SYNOVITIS

A Key Factor in Conditions of Autoimmune Arthritis

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Synovitis is a painful inflammatory condition affecting the synovial membrane which lines the joint cavity of joints that facilitate movement, such as the hip and knee.

Synovial Joints

Synovitis is a condition of inflammation that affects the synovial membrane that lines certain joints, bursae, and tendon sheaths. Synovial membranes are found in joints that contain cavities. These types of joints are called synovial joints. Examples of a synovial joint include hip and knee joints. Synovitis can occur in several different autoimmune connective tissue disorders including rheumatoid arthritis, systemic lupus erythematosus (SLE), and psoriatic arthritis. Synovitis can also occur in traumatic arthritis, osteoarthritis, and gout.

Synovitis tends to be severe in rheumatoid arthritis and mild if present in osteoarthritis. The presence of synovitis helps in differentiating rheumatoid arthritis from osteoarthritis.

The Normal Joint

Joints connect bones and they facilitate smooth movement between adjacent bones. In highly movable joints, the bone ends are covered by articular cartilage, which acts as a shock absorber and facilitates easy movement. During movement, the joints move smoothly over this bony cartilage.

A thin synovial membrane encloses the joint space or cavity. The synovial membrane secretes a slightly viscous, colorless fluid known as synovial fluid, which lubricates and nourishes the space or cavity that lies between the cartilage-covered joint-forming bones. Normal joint function is dependent on both healthy cartilage and a healthy synovial membrane.

Symptoms and Signs of Synovitis

In synovitis, excess synovial fluid is produced and released by the synovium. Accumulations of synovial fluid build up within the joint space and cause swelling. The joint may feel puffy when the area is touched. Increased blood flow due to inflammation also causes the joint to feel warm. Pain is often severe, particularly when the joint is moved. In conditions of long-term synovitis, joint degeneration can occur. The range of motion of the affected joint is usually decreased, and the affected area may be tender when lightly palpated.
In synovitis related to autoimmune disorders, levels of pro-inflammatory cytokines secreted during the inflammatory response rise dramatically. These cytokines, which include tumor necrosis factor-alpha (TNF-α), interleukin-6 (IL-6), and interleukin-1b (IL-1b), cause or exacerbate chronic inflammation.

**Transient Synovitis**

Transient synovitis is a condition primarily affecting children between the ages of 3 and 10 years although children of any age may be affected. Transient synovitis primarily causes arthritis and synovitis characterized by acute hip pain. It is one of the most causes of joint pain in children, and boys tend to be affected twice as often as girls. Possible causes include reactions to vaccines or drugs or allergic reactions.

**Diagnosis**

Synovitis is diagnosed with blood and synovial fluid studies and by imaging tests. The erythrocyte sedimentation rate (ESR) and the C-Reactive Protein level are elevated in synovitis, and synovial fluid shows increased levels of white blood cells in the absence of bacteria.

**Treatment of Synovitis**

Synovitis is usually treated with medications designed to reduce inflammation, for instance non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or naproxen, tumor necrosis factor inhibitors such as Enbrel, and cortisone injections. Natural remedies for joint relief that are free of the side effects associated with NSAIDs and cortisone are also available.

In addition, dietary changes, particularly avoiding foods with a high glycemic index or following an anti-inflammatory diet, offer benefits. The docosahexaenoic (DHA) fraction of fish oil is particularly effective in suppressing the cytokines that contribute to chronic inflammation. Other supplements useful in reducing cytokines include dehydroepiandrosterone (DHEA) and antioxidants such as vitamin E.

In persistent synovitis, surgical removal of the synovium, using a procedure known as a synovectomy, is sometimes necessary.

**Resources**
