OASIS DERMATOLOGY GROUP

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Lipoma

Lipomas are the most common type of soft tissue tumors, with an estimated prevalence of 1-2% in the general population. These benign neoplasms are typically painless and are most frequently located in the subcutaneous tissue of the proximal extremities, back, neck, and buttocks. While they most commonly develop in adulthood, lipomas can occur at any age, showing no significant gender or ethnic predilection .

Pathophysiology and Presentation

Lipomas are composed of mature adipocytes (fat cells) that are encapsulated, and they typically appear as yellow, homogenous masses upon gross examination. These adipocytes are arranged in a well-defined capsule, which distinguishes them from other soft tissue tumors. Once formed, lipomas may remain at a stable size, or even expand, but are not affected by metabolic changes of surrounding fat (such as weight loss).

The initial presentation of a lipoma is generally that of a soft, painless, and freely mobile subcutaneous mass. It is often non-adhesive to the overlying skin, and the lesion may be found incidentally during a routine physical exam or when the patient notices a lump. If the lipoma experiences trauma, it may undergo fat necrosis, leading to dystrophic calcification, which can make the tumor feel firmer to palpation. Rarely, lipomas may compress nearby neurovascular structures, causing pain with deep palpation or a mass effect.

Diagnosis and Imaging

While the diagnosis of lipoma is generally made based on clinical presentation, imaging may be used to rule out other soft tissue tumors or to assess deeper, more complex lipomas. Ultrasound or MRI can help characterize the tumor's consistency, depth, and possible involvement of surrounding tissues. However, in most cases, the clinical examination alone is sufficient for diagnosis. Surgical excision is considered the definitive treatment, with spontaneous recurrence being rare. Pathological examination of the excised tissue is essential to confirm the benign nature of the tumor and exclude malignancy.

Variants and Malignant Counterparts

While the majority of lipomas are benign, there are several variants that present with distinct characteristics:

- ***Angiolipomas***: These are lipomas with a significant vascular component, often presenting with pain due to their blood supply.
- ***Chondroid lipomas***: These lipomas contain cartilage-like tissue, making them firmer and less mobile than typical lipomas.
- ***Fibrolipomas***: These consist of a mixture of adipose and fibrous tissue, giving them a firmer consistency.
- ***Myxolipomas***: These tumors are characterized by a mucoid matrix within the adipose tissue.

A hibernoma, although similar to a lipoma, is composed of brown adipocytes (immature fat cells) rather than the mature fat cells found in typical lipomas. Hibernomas are generally benign but are more likely to be found in the mediastinum or thoracic region, rather than on extremities.

In contrast, liposarcomas, which are malignant fatty tumors, often develop deep to the muscular fascia and may present with symptoms such as pain or rapid growth. They require immediate attention due to their potential for metastasis and local recurrence.

Genetic Syndromes and Associations

While lipomas are typically sporadic, there are several genetic syndromes associated with an increased risk of developing multiple lipomas:

- ***Cowden syndrome****:* A genetic disorder associated with multiple benign tumors and an increased risk of developing certain cancers, including breast and thyroid cancers.
- ***Bannayan-Riley-Ruvalcaba syndrome****:* Characterized by the presence of multiple lipomas, macrocephaly, and intellectual disability.
- ***Multiple Endocrine Neoplasia type 1 (MEN1)****:* A disorder that increases the likelihood of multiple lipomas along with other endocrine tumors.
- ***Proteus syndrome****:* A condition characterized by overgrowth of tissues, including skin, bones, and fat, often leading to the development of multiple lipomas.
- ***Dercum's disease:*** A condition that includes multiple, painful fatty masses, weakness and fatigability, generalized obesity, and mental disturbances.
- ***Familial Multiple Lipomatosis:*** A genetic disorder with multiple fatty tumors on the trunk and extremities, but usually spares the neck and shoulders.

Treatment

The standard treatment for lipomas is surgical excision, which is typically curative. Most lipomas are easily excised, and recurrence is rare, though possible in cases of incomplete removal. In general, liposuction or minimal incision techniques may be considered for smaller or superficial lipomas, but complete excision is preferred to reduce the risk of recurrence. Additionally,

pathological evaluation of the excised tissue is essential for confirming the diagnosis and excluding malignancy.

For multiple lipomas or those associated with underlying syndromes, management may involve surveillance for additional complications. In some cases, steroid injections or other non-surgical approaches may be considered, though these are less commonly used and may not be effective for larger or deeply situated lipomas.

Conclusion

Lipomas are the most common benign soft tissue tumors, often found in adulthood and characterized by soft, painless, and mobile subcutaneous masses. Although most lipomas are asymptomatic and non-problematic, surgical excision remains the treatment of choice. Variants of lipomas, as well as malignant counterparts such as liposarcomas, require careful consideration and differential diagnosis. Moreover, genetic syndromes like Cowden syndrome and MEN1 are associated with multiple lipomas and warrant further genetic evaluation. Surgical management typically yields favorable outcomes with minimal risk of recurrence.

References

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