Needle Aspiration Biopsy

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Needle aspiration biopsy is amongst the most under-utilized diagnostic procedures of those available. This technique may be effectively used to rule out high-grade malignancies when faced with nonspecific subcutaneous masses, in particular, those masses that resemble ganglion cysts. I once had three different medico-legal cases under consultative review at one time, all of which were centered on patients who had non-specific ganglion-like masses. In each instance, the patient actually harbored a high-grade sarcoma, and in each case, they were followed into their grave by their clinician with the errant diagnosis of "ganglion".

It is not overtly surprising that neoplasms masquerading as ganglion cysts may fool clinicians. For instance, roughly 70% of all the soft tissue masses in the foot are ganglia. This may lull clinicians into complacency, believing that all hoof sounds are derived from horses, and that zebras don't exist. In 1999, Scully et al. of Duke University summarized their experience with synovial sarcoma primary to the foot. In their series of 14 cases, 8 patients were followed for extended periods of time with the incorrect diagnosis of ganglion cyst. In our series of 401 pedal soft tissue tumors assembled at Memorial Sloan-Kettering Cancer Center we had 8 synovial sarcomas. Amongst these 8 cases, 2 patients saw their diagnosis dramatically delayed because of the errant diagnosis of "ganglion".

Needle aspiration differs somewhat from most other biopsy techniques in that it provides the pathologist with cells and tiny tissue fragments to review, rather than large pieces of tissue. In other words, pathologists are not able to review a lesion's overall architecture and pattern of growth. Instead, they must extrapolate the necessary diagnostic data from the appearance of individual cells. Because the material at the pathologists' disposal may be somewhat limited, cytopathology can be somewhat less specific than histopathology. In this vein, the pathology reports derived from aspiration specimens typically provide basic, though highly significant information such as: "malignant cells not identified", "atypical cells identified", or "malignant cells identified". Though vague in comparison to the diagnoses rendered after histopathologic analysis, these techniques may provide invaluable information in the management of patients with non-specific subcutaneous masses, by ruling out the presence of high-grade malignancies.

The purpose of needle aspiration biopsy is to harvest cells and small pieces of tissue from lesions in question. To accomplish this, clinicians should use large (18 gauge) needles, and syringes that will produce high vacuum pressure (10cc or larger). An anesthetic wheal may be raised at the needle entry site. The needle is placed in the mass percutaneously, and the plunger is drawn back to create a vacuum, which is maintained through the procedure. The needle is *partially* withdrawn, and then redirected into each quadrant while maintaining the vacuum. Once each quadrant has been sampled, the vacuum is released, and the needle is removed. If fluid is obtained, it may be put directly into fixative. If no aspirate is apparent, fixative should be drawn up into the syringe, and then the collective contents is returned to the specimen jar. In this context, possible ICD-10 codes include but may not be limited to *D49.2 and the CPT code is 10021 (10022 when performed with imaging guidance).

*D49.2 (Neoplasm of unspecified behavior of bone, soft tissue and skin), C49.21 (Malignant neoplasm of connective and soft tissue of right lower limb, including hip), C49.22 (Malignant neoplasm of connective and soft tissue of left lower limb, including hip), D21.21 (Benign neoplasm of connective and soft tissue of right lower limb, including hip) and D21.22 (Benign neoplasm of connective and soft tissue of left lower limb, including hip).

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