

Lipoma

Lipomas are by far the most common soft tissue tumor encountered in orthopaedic oncology. There is a large number of variants, the most common being the superficial subcutaneous lipoma that occurs in both males and females in the fifth and sixth decade of life. Typical locations are in the back, shoulder and neck. On palpation, these tumors have a soft non-tender characteristic. They occur more often in obese patients, however, when patients lose weight dramatically, the size of the lipoma will not vary. In older patients they grow quite rapidly at first but then stop. They never convert into a malignant tumor. Surgical treatment usually consists of a cosmetic resection and the recurrence rate is less than 5%.

The intramuscular lipoma occurs in adults between the ages of 30 and 60 years, and is usually found in the larger muscle groups. The tumor occurs quite gradually, without symptoms of pain, and does not cause disability when left untreated. It is usually recognizable on routine radiographic exam as a well-marginated lesion with a radiodensity less than that of the surrounding muscle. However, the best imaging study for a lipoma of muscle is the MRI which shows a diagnostic high signal, lobulated lesion on the T1-weighted image that has the exact same appearance as the adjacent subcutaneous fat. On the T2-weighted image, the lesion will be an intermediate signal and again have the exact same appearance as subcutaneous fat. Histologically, the intramuscular lipoma demonstrates large lipocytes with very small pyknotic nuclei. The pathologist must be very careful to look for evidence of atypical lipoblasts that would suggest the diagnosis of a well-differentiated liposarcoma that can coexist with a benign lipoma. On rare occasions, lipomas can have coexistent chondroid or osseous hamartomatous elements and in the past these were classified as mesenchymomas. Surgical treatment for the intramuscular lipoma is a marginal surgical resection, being careful to avoid damage to the neurovascular structures that might pass through the lipoma. The recurrence rate is higher than for a subcutaneous lipoma and ranges between 15% and 60%.

The spindle cell variant of the lipoma is seen more often in men between the ages of 45 and 65 years and is typically located in the posterior neck or shoulder area. MRI imaging demonstrates the high signal features of a lipoma on the T1-weighted image but with areas of lower signal streaking seen throughout the high signal areas where the fibrous tissue is located. Histologically, the spindle cell lipoma looks like any other lipoma except for the presence of benign-appearing fibrous tissue with occasional areas of gelatinous breakdown in the

fibrous tissue. The treatment for this variant is a marginal resection and there is minimal chance for local recurrence.

The angiolipoma is another variant of the lipoma occurring usually in the subcutaneous locations in young adult patients. It is seen most commonly in the forearm. These lesions may be multiple and can be painful because of their increased vascularity. They can be seen on routine radiographs when pleboliths are present in the vascular component, but the most diagnostic imaging study is the MRI that on the T1-weighted image shows the serpiginous low signal pattern of vascular tissue streaking throughout the high signal lipomatous tissue. Treatment for this variant is a simple marginal resection from which one can expect a relatively low recurrence rate.

An extremely rare variant of the lipoma is the diffuse lipomatosis form seen during the first two years of life. It may involve one entire extremity or the trunk, demonstrating both superficial and deep intramuscular, multifocal lesions. Histologically, these lesions are identical to that of a benign lipoma and because of the massive involvement of the extremity in some cases, amputation may be indicated.

The lumbosacral lipoma variant is frequently associated with a spina bifida defect in the spine and can occur in both the pediatric and adult age group. These lesions can be associated with both intradural and extradural lipomas and can result in neurological deficiency. Like all other forms of lipomas, the lumbosacral lipoma will show the characteristic high signal response on the T1-weighted MR image. Treatment consists of a marginal surgical resection, including the lesions within the vertebral canal. A low recurrence rate is anticipated.

The hibernoma is a very rare lipoma variant seen usually in young adults in the intrascapular area of the back. It is painless and slow growing and ranges between 10-15 cm in diameter. Histologically, the hibernoma demonstrates fine granular or vacuolated cells containing brown fat and large amounts of glycogen. The treatment for this lesion is simple marginal resection with a very low potential for local recurrence.