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Spindle cell lipoma: a diagnostic pitfall in technetium-99m methoxyisobutyl isonitrile parathyroid scintigraphy

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A 72-year-old man was referred for parathyroid scintigraphy due to suspected primary hyperparathyroidism. Laboratory findings included a serum calcium level of 2.67 mmol/l (reference range [RR], 2.2–2.65 mmol/l), parathyroid hormone level of 96.3 pg/ml (RR, 15–65 pg/ml), and vitamin D concentration of 54.39 ng/ml. Planar imaging, technetium-99m (^{99m}Tc)

and ^{99m}Tc methoxyisobutyl isonitrile (^{99m}Tc-MIBI) with subtraction. Next single-photon emission computed tomography performed 20 minutes after intravenous injection of ^{99m}Tc-MIBI revealed moderate tracer uptake in the right suprascapular area (Figure 1A). No pathological foci were found in the typical parathyroid locations or the mediastinum. Physical examination revealed a surgical scar in the corresponding area (Figure 1B), related to a tumor excision performed over 20 years ago; however, no histopathological records were available. Ultrasonography showed a mixed echogenic subcutaneous lesion (Figure 1C). Due to the oncophilic properties of ^{99m}Tc-MIBI, a biopsy was performed to exclude malignancy. Histopathological examination confirmed a spindle cell lipoma (SCL). Microscopic assessment showed spindle and polymorphic mesenchymal cells, mature fat, and eosinophilic collagen bundles. Immunohistochemistry was positive for CD34 and negative for S-100 (Figure 1D). ^{99m}Tc-MIBI is widely used for localizing parathyroid adenomas, but it also accumulates in various benign and malignant tumors due to mitochondrial density or P-glycoprotein expression. SCL is an uncommon benign adipocytic neoplasm, accounting for only about 1.5% of all lipomas. Typically occurring in the neck or upper back. Approximately 80% to 90% of all cases occur in men in the fifth to seventh decades of life. It is a benign tumor, and its removal is recommended to achieve diagnostic certainty (histopathological confirmation), in cases of pain, discomfort, or cosmetic concerns. A recurrence of the tumor in scar arena is possible even years after a correctly performed procedure, but the risk is low, at less than 5%. This case illustrates that SCL can be a source of unexpected ^{99m}Tc-MIBI uptake, mimicking ectopic parathyroid tissue or secondary malignancy. We found only one case in literature with proven avid spindle cell lipoma in cardiac ^{99m}Tc-MIBI scan.

Article information

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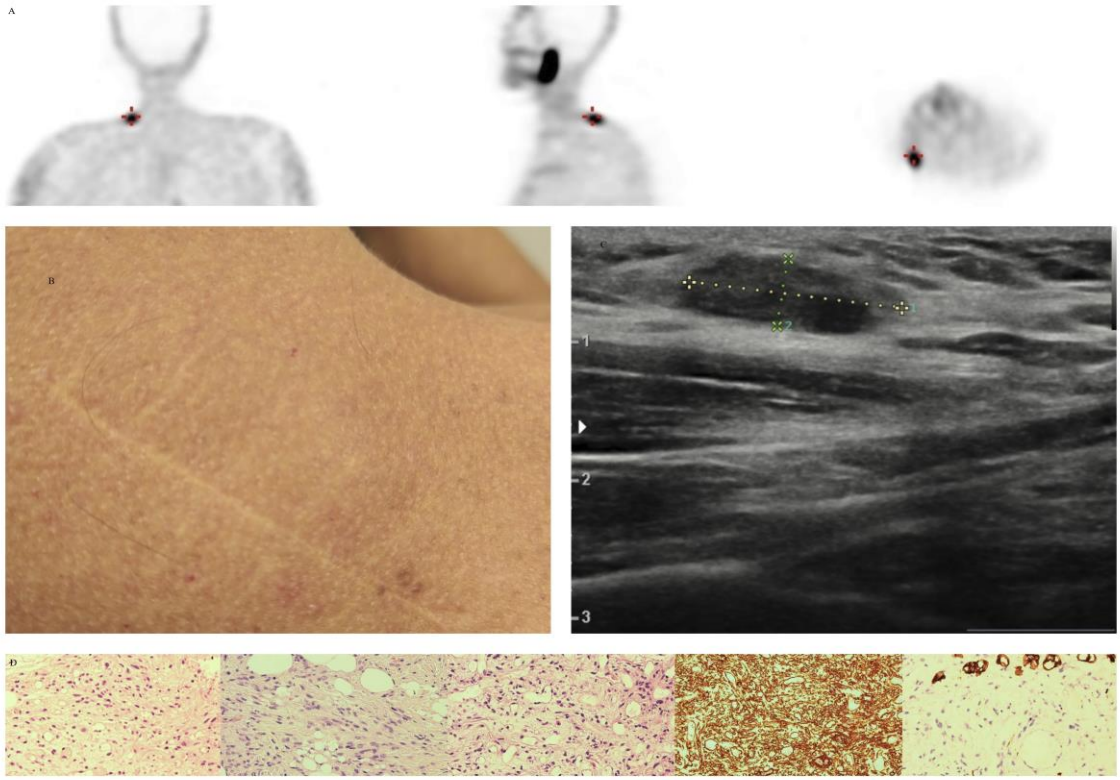

Figure 1 A – technetium-99m methoxyisobutyl isonitrile single-photon emission computed tomography (coronal, sagittal, and transaxial views) demonstrating increased uptake in the right suprascapular area (red marker); **B** – physical examination revealed a surgical scar in the corresponding area; **C** – ultrasonography of the subcutaneous lesion; **D** – histopathological examination: spindle cells and collagen bundles, CD34 positivity, and S-100 negativity in spindle cells

Short title: Spindle cell lipoma in parathyroid scintigraphy