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In Search of An Unknown Primary – Expert ‘Team’ Medicine at Work

Identifying the primary tumor site is an important step because knowing its location and type often helps doctors plan the best treatment for their patient.

Treatment that is specific to the suspected type of cancer is likely to be more effective. Still, when diagnostic tests have not identified the primary site, doctors must decide whether the potential benefits of more extensive testing outweigh a patient’s discomfort and the financial costs.

Cancer can begin in any organ or tissue of the body. The primary, or original, tumor is usually named for the part of the body or the type of tissue in which the cancer begins. The disease can spread (metastasize) from the primary tumor and form metastatic tumors in other parts of the body. For example, breast cancer cells can metastasize to the lungs and cause the growth of a new tumor. When this happens, the tumor in the lung is called metastatic breast cancer because it is composed of breast cancer cells, not lung cancer cells.

In recent years, microscopic and other diagnostic techniques have improved dramatically. Doctors can now determine the primary site in about four out of five cases first diagnosed as a cancer with an unknown primary. In some cases, the part of the body where cancer cells are first found helps the doctor decide which diagnostic tests will be most helpful. Doctors also have other clues that help them find the primary site:

1. The pattern of spread may suggest the location of the primary site. When the metastatic cancer is found in the upper part of the body, the original site is likely to be above the diaphragm (the thin muscle under the lungs that separates the chest from the abdomen) at sites such as the lung and breast.

If the metastatic cancer appears first in the lower part of the body, the primary cancer is likely to be at sites below the diaphragm, such as the pancreas and liver.

2. The type of cell found in the metastatic cancer can also provide clues about the hidden primary site.

This is an interesting case because the patient was found to have metastatic disease, but of an *unknown primary*. Once cancer was found, the search began to find the primary site. The information below shows the ways a team of physicians work together to support *their* patient.

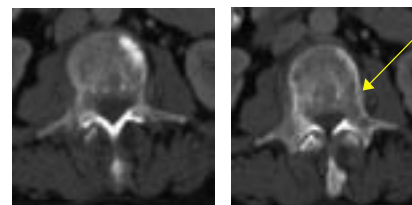


Case History:
Charles Nam, MD, Good Samaritan Family Medicine was the patient’s physician. This 70-year-old woman was experiencing low back pain for three weeks. She had recently had an MRI that noted an L3 vertebral body fracture. There was no previous history of kidney stones.



This woman was referred for a CT Abdomen/ Pelvis. The CT revealed a known abnormal L3 vertebral body fracture, (figure 1) and also demonstrated abnormal L3 pathology. **Katherine Choi-Chinn MD, Medical Imaging Northwest.**

Figure 1: CT - L3 Pathological FX



Dan Martin, MD, Medical Imaging Northwest completed an L3 bone biopsy which concluded that this patient did in fact have metastatic carcinoma that was consistent with breast origin.

The specimen was strongly positive for estrogen and progesterone receptors.



Larry K. O'Bryant, MD Pathologist, Good Samaritan Hospital

Often an MRI of the breast is used to look for a primary of possible breast origin when the patient has a normal mammogram.



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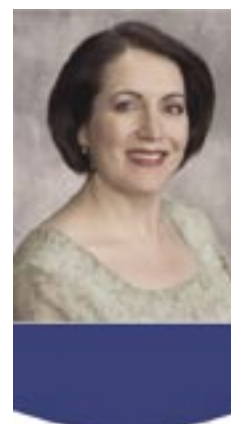
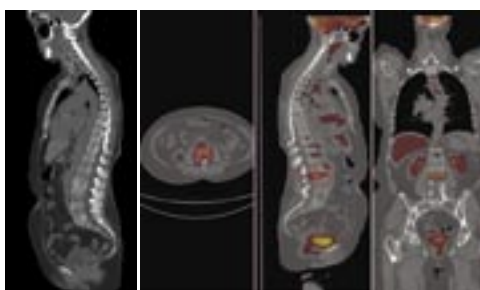
In the search for a primary cancer location, presumed breast, this patient next had a Whole Body PET/CT. The conclusion, read by **Londe Richardson, MD, Medical Imaging Northwest**, was a solitary mixed lytic sclerotic pathologic-appearing fracture L3 (Figure 3) without a soft tissue

component. A very small, non-specific area of uptake was noted in the left breast which could represent a primary breast cancer (Figure 2). A breast ultrasound was recommended. In the right middle lobe of the lung, Dr. Richardson also noted 2x 4-mm nodules that were worrisome for metastases versus granulomas.

Figure 2: PET - LT Breast Lesion



Figure 3: PET - L3 Vertebral FX



The patient next had an ultrasound of the left breast completed by **Alison Reinbold, MD, Medical Imaging Northwest**. Dr. Reinbold noted an irregularly shaped mass in the posterior 2 o'clock position of the left breast with posterior acoustic shadowing and prominent vascular flow by Color

Flow Doppler. This corresponded to the lesion seen on the patient's PET/CT. An ultrasound guided core biopsy was performed on the left breast the same day (Figure 4). Dr. Reinbold's recommendation: A surgical consultation for removal of the left breast mass. The patient had an appointment with **Dr. Robert McCroskey** who discussed having a surgical consultation at that time.

Figure 4: Ultrasound - Ultrasound Guided Core Biopsy LT Breast



The final diagnosis showed infiltrating duct carcinoma with associated low to intermediate grade cribriform duct carcinoma in situ. **Eric W. Arntson, MD, Good Samaritan Hospital Pathology**.



Eric W. Arntson, MD
 Pathologist

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