



Bone Problems

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There is a growing number of reports of bone problems (*avascular necrosis* and *osteonecrosis*) among people with HIV. These problems are caused by a lack of blood supply in the bone, which leads to the deterioration and death of bone tissue. Generally, bones try to repair themselves. But bones that support a lot of weight, like the hip, can weaken when this condition occurs. This may cause the bone to fracture or collapse. This condition can also lead to severe pain and inflammation or overgrowth of bone in and around the joints (osteoarthritis).

While still relatively uncommon, people should be aware of reports of avascular necrosis that have led to hip fracture or dislocation. Symptoms or pain associated with avascular necrosis also commonly affect the shoulder and/or knee. Avascular necrosis is different from *osteoporosis*, a general term for a progressive loss in bone density that results in skeletal (bones that make up the framework of the body) weakness.

What causes avascular necrosis in people with HIV is not known. Some attribute the problems to anti-HIV therapies. Others believe it may be linked to the metabolic abnormalities (e.g. lipodystrophy, changes in body composition and changes in the way that the body stores and uses fat and sugars) that have been discussed in previous issues of *PIPerspective*. In HIV-negative people, corticosteroid therapy (e.g. prednisone), alcohol abuse, Gaucher's disease (a metabolism disorder) and connective tissue disease are all associated with avascular necrosis. Other diseases that may result in avascular necrosis include diabetes, atherosclerosis (thickening and hardening of the arteries), fatty liver and pancreatitis.

Detection and Diagnosis

Early detection of avascular necrosis is related to better outcome. Magnetic Resonance Imaging (MRI) is most commonly used to diagnose avascular necrosis. It is especially useful in early disease when the hip or other bone collapse may still be preventable.

An X-ray or CT scan is sometimes used to rule out advanced stage disease. By the time avascular necrosis shows up on a common X-ray, it is usually irreversible. The amount that avascular necrosis impacts bones that support weight is the most reliable predictor of outcome. Treating this condition often involves surgery.

Symptoms of Bone Disease

Individuals experience different symptoms with avascular necrosis. When the hip is affected, people often experience groin pain. This sometimes results in limping and a limited range of leg motion. A distinct feeling of a 'click' in the joint often occurs when moving from a sitting position.

Most people with avascular necrosis of the knee report severe pain and tenderness in and around the knee. When the shoulder is affected, people rarely experience pain because the shoulder is not a *weight-bearing* bone. However, moving the shoulder is usually restricted.

Early intervention with surgery may offer the best chance of preventing serious dysfunction of the hips and knees. Bone transplants may help support the hip as the body tries to restore the flow of blood to the damaged area. Another approach that shows some success is cutting through the bone (osteotomy) to change how the joints function and to redistribute body pressure away from the hips. Crutches must be used for several months after both transplants and osteotomies. Yet another option is to drill out parts of the hip to reduce the pressure inside the bone. About 75% of people who undergo this procedure avoid hip replacement in the future.

Hip and knee replacements are usually done only for people with severe pain who also have osteoarthritis.

As avascular necrosis appears to be an emerging problem, there needs to be more awareness of it. Research is underway to better understand what causes avascular necrosis in people with HIV. More information should be available in the near future.

The major points from *Bone Problems*

- Complaints of bone problems, called avascular necrosis and osteonecrosis—usually affecting the hips, knees and shoulders—are being reported among people with HIV.
- Special X-rays (called MRI and CT scans) are needed for diagnosis
- Early detection and treatment can prevent the need for hip replacement surgery.
- In severe cases, treatment requires surgery.
- Research is ongoing to better identify the cause of this condition.

