

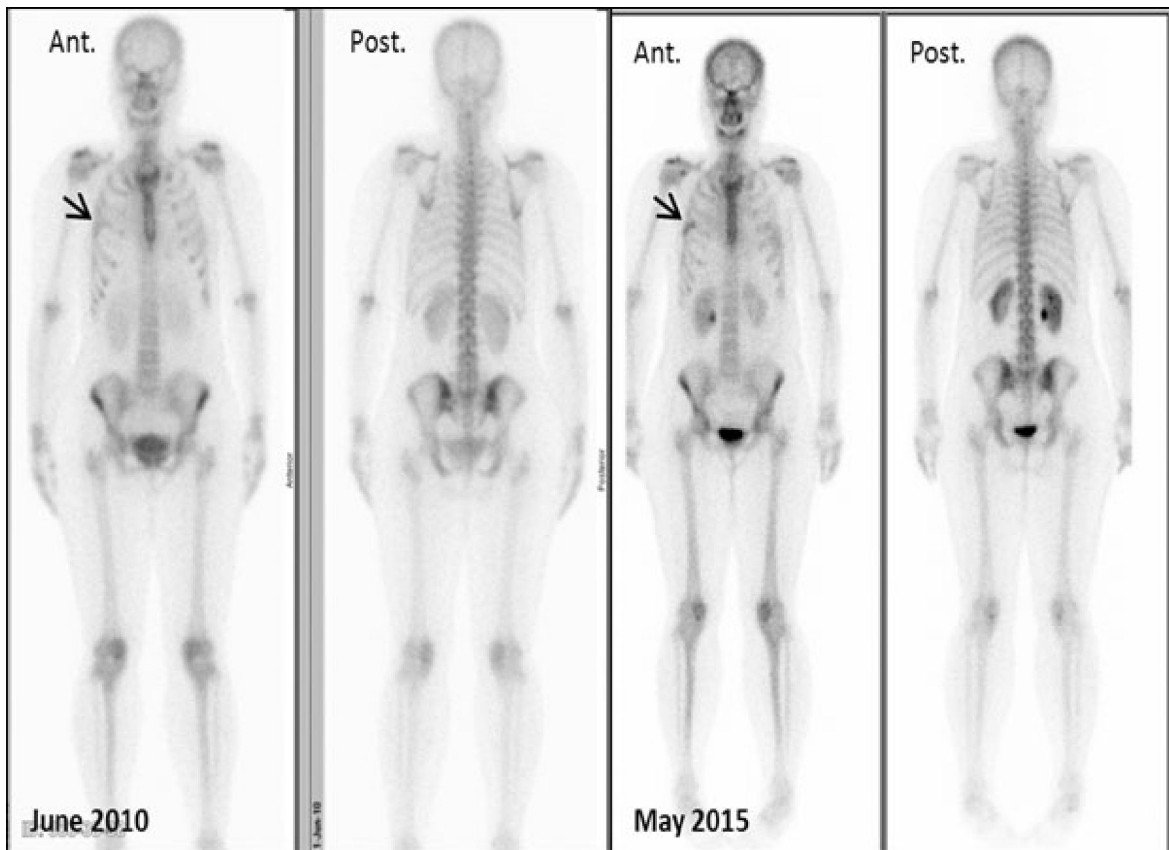
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History

40 years old lady with previous history of right sided modified radical mastectomy in 1995 who has had a follow up bone scan (Fig. A) in June 2010. In May 2015, she developed a malignant lump in left breast and bone scan for staging was performed (Fig. B).



Questions

- Q1. What abnormal finding you appreciate on both scans?
- Q2. Your diagnosis?

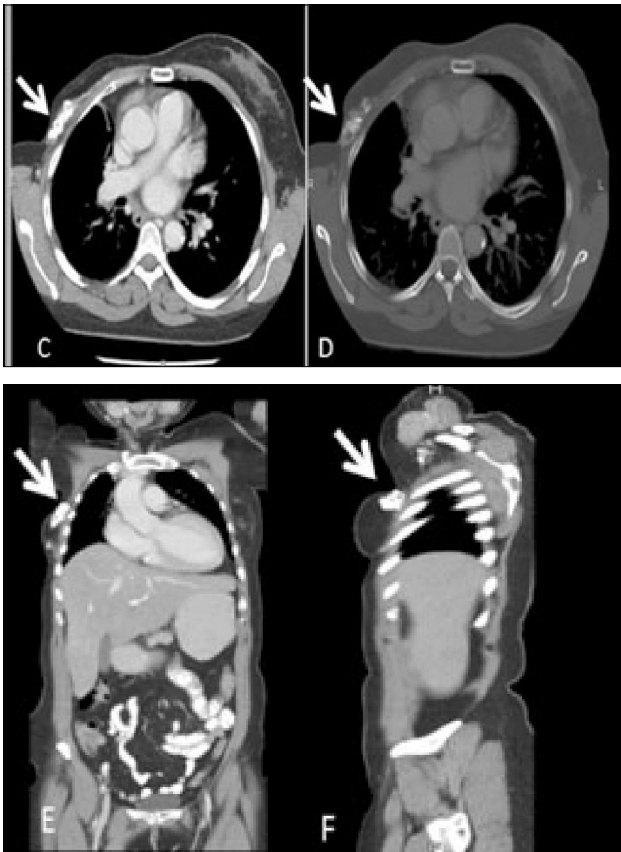
QUIZ

Answers

Answer 1: Both scans show a curvilinear area of abnormal uptake over lateral aspect of right chest wall which is more intense in recent scan.

Answer 2: This uptake has no geographical alignment with underlying ribs and progressive in nature over last 5 years. This is consistent with calcification over site of right modified mastectomy.

A CT scan was (Fig C-F) also revealed intense calcification over remnant of right breast (arrows).



Soft Tissue Calcification on Bone Scan (Dystrophic and Metastatic calcification)

Bone scan is the most commonly performed nuclear medicine procedure, especially in management of patients with malignancy. Tc-99m Methelene Diposphonate (Tc-99m MDP) deposition in bone is dependant upon its absorpction on hydroxy appatite

crystal. Normally, Tc-99m MDP is seen in osseous structures, kidney, and bladder due to its primary route of clearance. Extraosseous tracer uptake by soft-tissue in a bone scan is not very uncommon and may pose a diagnostic conundrum. Pathogenesis of soft tissue uptake of bone scanning agents is multi-factorial like disruption of blood supply and tissue damage like necrosis or in patients with hypercalcemia. Morphologically these uptake are regarded as dystrophic or metastatic calcification. Dystrophic calcification appears in areas with tissue damage or necrosis like atherosclerotic plaques, aging or damaged heart valves, and tuberculous lymph nodes or site of surgeries. It almost always stays one it is developed. Metastatic calcification is seen in patients with hypercalcemia and happens in normal tissue like lung, gastric mucosa, kidneys and vessels. Importantly, it is reversible in most cases with the correction of hypercalcemia.

This patient had dystrophic calcification as it was developed at the site of surgical trauma (MRM) and her serum calcium level was also within normal limits.

References

1. Tarsarya S, Marwah A, Shah H, Jaiswar R. Non-osseous uptake on Tc99m methylene diphosphonate in multiple muscles confirmed on SPECT/computed tomography. Indian J Nucl Med. 2012; 27(3): 205-7.