OASIS DERMATOLOGY GROUP

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Panniculitis

Panniculitis is a condition that causes inflammation in the fat layer under the skin. This inflammation leads to the formation of painful lumps or patches, often on the lower legs but also on the buttocks, abdomen, and sometimes the breasts. These bumps can be uncomfortable, cause swelling, and may even affect your ability to move normally.

Pathophysiology and Etiology

Panniculitis occurs when inflammation affects the fat beneath the skin, and this inflammation can be caused by various factors. The condition involves a disruption in the immune system, which leads to fat tissue damage, scarring, and the development of lumps or patches. The causes of panniculitis can be grouped into several categories:

- ***Infectious panniculitis****:* Infections from bacteria, fungi, or viruses can cause panniculitis. Common culprits include streptococci, staphylococci, and mycobacteria.
- ***Traumatic panniculitis***: Injuries like injections, surgery, or bruises can damage the fat tissue, leading to panniculitis.
- ***Autoimmune panniculitis****:* Conditions such as sarcoidosis, lupus (SLE), and Crohn's disease can cause the immune system to attack the body's own tissues, including fat.
- ***Malignant panniculitis****:* Some cancers, like lymphomas or tumors that spread from other areas, can cause panniculitis by invading the fat tissue.
- ***Enzyme destruction****:* Rarely, genetic issues or enzyme deficiencies that affect fat breakdown can lead to panniculitis.

The wide range of causes underscores the importance of a detailed clinical history and diagnostic workup in identifying the underlying disease.

Subtypes of Panniculitis

Panniculitis can be divided into different subtypes, each with its own characteristics and underlying causes:

- ***Erythema Nodosum****:* This is the most common type of panniculitis, usually affecting young women. It presents as tender, red lumps on the shins, though they can also appear on the arms and thighs. Erythema nodosum is often linked to conditions like sarcoidosis, lupus, Crohn's disease, and streptococcal infections. While the lumps typically go away on their own in a few weeks, they may come back in certain underlying conditions.

- ***Lobular Panniculitis****:* This form of panniculitis affects the deeper layers of fat. It can be associated with systemic diseases like pancreatitis or cancers such as lymphoma. The condition leads to nodules or plaques, which may have areas of tissue death and surrounding inflammation.
- ***Septal Panniculitis****:* In septal panniculitis, inflammation occurs in the connective tissue that separates fat lobules. It is often linked to conditions like sarcoidosis or leprosy, though it can sometimes occur without a known cause. This form can lead to thickening and scarring of the skin, potentially causing functional problems.
- ***Nodular Panniculitis****:* This subtype can result from trauma, infections, or drug reactions. It is marked by firm, well-defined nodules that may ulcerate or become necrotic.

Clinical Features

The main symptom of panniculitis is the appearance of painful, tender lumps or patches under the skin. The affected area may appear red, swollen, and feel warm to the touch. The lower legs are most commonly affected, but the buttocks, abdomen, and breasts can also be involved.

In more severe cases, panniculitis can cause ulcerations, hardening of the skin, or skin thinning, which may lead to scarring. If the condition is linked to autoimmune or infectious diseases, symptoms like fever, fatigue, or joint pain may also occur, indicating systemic involvement.

Diagnosis

The diagnosis of panniculitis starts with a thorough clinical examination and patient history. The doctor will evaluate the appearance, distribution, and progression of the nodules, as well as any accompanying symptoms. To confirm the diagnosis, a skin biopsy may be performed, allowing the doctor to differentiate panniculitis from other skin conditions. The biopsy is examined under a microscope to look for signs of inflammation, fat tissue damage, and changes in blood vessels. Blood tests can help identify underlying conditions, such as infections, autoimmune disorders, or cancers, with elevated levels of inflammatory markers (like ESR or CRP) suggesting ongoing inflammation. In some cases, imaging tests like X-rays or CT scans may be ordered to check for conditions such as sarcoidosis or cancer.

Management and Treatment

The treatment of panniculitis varies depending on the underlying cause, the severity of the disease, and the specific subtype. The main goals of treatment are to reduce inflammation, ease pain, and manage any underlying conditions.

- ***Supportive Care****:* Resting and elevating the affected limbs can help reduce swelling and discomfort. Compression stockings may be recommended to improve circulation and

reduce edema in the affected areas. Pain relief is commonly achieved with over-the-counter medications like NSAIDs or acetaminophen.

- ***Medications**:* Nonsteroidal anti-inflammatory drugs (NSAIDs) are often used to manage pain and inflammation. For cases with more severe inflammation or systemic involvement, corticosteroids like prednisone may be prescribed. If an autoimmune cause is suspected, immunosuppressive medications such as methotrexate, azathioprine, or cyclophosphamide may be used, especially in chronic or severe cases. For infections, antibiotics or antifungal treatments are prescribed based on the identified pathogen.
- ***Surgical Intervention**:* In cases where panniculitis leads to non-healing ulcers or large, persistent nodules, surgery may be needed to remove the affected tissue and promote healing.
- ***Treatment of Underlying Conditions**:* If panniculitis is caused by an underlying condition such as sarcoidosis, autoimmune diseases, or infections, treatment should focus on managing that condition.

Prognosis

The prognosis of panniculitis varies depending on the underlying cause and subtype. In erythema nodosum, the condition is often self-limiting and resolves within a few weeks with appropriate treatment. However, chronic or recurrent cases may require long-term management. The prognosis is more guarded in cases of severe panniculitis associated with malignancy or autoimmune diseases.

Conclusion

Panniculitis is an inflammatory disorder that affects the subcutaneous fat and can result from various causes, including autoimmune conditions, infections, trauma, and malignancies. Its clinical presentation varies depending on the underlying cause, with the most common subtype being erythema nodosum. Early diagnosis and targeted treatment are essential to manage the symptoms and address any underlying conditions. Although there is no one-size-fits-all treatment, therapies such as NSAIDs, steroids, and immunosuppressive agents can provide relief, with surgical options considered in persistent cases.

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