



Current Treatment Options for Spinal Osteomyelitis & Discitis

Often described as “insidious,” spinal osteomyelitis and discitis — infections of the vertebral bone and disc space — are generally characterized by a slow, progressive clinical course and subtle presentation. Typically taking an average of one-to-six months — and sometimes as long as a year — before detection, they pose diagnostic and treatment challenges, requiring expert attention from specialists in facilities equipped with state-of-the-art technology.

“Spinal infections are relatively rare. They’re found in 1 in 200,000 patients,” said Winthrop-University Hospital neurosurgeon Benjamin Cohen, MD, a spine surgery specialist. “But, infections anywhere in the body can migrate and seed the spine. If neglected, patients can develop serious sequelae, including irreversible neurological deficits.”

At increased risk for osteomyelitis and discitis are immunocompromised patients, including — but not limited to — those with diabetes, rheumatoid arthritis, renal failure, alcohol and IV drug abuse, malignancies, HIV/AIDS and long-term steroid use. The primary organisms involved are staphylococcus aureus, gram negative bacteria, pseudomonas and streptococcus viridans.

Symptoms

“Symptoms can be severe or very understated,” explained Dr. Cohen. “They can include chills, headache and pain, but when the only consistent early clinical signs are pain and fever, the disease can often go undetected. Any patient with back or neck pain and a primary source of infection such as endocarditis, dental abscess, UTI or post-operative wound, should raise suspicion.

“Our biggest challenge is to make an accurate diagnosis before symptoms become severe and debilitating.

Waiting too long can undermine efforts to provide effective treatment.”

At Winthrop, diagnosis begins with a medical history and physical, which often reveal tenderness over the affected vertebrae. If an infection is suspected, an MRI will frequently show abnormal enhancement of the involved vertebral body or disc space. CT scans can detect vertebral body irregularity and end plate destruction; MRIs are best able to discover infections in their early stages. WBC, CRP, ESR and blood cultures are essential to confirming the existence of a spinal infection and pinpointing the offending bacteria.

Treatment Options

If the spine is stable and the patient is neurologically intact — with little or no epidural abscess — immobilization with a brace and IV antibiotics can be prescribed for six-to-eight weeks. But often medical therapy, alone, is not completely effective.

Surgery has not always been a treatment option for patients with refractory spinal infections, which were once ultimately and inevitably fatal. Today, if a patient’s condition has not improved substantially after six weeks, chances are the medication is not reaching the infection, and, in most instances, a surgical procedure can be curative.

“Surgery is indicated if medical treatment fails, pain is intractable, radiographic evidence demonstrates spinal instability, and neurological deficits and/or significant thecal sac compression are documented,” said Marc Agulnick, MD, Winthrop’s Chief of Orthopaedic Spine Surgery, who collaborates with Dr. Cohen on surgeries for spinal infections.

Depending on the type, severity and location of the infection, their surgical procedures for osteomyelitis and discitis include open posterior approaches for

spinal stabilization and/or direct lateral surgery (DLIF) — a minimally invasive approach to lumbar spinal infections. They work closely with a multidisciplinary team of specialists, including cardiothoracic surgeon John Goncalves, MD, who is adept at using video-assisted thoracoscopic surgery (VATS), which has recently gained popularity as a minimally invasive approach to the thoracic spine.

DLIF and VATS allow for anterior access to spinal pathology through small incisions in the skin and muscle. These minimally invasive techniques provide a viable surgical option for patients, who are not candidates for extensive surgery because of serious co-morbidities. What’s more, DLIF and VATS can reduce overall post-operative morbidity, minimize pain, improve pulmonary function, decrease length of hospital stay and shorten recovery time.

Vascular Fibular Grafting

Vascularized fibular grafting (VFG) — first described in the late 1970s and used exclusively in young total-hip-replacement patients — was recently introduced as a viable reconstruction option in patients with spinal infections that lead to large avascular segmental defects.

Drs. Agulnick and Cohen and their surgical team — including plastic and reconstructive surgeon Thomas Davenport, MD — use VFG to manage patients with infection sites that have poor blood supply. The technique requires painstaking pre-operative planning, experience with microvascular techniques and vigilant post-operative attention. It involves meticulous debridement, excising the necrotic bone and replacing it with blood-rich bone harvested from the fibula. “Since a successful bone graft depends on having adequate vascularization, in cases of decreased blood supply, a vascular fibular graft is a reliable way to achieve bony union,” said Dr. Agulnick. “VFG provides for strong grafts, stability, more rapid fusion and greater resistance to infection.”

While uncommon, osteomyelitis and discitis are complex diseases with serious complications if not treated promptly. However, with timely, accurate diagnosis and appropriate aggressive treatment, the prognosis is usually good.

For more information, call the Institute for Neurosciences at 1-866-NEURO-RX or visit www.winthrop.org.