45 y.o. woman with right hip pain during exercise

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Teaching Case PET-CT # 1

• A 45 y.o. woman presented with right hip pain during exercise (jogging).
• She had a history of resected melanoma 2 years before.
• Plain X-rays of pelvis and right limb were normal.
• Since pain persisted, a CT scan was ordered.
Which of the following is correct?

A) The CT scan does not show significant bone abnormalities.
B) The CT scan is definitively abnormal showing a cystic lesion, probably benign.
C) A conventional nuclear bone scan is a good option to further evaluate the case.
D) A PET/CT whole-body scan is a good option to further evaluate the case.
E) Both C & D are correct.
CT scan

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PET/CT scan

CT

PET 18F-FDG

PET/CT

pelvis
Which of the following is correct?

- A) The study is normal, patient should be discharged.
- B) The study shows diffuse bone marrow involvement.
- C) The study shows a pattern typical of bone marrow expansion.
- D) The study shows multiple stress fractures.
- E) The study is inconclusive since FDG is not adequate for depicting bone marrow involvement.
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Additional findings in PET/CT scan (neck)
A) This corresponds to physiologic vocal cords uptake since the patient kept speaking after FDG injection.
B) This may correspond to a thyroid primary tumour or to a thyroid metastasis of melanoma.
C) The finding is probably a non-specific inflammatory lymph node.
D) This is probably a benign thyroid adenoma.
E) This is a typical sternal bone metastasis.

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- E) This is a typical sternal bone metastasis.
• PET/CT is indicated for staging and re-staging of melanoma.

• The technique has high sensitivity for detecting bone marrow involvement.

• Although conventional bone scanning is useful, PET/CT has the power of detecting also soft tissue involvement (in this case, however, the thyroid finding does not add to the prognosis).

• Thyroid metastases from melanoma are not frequent. One paper reports on 5 incidental findings of thyroid metastases with FDG: 2 from melanoma, 2 from colorectal cancer, 1 from gastric cancer (Am J Surg 2001;67:582-4).

• Primary malignant thyroid carcinoma, especially papillary type, also takes up FDG.

Teaching points:

• Fine-needle aspiration of the thyroid nodule revealed a thyroid metastasis from melanoma.