



THE UNIVERSITY OF TOLEDO
MEDICAL CENTER

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THE UNIVERSITY OF TOLEDO MEDICAL CENTER

ORTHOPAEDIC MONTHLY

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STRIVING FOR EXCELLENCE

The Value of Information Technology

A multidisciplinary team made up of the Orthopaedic Clinic Manager, several Orthopaedic staff members, Information Technology (IT), Radiology and Clinic Revenue Cycle leaders to discuss improvements regarding the patient experience. The stem of all items discussed was increasing efficiency through all stages of the patient's visit from arrival to discharge.

The Orthopaedic Center's care begins with free valet parking upon the patient's arrival (wheelchairs are provided to those who require them). Once inside the Center, patients are greeted by our concierge who will assist them with questions and registering for their appointment with our registration staff. The Orthopaedic Center offers a free coffee and snack bar to those waiting to see our medical providers.

If an X-Ray is required after the patient's initial exam, they do not have to travel far, as the Center houses its own X-Ray and MRI machines. The Ortho Center staff track the status of their patients in Radiology with the aid of laptops/monitors that display the queue. Working closely with IT, all exam room computers were outfitted with fingerprint readers for faster log-ins and access to patient charts and imaging. Registration software was also installed to permit our



staff to check in and check out patients directly from the exam rooms, preventing long lines at the check-out and registration desks.

The Orthopaedic Center has also been outfitted with telemedicine/teleconferencing capabilities. This addition will enable patients to follow up with our physicians or get feedback when needed without having to worry about transportation costs or being fit for travel.

Propionibacterium Acne in the Shoulder

Propionibacterium acne is slow growing anaerobic gram positive bacteria. They can be rod or branched shaped, and they are usually found in the skin pores. Propionibacterium acnes may colonize in the axilla, especially in males. There is difficulty in obtaining positive cultures from standard labs. Propionibacterium acnes are generally nonpathogenic, but can cause infections, such as acne vulgaris. Interestingly, one of its species (*P. freudenreichii*) is used in swiss cheese production as it provides flavor and special holes in the cheese. The propionibacterium acne infection is the most commonly isolated organism from rotator cuff infection cases. It is the most commonly isolated organism.

Cultures may require up to 14 days to grow in order to successfully identify this organism. Ask the lab to hold the culture even longer if you strongly suspect infection.

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This organism colonized in the shoulder at an increased rate. Mini open cuff repair after arthroscopic surgery may have increased the risk of developing that type of infection. A second prep and drape of the surgical field may be necessary to reduce the infection. Positive culture were also found in the revision shoulder arthroplasties.

Staphylococcus epidermidis loves the hip and knee prosthesis. P - acne, however, loves shoulder prosthesis. P - acne is the skin bacteria that is responsible for shoulder infection, and it usually has a subtle subclinical presentation. The clinical presentation is insidious and nonspecific. The traditional signs of infection are usually lacking: fever, erythema, severe pain, and blood work that is not consistently elevated. It is a slow growing bacteria and the culture takes from 1 to 3 weeks to become positive. This creates a diagnostic challenge because the initial culture is negative. The lab does not usually hold the cultures for a long time unless instructed to do so. If you suspect infection, ask the lab to hold the culture for at least 2 weeks. Men

have a higher bacterial burden than women. P - acne is a common cause for indolent infection and shoulder implant failure.

Infection of the shoulder with P - acne should be considered as a cause of persistent, unexplained shoulder pain. Treatment of the P - acne needs to be done in a few steps. First, obtain fluid from aspiration or obtain a tissue sample, multiple tissue samples are better. Keep the culture for about 2 weeks. The patient will have to undergo debridement, a removal of damaged tissue. The patient will then be put on IV antibiotic, and there is a possibility that they will be faced with the challenge of a resistance to the antibiotics. Finally, many may require removal of the prosthesis.

In summary, the propionibacterium acne infection is an emerging clinical entity. Its harm goes beyond the skin and should not be considered a contaminant. It is becoming an orthopaedic pathogen and not just a dermatology pathogen. It is probably resistant to the standard broad spectrum antibiotics. The clinician should be aware that this bacterium loves to infect the shoulder.

Posterior Cutaneous Nerve of the Thigh

The posterior cutaneous nerve of the thigh, the small sciatic nerve, arises from the sacral plexus from S1 - S3. The posterior cutaneous nerve of the thigh exits from the pelvis through the greater sciatic notch, below the piriformis muscle. The nerve descends below the gluteus maximus muscle, along with the inferior gluteal artery. It runs into the back of the thigh beneath the fascia lata, and over the long head of the biceps femoris muscle to the back of the knee. The nerve then pierces the deep fascia and accompanies the short saphenous vein to the middle back of the leg. The posterior cutaneous nerve of the thigh innervates the distal part of the gluteal region, the skin of the perineum and the posterior part of the thigh. The nerve can become compressed when passing through the tunnel below the piriformis muscle and under the gluteus maximus muscle. This may result in sensitivity disturbances of the innervation area of the nerve. Causes of this syndrome may be hypertrophy or abnormality of the piriformis muscle, such as entrapment below the piriformis which compresses the nerve. Compression of the nerve can also occur due to prolonged sitting.

Clinical presentation of this condition would show pain and sensitivity. Pain and sensitivity disturbances are characteristic of the nerve distribution site in the posterior part of the thigh, down to the knee. This disturbance can range from hyperesthesia to hypoesthesia,

Anatomy of the Posterior Cutaneous Nerve of the Thigh

It runs into the back of the thigh beneath the fascia lata and over the long head of the biceps femoris muscle to the back of the knee.

POST. CUTANEOUS N. of the THIGH



or burning sensation similar to meralgia paresthetica of the lateral cutaneous nerve of the thigh.

A type of differential diagnosis is piriformis syndrome. Treatment for this includes physical therapy, massage, and injection. It rarely needs surgery.

Whiplash Injury, Neck Pain Summary

Sudden acceleration and deceleration force causes unrestrained, rapid forward and backward movement of the head and neck. With a whiplash injury, there is injury to the soft tissues in the neck including ligaments, tendons, muscles, and discs. Whiplash is typically not a life threatening injury, but can lead to a prolonged period of partial disability. Whiplash is most frequently caused by

motor vehicle accidents, but may occur due to sports activities. Women are more likely to experience whiplash because a woman's neck is usually not as strong as the neck of a man.

Most patients experience neck pain, tenderness and stiffness. Injuries to the muscles and ligaments result in muscle spasms.

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Most whiplash symptoms develop within 24 hours of the injury and may include the following: dizziness, fatigue, blurred vision, neck pain, difficulty concentrating, memory loss, problems sleeping, and irritability. When examining the patient, inspect the patient's posture and neck. Palpate for areas of tenderness such as the cervical spinous processes, paraspinal muscles, and anterior soft tissues. The patient should demonstrate the range of cervical motion within pain tolerance. There should be a complete neurologic examination, and x-rays and MRIs may be needed.

Managing the pain should begin with immobilization of the neck

with a soft cervical collar for 2 - 3 weeks. Wearing the soft cervical collar, especially at night, may help with the muscle spasms. Ice therapy and physical therapy can be helpful. Pain medication, muscle relaxants and neck massages can also help to manage the pain. If psychological symptoms develop, treatment of the condition is recommended.

If the pain and disability exceeds three months, then the condition tends to linger. The majority of patients will have mild pain that will disappear in a few days. About 50 % of patients will have remaining symptoms of some sort, especially residual neck pain and headaches.

Differential Diagnosis of SI Joint Pain

Sacroiliac joint pain can often be mistaken for other causes of low back pain. There are many different conditions that simulate sacroiliac joint pain. The first is myofascial pain, which is chronic pain caused by multiple trigger points and fascial constrictions. It commonly involves the muscles of the back and their fascia. The patient may feel knots or hardening of muscle, with weakness and tenderness. Myofascial pain syndrome and fibromyalgia may present the same clinical picture, but they are different problems. The sit location is close to the SI joint, and can be confused with SI joint pain.

Trochanteric bursitis, which is inflammation of the greater trochanter bursa, may cause pain radiating to the sacroiliac joint. This commonly occurs in middle aged women. Pain is sometimes severe and is associated with iliotibial band syndrome, and is sometimes overlooked. Trochanteric bursitis may present with arthritis of the hip, low back pain, and other conditions. The area of pain may overlap with the SI joint.

Piriformis syndrome is when the sciatic nerve is compressed by the piriformis muscle in the buttock. Piriformis syndrome may be associated with lower lumbar radiculopathy, similar to spine pathology. It occasionally develops due to blunt trauma to the buttock. The localized buttock pain can be increased by sitting or driving. This causes tenderness in the sciatic notch.

The super cluneal nerve has three branches. The medial branch of the nerve is confined within an osteofibrous tunnel. The tunnel may cause impingement of the nerve, leading to pain close to the SI joint.

Lumbosacral disc herniation (bulge) may be caused by a disc moving out of place (herniate), or break open (rupture) due to injury or



strain. Disc herniation of the lumbosacral region could involve the nerve roots causing low back pain. The pain is usually midline, and can go down the leg.

The vertebral facets provide stability for the spine. They are also sites of articulation between the vertebrae and are thus considered joints. The joint may be affected with inflammations or degeneration, known as lumbosacral facet syndrome. This can cause pain that can be mistaken for SI joint pain.

Lumbar radiculopathy may be a major source of back pain. It occurs from inflammation, irritation, or impingement of the nerve root. This condition can be confused with SI joint pain.

Clavicle Fractures in Children

The clavicle is the first bone to ossify. The shaft of the clavicle ossifies in the membrane and not in cartilage from the two primary ossification centers. The medial end of the clavicle ossifies in cartilage from one secondary ossification center. The secondary center appears at 17 - 18 years of age, and fuses with the shaft at about 22 years of age. 5% of fractures occur at the medial end of the clavicle, 85% occur in the middle, and 10% occur at the lateral end.

There are many different types of clavicle fractures. The first is the

clavicle birth fracture. 95% of birth related injuries involve the clavicle. Injury is usually associated with breach delivery and large babies. A fracture may cause pseudoparalysis. You should be able to rule out brachial plexus injury. Reflexes remain intact following isolated clavicle fractures. The second fracture type is pseudarthrosis, which involves the right clavicle. When fracture occurs on the left side, look for dextrocardia.

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Clavicle Fractures continued

There will be no callus formation, and there will be a rounded appearance of the two ends.

The fracture will not heal by itself. Surgery may be needed for function, or for pain. A bone graft and fixation is usually needed. The third type of fracture is clavicle fractures in children. About 85% of these occur in the midshaft. A majority of fractures occur from falls in younger aged individuals, or are sports related in older children. When the fracture occurs in the diaphysis, it usually heals with minimal deformity. There will be excellent healing in 6 weeks, with return to non-contact sports. In 3 months, the patient will be able to return to contact sports.

Diaphyseal greenstick fracture of the clavicle is a common type of fracture. Greenstick fractures have excellent remodeling, and always heal with no clinical problems. Fracture of the proximal clavicle occurs in children with an open physal growth plate. Most of these injuries are classified as Salter - Harris I or II. Posterior dislocation of the clavicle may warrant reduction due to associated complications. If the proximal fracture is displaced posteriorly, a hollow is evident. This may cause difficulty in swallowing and breathing. If the proximal fracture is displaced anteriorly, the proximal end is palpable. When fracture occurs in the distal third, the distal clavicle is stripped away from the physis and periosteal sleeve. Both the physis and the periosteal sleeve remain attached to the AC and CC ligaments. A new clavicle will remodel from the periosteal sleeve and the displaced clavicle will be resolved with time.

Using a sling brace for treatment is just as good as a figure eight clavicle splint. Patient may not need follow-up x-rays. Surgery is rarely needed in children. Adolescents who sustain a displaced fracture or shortening may require surgical treatment. Be aware that the fracture in an adolescent may become displaced. Early follow-up with x-rays are needed.

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