Surgical Site Infections

Surgical Site Infections (SSIs) are defined by the Centers for Disease Control and Prevention as infections that occur after surgery in a part of the body where the surgery took place. Superficial SSIs involve only the skin where the incision was made, while deep SSIs are serious infections that can involve tissue and muscle, organs, or implanted material.

Hip and knee replacements consistently and significantly improve quality-of-life by relieving pain and restoring function in well-chosen candidates. In the United States, hip and knee replacements are being performed with increasing frequency. Unfortunately, approximately 1% of patients undergoing orthopaedic procedures may develop an infection at the surgical site. These infections can be devastating and often require treatment with additional surgery and long-term antibiotics. It is generally accepted that infections that occur within three months of surgery are considered surgical site infections.

What increases my risk for infection following hip or knee replacement surgery?

Many factors may increase the risk of a SSI after a hip or knee replacement. Research significantly linked anemia, length of hospital stays, use of immuno-suppressive medications, alcohol abuse, BMI (body mass index) over 40 kg/m², depression, history of congestive heart failure, dementia, or the diagnosis of HIV/AIDS (human immunodeficiency virus/acquired immunodeficiency syndrome) as higher risk factors. Other studies have found that chronic kidney disease, diabetes, tobacco use, and malnutrition are additional risk factors for developing a SSI. Limited evidence showed that cancer, high blood pressure, and liver disease are also risk factors.

What should I do If I think my hip or knee may be infected following replacement surgery?

Patients should contact their doctor’s office as soon as possible and speak to the healthcare team. The healthcare team will determine if you need to be seen in their office, or if you should go to an emergency room.

If you think you have an infection, do NOT start taking antibiotics until instructed by your healthcare team. You should call your doctor’s office to discuss your symptoms.

How can I tell if I have developed an infection in my hip or knee following replacement surgery?

You should be concerned if your hip or knee suddenly starts to hurt more than normal or begins to drain from your surgical site. Some pain is normal following surgery, but a dramatic increase in pain without a clear explanation could mean there is an infection.

How are Surgical Site Infections diagnosed?

Your surgeon may order blood tests to determine if you have an infection. These tests may include erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and
interleukin-6 (IL-6). These tests are reviewed collectively to establish if you have an infection.

If your blood test confirms a strong concern for an infection, your surgeon or someone else may remove synovial fluid from the space around your hip or knee for a culture (putting the fluid in a petri dish to see if bacteria grows). Strong evidence supports that synovial fluid and tissue cultures, if positive, are reliable tests for the diagnosis of an infection; although negative synovial fluid and tissue cultures do not completely exclude the possibility of an infection.

Can special imaging be used to confirm or diagnose a surgical site infection?

Radiographs (x-rays) are considered as the initial imaging exam for suspected cases of bone and/or implant infection. In general, there is not a single imaging technology that can provide clear answer whether or not you have a SSI. There is limited evidence that supports the use of medical imaging in the diagnostic evaluation of patients with suspected SSIs.

What treatment options are available for Surgical Site Infections?

Some SSIs are treated with antibiotics, while deep SSIs are most often treated with additional surgery. Procedures, such as debridement (the removal of dead, damaged, or infected tissue) and implant removal, may be performed to help clear the infection.

How long should I continue suppressive antibiotics?

The optimal duration of antibiotic therapy is not known, but intravenous antibiotics are typically prescribed for around 6 weeks following surgical procedures to treat infected joint replacements and are occasionally followed by an additional course of oral antibiotics. There is moderate evidence to support that antibiotics beyond 8 weeks does not result in a significantly different outcome. In the case of Staphylococcal infections, an additional antibiotic (Rifampin) may be prescribed as a second antimicrobial to increase the probability of treatment success.

Resources:

American Academy of Orthopaedic Surgeons 2018 Systematic Literature Review on the Management of Surgical Site Infections

Please note: This is a patient information handout that orthopaedic surgeons and physicians can provide to their patients. This information was current at the time of publication. However, medical information is always changing, and some information given here may be out of date. This patient handout is based off recommendations from the 2018 AAOS Systematic Literature Review on the Management of Surgical Site Infections. To review this guideline please visit http://www.orthoguidelines.org/topic?id=1022