed tomography (SPECT/CT) imaging can be conducive to avoiding potential pitfalls [11-13]. In addition, the nuclear physicians have to bear in mind that iodine-131 (\(^{131}\)I) uptake in pulmonary vasculature can be a possible cause of false-positive uptake when they interpret \(^{131}\)I whole body scan (WBS).

The authors declare that they have no conflicts of interest.

**Bibliography**


**Fanhui Yang' MD, Lingzhi Cao' MD, Chunyin Zhang' MD**

1. Department of Nuclear Medicine, The Affiliated Hospital of North Sichuan Medical College, No.1, Maoyuan South Road, 637000 Nanchong, Sichuan province, P.R.China. Email: yangfanhui.2008@163.com. 2. Department of Nuclear Medicine, The Affiliated Hospital of North Sichuan Medical College, No.1, Maoyuan South Road, 637000 Nanchong, Sichuan province, P.R.China. Email: cbxycyl@163.com. 3. Department of Nuclear Medicine, The Affiliated Hospital of Southwest Medical University, No. 25, Taiping St., 646000 Luzhou, Sichuan province, P.R.China. Email: zhangchunyin345@163.com

Fanhui Yang and Lingzhi Cao contributed equally to this work.

**Corresponding author:** Chunyin Zhang. Department of Nuclear Medicine, The Affiliated Hospital of Southwest Medical University, No. 25, Taiping St., 646000 Luzhou, Sichuan province, P.R.China. Email: zhangchunyin345@163.com