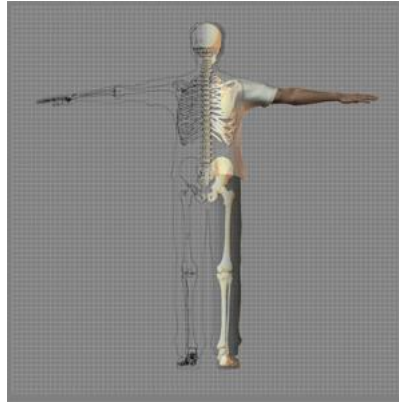


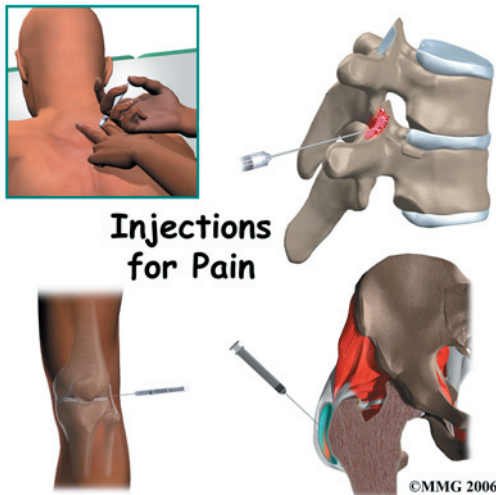
A Patient's Guide to **Pain Management: Injections for Pain**





Accelerate your learning curve with educational materials that are clearly written and professionally illustrated. eOrthopod educational materials are peer-reviewed and constantly updated. Professional medical illustrations and animations make even the most complicated condition or procedure clear.

You want more control over your health. Education about your condition will empower you. Ask the right questions when you see your doctor or surgeon. Find the information you need on eOrthopod.com.



Introduction

Injections, as part of the evaluation and treatment of pain, are commonly recommended by pain specialists. There many different types of injections that are used both to help diagnose the painful condition and to help treat the painful condition.

This guide will help you understand

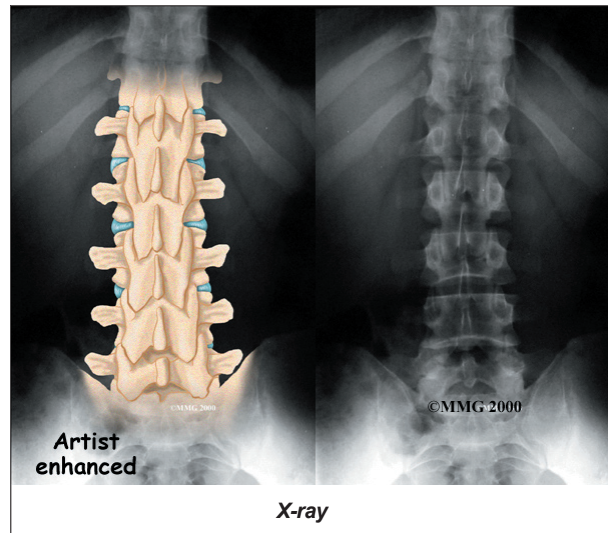
- the difference between diagnostic and therapeutic injections
- what the common medications injected are intended to do
- the risks and benefits of injections for pain

Rationale

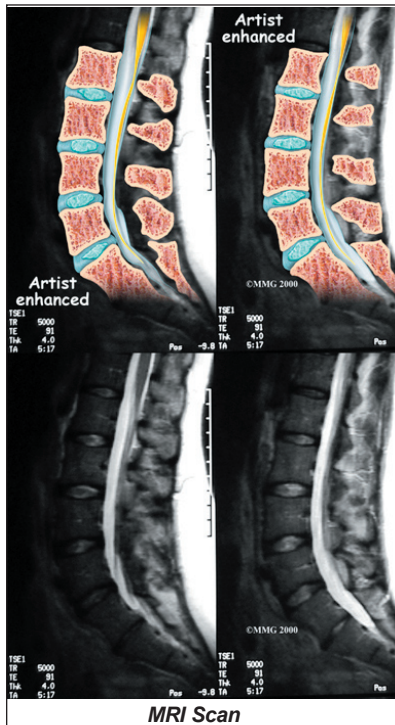
What is the difference between diagnostic and therapeutic injections?

Diagnostic injections are intended to help your doctor arrive at an accurate diagnosis of where the pain is originating. There is a concept in pain medicine called the “pain generator”. This idea is perhaps explained most clearly by asking the question that the pain medicine specialist asks: “What is causing - or generating - the pain?” Diagnostic injections are intended to determine the pain generator by a process of elimination.

During the process of trying to determine what is causing your pain, your physician will perform a history and physical examination. This may lead to a *differential diagnosis*. The differential diagnosis is a list of all the possibilities that the physician can think of that best fit with the findings from the initial history and physical examination. Once the differential diagnosis list has been determined, the goal is to figure out which item on the list is actually causing your symptoms.



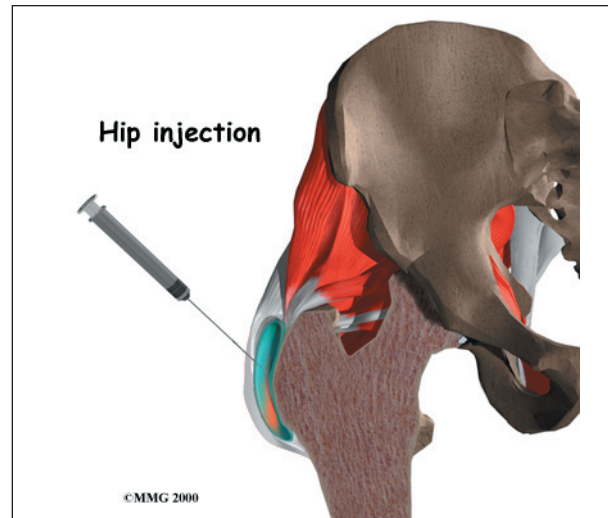
The next step may be to obtain x-rays, MRI scan or CT scan. Each of these radiological tests give your doctor information about the structure of the body part being examined. It shows if there are abnormalities present in the structure that may account for your pain. For example, a spine x-ray may show arthritis of the joints of the spine that could be causing the pain that you are experiencing. But, simply because the structural abnormality *could* be causing your pain does not mean that it is. Many structural abnormalities are seen on radiological tests that are not causing any pain. By injecting the facet joint with a medication to temporarily numb the joint and eliminate the pain, your physician can determine if this structural abnormality is actually causing any pain.



Another possibility is that you may have several abnormalities and it is unclear which abnormality is the cause of the symptoms. For example, you may have several intervertebral discs that appear worn out on the MRI scan of your lumbar spine.

It could be that all of the discs are causing your pain - or it could be that there is only one disc causing your pain. If you are considering surgery, you would want to be sure which disc is causing the pain so that you did not undergo any additional, unnecessary surgery.

Finally, sometimes the pain is confusing and may actually be coming from somewhere else in the body altogether. For example, it is not uncommon for a patient to have a worn out hip joint and a worn out lower back. When a patient with this combination of problems has hip and thigh pain, it is not always obvious whether the pain is coming from the hip joint or the lower spine - or both. By injecting the hip joint with a medication to temporarily numb the hip joint and eliminate the pain *that is coming only from the hip*, the physician can determine what portion is coming from the hip joint - if any. This helps to diagnose the problem accurately and prevent any unnecessary procedures. Almost all diagnostic injections follow a similar strategy. First, determine what could be causing the pain. Next, inject the structure that is most likely the cause of the pain - the pain generator - with a



medication that should reduce or eliminate the pain temporarily. If the pain is eliminated, then the structure injected is almost surely the cause of the pain.

Therapeutic injections are intended to treat your problem. This means that therapeutic injections should be expected to reduce, or eliminate, your symptoms for some period of time. Injections rarely eliminate pain permanently. Some injections may last weeks to months.

The medications that are normally injected during a therapeutic pain injection include an anesthetic and cortisone. The anesthetic medication (such as novocaine, lidocaine or bupivacaine) is the same medication used to



numb the area when you are having dental work or having minor surgery, such as a cut sewn up. The medication causes temporary numbness lasting one hour to six hours, depending on which type of anesthetic is used.

Cortisone is an extremely powerful anti-inflammatory medication. When this medication is injected around inflamed, swollen nerves and connective tissues, it can reduce the inflammation and swelling. Decreasing inflammation reduces pain in joints. Reduced swelling can allow the nerves to function better, reducing numbness and weakness.

Complications

What might go wrong?

There are several complications that may occur during or after these injection procedures. This document doesn't provide a complete list of the possible complications, but it does highlight some of the most common problems. Injections are safe and unlikely to result in a complication, but no procedure is 100% foolproof. Complications are uncommon, but you should know what to watch for if they occur.

Allergic Reaction

Like most procedures where medications are injected, there is always a risk of allergic reaction. The medications that are commonly injected include lidocaine, bupivacaine, radiographic dye, and cortisone. Allergic reactions can be as simple as developing hives or a rash. They can also be life threatening and restrict breathing. Most allergic reactions will happen immediately while you are in the procedure room so that help is available immediately. Most reactions are treated and cause no permanent harm. You should alert your doctor if you have known allergies to any of these medications.

Bleeding

There are several other rare complications of spinal injections. These include *epidural hematoma*, *epidural abscess* and *nerve damage*. The epidural hematoma occurs when one of the small blood vessels around the spinal sac continues to bleed after the procedure. The bleeding can cause a large pocket of blood to form around the nerves and cause too much pressure on the nerves. If this complication occurs, you will probably need a surgical procedure to drain the blood and remove the pressure from the nerves.

Infection

Several types of infections are possible complications of pain injections. Any time a needle is inserted through the skin, there is a possibility of infection. Before any injection is done, the skin is cleansed with a disinfectant and the health care provider doing the injection uses what is called *sterile technique*. This means that the needle and the area where the needle is inserted remains untouched by anything that is not sterile. The provider may also use sterile gloves.

Infections can occur just underneath the skin, in a muscle, in a joint, or in the spinal canal itself. You should watch for signs of increasing redness, swelling, pain, and fever. Almost all infections will need to be treated with antibiotics. If an abscess forms, then a surgical procedure may be necessary to drain the pus in the abscess.

When the injection is placed in the spinal canal, the infection may be more serious. A condition called an *epidural abscess* may form inside the spinal canal. This infection can cause a large pocket of pus to form around the nerves putting too much pressure on the nerves. If this complication occurs, you will probably need a surgical procedure to drain

the infection and remove the pressure from the nerves. Antibiotics will also be necessary to treat the infection.

Nerve damage

Many pain injections are done close to nerves. The needle used to do the injection may accidentally puncture the nerve itself. This can cause damage to the nerve and result in increased pain. Numbness and weakness may also result. Nerves that have been punctured with a needle will usually recover and not require any additional surgical procedures.

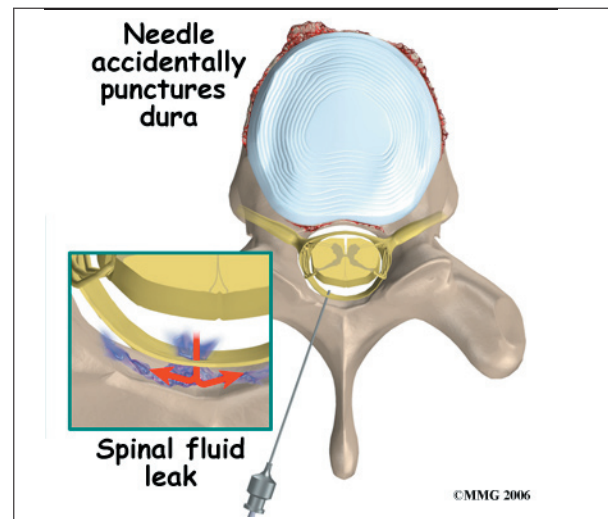
Increased pain

Not all injections work as expected. Sometimes, injections cause more pain. This may be due to increased spasm in the muscles around the injection. This may happen following a trigger point injection. The increased pain is usually temporary, lasting a few hours or a few days. Once the medication has a chance to work, the injection may actually work as expected and reduce your pain. The pressure from injecting the liquid medication may increase pressure on nerves. This may irritate the nerves and cause increased pain. The increased pain is usually temporary. Increased pain that begins several days after the injection may be a sign of infection. You should alert your doctor if this occurs.

Spinal Fluid Leak

Probably the most common complication of injections that enter the spinal canal is a *wet tap*. This occurs when the needle penetrates the spinal sac and enters the spinal fluid. This is the same thing that happens when your doctor performs a spinal tap or a spinal anesthetic. In itself, it is not dangerous. Because the epidural needle is larger than the spinal needle, the hole in the spinal sack may continue to leak and not seal itself off immediately. This causes a spinal fluid leak - or wet tap and a very bad

headache. The headache is worse when you are sitting or standing upright. It may cause nausea and vomiting. It will go away if you lie flat or with your head a bit lower than your feet.



The headache occurs because the spinal fluid pressure in the skull decreases. That is why the headache goes away when you lie down - the spinal fluid pressure goes back to normal in your skull. Most spinal headaches go away in a few days when the hole in the spinal sac heals and closes. You may be instructed to stay flat for a couple of days until this occurs.

There are ways to speed up the healing of the puncture in the spinal sac. The most common treatment for a spinal headache that does not go away on its own is a *blood patch*. This may be done at the time of the ESI if the doctor sees that the spinal sac has been punctured before he removes the needle. If not it may be done several days later if the headache has not gone away. This procedure involves taking a small amount of blood from a vein in your arm and injecting it into your back in the epidural space. The blood clots and "patches" the hole.

After Care

What happens after the procedure?

If everything goes as planned, you will be able to go home soon after the injection, probably within one hour. After most types of pain

injections, you will probably not have any restrictions on activity or diet following the procedure.

When the pain injection is a diagnostic injection, your doctor will be interested in how much the pain is reduced while the anesthetic (numbing medication) is working. You may be given a *pain diary* to record what you feel for the next several hours. This is important for making decisions - keep track of your pain.

Most doctors will arrange a follow-up appointment, or phone consult, within one or two weeks after the procedure to see how you are doing and what effect the procedure had on your symptoms.

Notes