

## Melanoma Case Study #5

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### Clinical History

A 50 year old woman with a history of recurrent melanoma was referred for a restaging PET•CT scan. The patient has a well-documented history of hypothyroidism and total abdominal hysterectomy with bilateral salpingo-oophorectomy for fibroids in 05/2000, whom we are asked to see in regard to questionable soft-tissue breast recurrence of melanoma. The patient's history of melanoma dates to 1996 when longstanding left flank pigmented lesion was biopsied and reported to reveal 0.8-mm Clark level III nonulcerated melanoma. Wide excision without nodal dissection was pursued in 09/1996, and the patient did well in routine follow-up without intercurrent problems through 2001. Following her TAHBSO in 05/2000, she commenced Premarin at 1.25 mg p.o. q.d., recently reduced to 0.625 mg p.o. q.d. She noted left breast fullness with a mass that interfered with her brassiere in early 01/2002. After fine-needle aspirate was positive for neoplastic cells, she underwent core biopsy, which was also positive for tumor. Sentinel node mapping off this site revealed no evidence of tumor any of four nodes sampled 02/2002. Excisional biopsy of this mass was found to be ER, PR, and HER2/neu negative, after which consultative studies at Vanderbilt University revealed immunohistochemistry strongly positive for vimentin, S-100, and focally positive for HMB45. It was felt that these immunohistochemistry findings and pathology findings were most consistent with soft-tissue metastasis of her melanoma from 1996. The pathology margins of this specimen were positive, and the patient discussed re-excision of this, which was deferred for further healing. Interval studies have included an MRI of the brain, along with CT scans of chest, abdomen, and a bone scan, all negative on 02/2002. She has discussed adjuvant therapy with adjuvant high-dose interferon alfa-2 and visits us to discuss this and other adjuvant options for which she may be a candidate.

### REVIEW OF SYSTEMS:

The patient specifically denies signs or symptoms suggestive of CNS metastatic disease, other visceral organ involvement, and has noted no other pigmented lesions with recent change or regression.

### PAST MEDICAL HISTORY:

1. The past medical history is notable as summarized above for fibroid uterus with total abdominal hysterectomy and bilateral salpingo-oophorectomy and appendectomy on 05/2000.
2. Urinary tract and question of nephrolithiasis on 08/2000.
3. Right breast cyst with biopsy negative 11/1998.
4. Bartholin cyst of the vaginal wall 11/1990.
5. Melanoma of the left flank, status post wide excision, 06/1996.
6. Melanoma metastasis, status post biopsy, 01/2002.

### CURRENT MEDICATIONS:

1. Synthroid for hypothyroidism 0.075 mg p.o. q.d.
2. Premarin 1.25 and more recently 0.625 mg p.o. q.d.

### SOCIAL HISTORY:

The patient is married, accompanied by her husband, with two children, ages 29 and 23 years of age. The patient is neither a smoker nor a drinker and has a lifelong history of increased recreational sun exposure, without blistering sunburns recalled.

### FAMILY HISTORY:

Family history is pertinent for melanoma in a maternal cousin and maternal niece. There is a maternal grandmother with colon cancer as well.

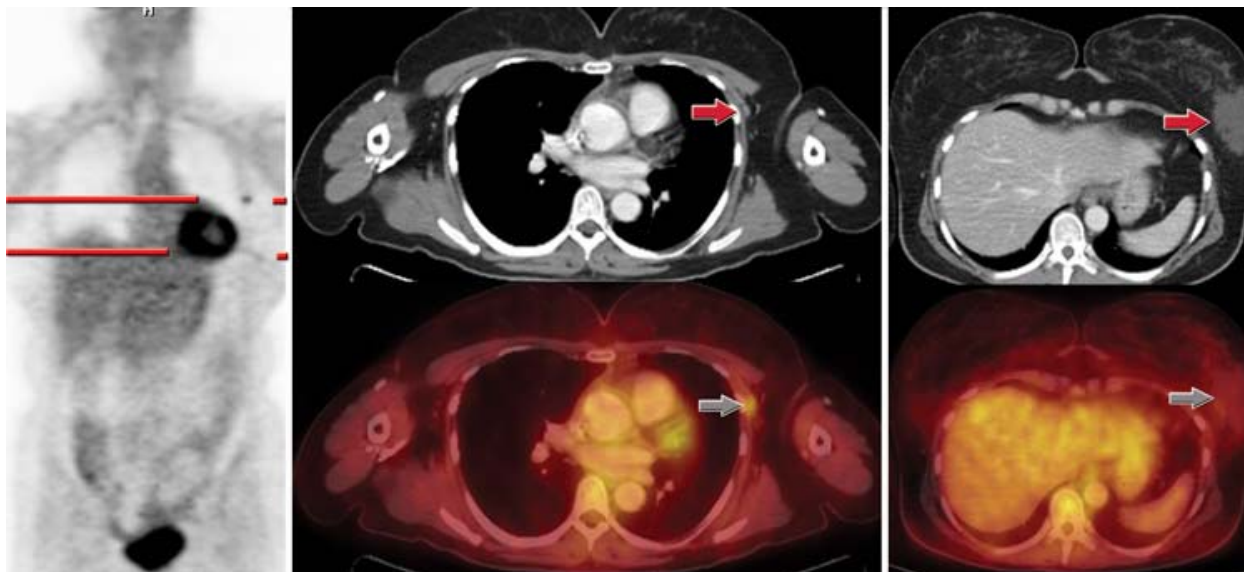
### PHYSICAL EXAMINATION:

Physical examination reveals a healthy-appearing woman of somewhat less than her stated years in no distress, with a WEIGHT of 133 pounds, HEIGHT of 61 inches, BLOOD PRESSURE 140/80, PULSE of 70, RESPIRATIONS 16, and TEMPERATURE 98.5 degrees. Examination of the SKIN reveals tattooing of the left lateral breast biopsy site without evidence of residual pigmented lesion or subcutaneous mass. There are no palpable axillary and supraclavicular nodes in this region. In the left flank, the skin is well healed from a wide excision that is ample, and there is no evidence of local recurrence or satellite involvement in this area. HEENT is without scleral or mucosal lesions. There is no cervical or inguinal lymphadenopathy identified. The CHEST is resonant and clear. The BREASTS are free of masses. The HEART is regular without gallops. The ABDOMEN is soft without hepatosplenomegaly. The EXTREMITIES are free of edema. The NEUROLOGIC examination is fully intact.

### ASSESSMENT/PLAN:

History of T1a, N0 (clinical), M0 melanoma of the left flank, status post wide local excision in 1996, now with adjacent left breast subcutaneous lymphatic recurrence documented on fine-needle, core, and excisional biopsy. Given the positive margins on this excisional biopsy, we have recommended re-excision of the area for clear margins. We have discussed the data for adjuvant high-dose interferon in deep primary and node-positive melanoma, as well as the lack of information regarding this regimen's effects in patients with soft-tissue/distant metastatic resectable disease. We have discussed the E4697 trial of GM-CSF versus placebo, and the factorial 2 x 2 design, which also tests peptide vaccination in the case that she is HLA-A2 positive. We should obtain blood samples to determine tissue type and she should review surgical risks and requirements for excision to clear margins. I would consider the E4697 trial if she declines to pursue high-dose interferon at present. We have asked that she return in two weeks' time, and we will try to schedule a PET•CT scan prior to the re-excision of her breast metastatic site in this interval.

## Imaging Findings\*



NUCLEAR MEDICINE F18 FDG WHOLE BODY PET•CT SCAN

### STATED REASON FOR REQUEST:

50 year old female with history of melanoma status post wide excision with known metastasis to the left breast for restaging PET•CT.

### RADIOPHARMACEUTICAL ADMINISTERED:

7.74mCi F18 FDG IV

### TECHNIQUE:

Emission scanning from the neck through the pelvis was obtained approximately one-hour post injection. Images were reconstructed with and without attenuation correction using the CT attenuation coefficient from the corresponding CT portion of the exam. The patient's blood glucose measured 78mg/dl.

### FINDINGS:

There is a single focal area of moderately increased uptake of FDG in the left axilla resting against the chest wall. This area corresponds to a very small nodal structure on the CT portion of the exam. The large left breast mass seen on the CT portion of the exam does not demonstrate increased uptake of FDG.

### IMPRESSION:

1. Focal area of moderately increased uptake of FDG in the left peripectoral area corresponding to a small node resting against the chest wall suspicious for metastatic disease.
2. The large left breast mass seen on the CT portion of the exam does not demonstrate increased uptake of FDF and may represent a post-op seroma.

## Differential Diagnosis

Metastatic melanoma to breast.  
Post-op seroma.

## Pathology

### TEST 1:

#### PRE-OP DIAGNOSIS:

None given.

#### POST-OP DIAGNOSIS:

Same.

#### PROCEDURE:

Sentinel node from left breast and core biopsy of left breast.

#### FINAL DIAGNOSIS:

##### PART 1:

Lymph node, sentinel, excision:

Lymph node free of tumor.

##### PART 2:

Core biopsy of breast:

Positive for malignant tumor, compatible with metastatic melanoma.

### TEST 2:

#### PATIENT HISTORY:

The patient is a 50 year old female with a history of melanoma.

#### PRE-OP DIAGNOSIS:

None given.

#### POST-OP DIAGNOSIS:

Same.

#### PROCEDURE:

Excisional biopsy left chest wall.

#### FINAL DIAGNOSIS:

Soft tissue mass left chest wall:

Malignant melanoma.

## **Treatment**

Excisional biopsy of left peripectoral nodule and chemotherapy.

## **Discussion**

This patient was sent for re-staging PET•CT after having an excisional biopsy with positive margins in the left breast CT portion of the exam. She had a large left breast mass only which was equivocal by anatomical imaging alone, but thought to be post op in nature given the rapid rate in which it developed.

This is a nice case showing how even small melanoma metastases are often times picked up on FDG PET and PET•CT and exquisitely localized using combined PET•CT. This small chest wall node was not seen prospectively on the CT portion of this exam. Subsequent excision found it to be a small melanoma metastasis.

In addition, the PET•CT exam was helpful in excluding the larger breast mass, which had very little FDG uptake and is compatible with a post op seroma. On subsequent exams, the seroma became much smaller.

In general, melanoma is one of the most FDG avid tumors, which enables not only detection of small lesions, but also exclusion of large lesions that do not demonstrate significant FDG uptake.

Data courtesy of Dr. Todd Blodgett, University of Pittsburgh Medical Center

\* Any of the protocols presented herein are for informational purposes and are not meant to substitute for clinician judgment in how best to use any medical devices. It is the clinician that makes all diagnostic determinations based upon education, learning and experience.

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