Liposarcoma

Second to the malignant fibrous histiocytoma, the liposarcoma is the most common soft tissue tumor seen in the musculoskeletal system. These tumors are seen typically in an older population group (over the age of forty) and are slightly more common in males than females. They are usually located in large muscle groups, especially in the lower extremity where 70 per cent of these tumors will be found. There are four subtypes of liposarcoma, including the well-differentiated form and the myxoid form that are low grade, and the round cell and pleomorphic forms that are high grade.

The well-differentiated liposarcoma is a very low-grade variant of the liposarcoma that looks almost like a benign lipoma. It occurs in people over the age of 45 years and is commonly seen in the lower extremity, especially in the buttock and thigh area, but can also be found in the retroperitoneal portions of the body. On gross examination, the well-differentiated form looks like a routine intramuscular lipoma, but microscopically the pathologist must find a few areas of low-grade lipoblasts with a signet ring appearance to make the diagnosis. This lesion is sometimes referred to as an atypical lipoma because its gross appearance is similar to the benign lipoma. The prognosis for this variant is extremely good but with the potential for local recurrence in about 30-50 per cent of cases. There is essentially no chance of this lesion metastasizing to distant parts. If located in the retroperitoneal area, it can be fatal because of the difficulty in removing the tumor.

The myxoid variant is the most common variant of the liposarcoma and it is seen in a slightly younger age group, typically in the 40-50 year range. It occurs in the lower extremities in 75 per cent of cases, especially in the popliteal area. These lesions are slow-growing and frequently asymptomatic in the early stages. Magnetic resonance imaging is the best method for visualizing these tumors that will have a mixed high and low signal on the T1-weighted image because of the high percentage of fatty tissue in the tumor. Histologically, there are malignant lipoblasts and it is common to find a plexiform network of small capillary tubes running through the fatty tumor, similar to the capillary hemangioma. After a wide local surgical resection, followed in most cases by local postoperative radiation therapy, the prognosis for this variant is quite good. The chance of pulmonary metastases runs as high as 20 per cent and occasionally there are multifocal myxoid liposarcomas will occur in the extremities as well as in retroperitoneal locations. Occasionally, a transitional form of myxoid will
convert into a higher grade round cell liposarcoma which carries a more guarded prognosis.

The round cell and pleomorphic variants of the liposarcoma are high-grade liposarcomas seen in the same locations as other liposarcomas in a slightly older age group. They account for about 10 per cent of all liposarcomas. Because these are high-grade they act more like a high-grade malignant histiocytoma with increased pain and rapid growth. On imaging studies, the higher grade lesions look like a more aggressive sarcoma without the high signal appearance of fat on the T1-weighted image. Histologically, there is evidence of severe atypicism and bizarre-appearing giant cells with only occasional areas of lipoblastic signet ring cells that are necessary to make the ultimate diagnosis. These high-grade lesions are treated by wide local surgical resection, followed by postoperative radiation therapy. Occasionally, chemotherapy will be indicated for aggressive lesions in a younger age group. The chance of pulmonary metastases runs as high as 80 per cent in these high-grade variants.