

Interesting image

An interesting contamination artifact appearing in I-¹³¹ whole-body imaging after ablative therapyUna interesante imagen con apariencia de artefacto contaminante en un rastreo con I-¹³¹ tras terapia ablativaP. Ozcan Kara^{a,*}, O. Sari^b, G. Kara Gedik^a, I. Kocak^b, B. Kaya^b^a Department of Nuclear Medicine, Selcuklu Medical Faculty, Selcuk University, Selcuklu, Konya, Turkey^b Department of Nuclear Medicine, Meram Medical Faculty, Selcuk University, Meram, Konya, Turkey

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Differentiated thyroid carcinoma is an uncommon disease, defined as a carcinoma deriving from follicular epithelium. The prognosis of disease is generally excellent with appropriate treatment. Total thyroidectomy, followed by radioiodine therapy and thyroid-stimulating hormone (TSH) suppressive thyroid hormone therapy, is the standart treatment of differentiated thyroid cancer. Radioiodine ablation is a post-surgical adjuvant modality. As well as radioiodine therapy is indicated to destroy microscopic cells remaining after surgery, but also to increase the specificity of serum thyroglobulin (Tg). TSH-stimulated Tg should be negative (<0.5 ng/ml) after surgery and radioiodine therapy¹. Ablation also allows sensitive “post-therapy” whole-body scintigraphy (rx WBS) that may detect previously occult metastases.

A 59 year-old female with a history of papillary thyroid cancer, was referred to nuclear medicine department for I-¹³¹ ablation therapy after total thyroidectomy. Papillary carcinoma with a diameter of 1.5 cm in the left lobe was diagnosed. Ablation therapy with 100 millicurie (mCi) of radioiodine was administred after elevation of TSH above 30 μ IU/ml. Serum thyroglobulin level was 0.562 ng/ml (normal: 1.4–78 ng/ml) and antithyroglobulin antibody <10.00 IU/ml (normal: 0–115 IU/ml) and TSH (sensitive) was 37.36 μ IU/ml. Whole-body image was obtained 5 days after ablation with a gamma camera (Siemens, ECAM) equipped with high-energy collimator. Increased radioactivity were observed starting from bilateral supraclavicular regions extending through all along bilateral axillar regions and side edges of breasts (fig. 1). Scanning after having a shower did not change appearance. We learned that she did not change her bra after detailed questioning. Scanning performed after changing bra, showed no foci of radioactivity and I-¹³¹ scan was reported as normal (fig. 2). The uptake area mathing with bra contamination was also in the supraclavicular region and therefore, affecting the assessment.

The most important potential source of error in rx WBS is local contamination (clothing, skin, hair, collimator, crystal)

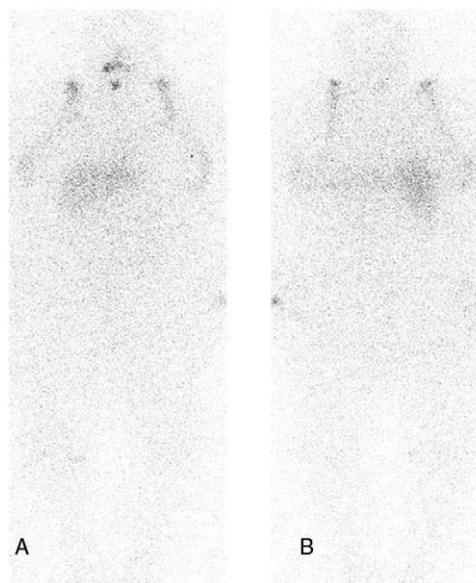


Figure 1. Anterior (A) and posterior (B) whole-body images show intense accumulation of I-¹³¹ starting from bilateral supraclavicular regions extending through all along bilateral axillar regions and side edges of breasts.

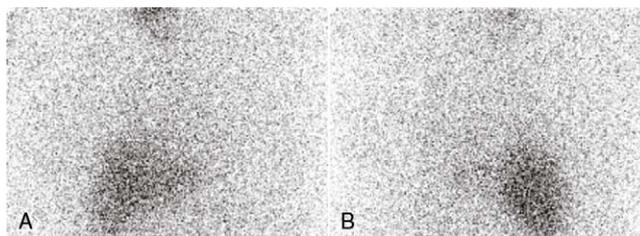


Figure 2. Anterior (A) and posterior (B) static image of neck after having a bath and changing bra was normal.

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followed by esophageal activity, asymmetrical salivary gland uptake, non-specific, e.g. pulmonary infections, edema, the breast, kidney cysts, and the thymus. Contamination of hair during styling with saliva, contamination of the neck due to drooling during sleep, contaminated chewing gum have been shown as false positive sites of I-¹³¹ localisation². Pochis et al reported two cases involving the sequestration I-¹³¹ contaminated handkerchiefs in patients' pockets³. To avoid artifacts caused by cutaneous contamination with radioiodine, the patient should shower and change underwear before rx WBS.

In this report, we presented an interesting contamination artifact image in a case of intense I-¹³¹ accumulation in the anteriolateral aspects of the neck and breasts corresponding to a bra

contamination manifested on I-¹³¹ images. Without a clear clinical history, it would have been difficult to interpret the I-¹³¹ images correctly.

References

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