LUMBAR LAMINECTOMY AND FUSION
FOR SPINAL STENOSIS

Purpose

This booklet is designed to be an information source for you concerning your lumbar laminectomy and fusion. It is not meant to replace any personal conversations that you might wish to have with Dr. Kitchel, his assistant, his office, or other members of the health care team. My hope in preparing this booklet for you is that it will answer some of your questions and serve as a stimulus for you to ask appropriate questions about the surgery.

General Overview

Lumbar laminectomy and fusion has been performed safely around the world for nearly 70 years. It is indicated for the treatment of lumbar spinal stenosis which has failed to respond to conservative treatment or is creating a progressive neurologic deficit.

In recent years, a number of alternative treatments to laminectomy have come to light. Most of these alternatives are designed for the treatment of herniated intervertebral discs. In your spinal stenosis, the disc is not the culprit pinching on your nerve; instead, it is thickened ligaments and bone spurs which are causing the problem. Because of this, treatment such enzyme injections into the disc and percutaneous disc removals are not indicated in spinal stenosis.

The role of a fusion in the back has to be individualized for every patient. A fusion simply means taking two of the vertebrae and making them grow together to be solid as one individual vertebra. Not all lumbar laminectomies require fusion; however, in your case it is required. A fusion will add to the recovery and require you to wear a light-weight brace in the postoperative recuperative phase.

Indications for Surgery

The indication for lumbar laminectomy and fusion is instability are the presence of spinal stenosis proven by radiologic studies accompanied by leg pain that has been unremitting to conservative treatment or numbness and weakness in the leg. In most cases, some attempt is made at conservative treatment with medication, physical therapy, and injections before surgery is suggested. The exception to this is the case in which there is a progressive problem with numbness or weakness in the leg which is threatening to become permanent or severe enough to compromise your walking ability.

The treatment of pain with lumbar laminectomy and fusion is generally limited to pain that puts unacceptable limitations on your lifestyle. This is normally pain in the distribution of the sciatic nerves from your buttocks down your leg. Loss of nerve control such as numbness or weakness in the legs and accompanying loss of bowel or bladder control are also indications for surgery.

Preparation for Surgery

There are a number of things that will allow you to have a better result from your surgery by preplanning them before the surgery is done. The most important of these is that you go into the surgery with a complete understanding of what is to be done and a positive attitude that you are taking the right step. This is best accomplished by being sure that all of your questions are answered. Please do not hesitate to contact Dr. Kitchel or his assistant with any questions which you think may be too foolish or too trivial to bother them with. We truly want you to understand the procedure at length and to have all of your questions answered.

You should be sure that Dr. Kitchel is aware of any health problems which you may have or medications that you are taking before surgery. He may want

to stop some of the medications because of the possibility that they can increase your bleeding at the time of surgery. He may also ask you to see your family doctor or internist so that they can pronounce you fit and a good candidate to undergo the surgery. It is also possible that other medications may interact with the anesthesia and the anesthesiologist may ask you to modify how you are taking them.

If you are a smoker, it is advisable that you stop smoking before the surgery. Smokers have a higher rate of wound problems and also have lower fusion rates than nonsmokers. It is desirable that your body be in the best possible condition for surgery. Your heart, lungs, and spine need to be as strong as possible. It is possible that Dr. Kitchel may recommend a program of aerobic, strengthening, or stretching exercises before surgery. It is also possible that you may be asked to see a physical therapist before surgery to show you a conditioning exercise program.

Lumbar laminectomy and fusion may require blood replacement. If Dr. Kitchel feels there is a possibility that you may need a blood transfusion after your surgery, he will ask you to store some of your own blood ahead of time to avoid the transmission of blood borne diseases such as hepatitis or MDS. if you are asked to store your own blood, you will be given nutritional supplements such as iron and calcium to maintain your blood balance. The blood will be stored in a blood bank and given to you in the hospital following surgery.

You will be scheduled for a preoperative visit prior to surgery. At that time, you will be given a lumbar brace. Please bring the brace with you at the time of hospital or surgery center admission.

Surgery

For lumbar laminectomy and fusion you are admitted to the hospital or surgery center the morning of surgery. It is no longer necessary for you to come into the hospital the night before. This allows containment of costs at the time of surgery and also allows you to have a good night's rest at home before you enter the hospital or surgery center. It is important that you do not eat or drink anything after midnight the night before surgery. This will allow the anesthesia to be safely administered. Please bring the corset with you.

Once you have been admitted to the hospital or surgery center, you will be taken to a room and prepared for surgery. This will include instruction about the surgery, cleansing of your back and abdomen, as well as instruction about the postoperative period. In most instances, you will have spoken with the anesthesiologist before your admission to the hospital or surgery center and have decided on the type of anesthesia. Dr. Kitchel has no preference as to the type of anesthesia and this should be worked out between you and the anesthesiologist so that you are both comfortable that it is being administered in the safest possible fashion.

About one-half hour before the surgery is actually to begin, you will be taken to the operating room and put into a holding area. The anesthesiologist will come and visit you and your IV will be started at that time. You will then be taken to the operating room and anesthesia will be induced. Once the anesthetic has been successfully administered, you will be positioned for the surgery and surgery will be carried out.

After surgery you will wake up in the recovery room where your vital signs will be monitored and your immediate postoperative condition will be carefully watched. Most people stay in the recovery room between one and three hours after surgery. Once the anesthesiologist feels that you are doing well, you will be returned to your room in the hospital or discharged home if your surgery was done in the surgery center.

The evening of surgery, it is normal for your back to be quite sore. The nursing staff will be checking to make sure that your vital signs are stable and that there is no problem with either the wound or nerve function in your legs. Dr. Kitchel will be by to see you after surgery to discuss how the surgery went and make sure that things are going as expected.

Most patients are up and out of bed the same day as surgery. It is important to get you out of bed early to avoid the complication of blood clots forming in the legs or possible breathing problems associated with remaining in bed. The physical therapist will come in, fit your brace, and help you make sure that it is an easy transition from lying to walking. Dr. Kitchel has prescribed a specified program of walking and exercises for the first few days after surgery. The physical therapist will take you through this gently and utilize their expertise.

Your intravenous catheter will remain in place until you are comfortable taking oral pain medication. This is to give you adequate fluids as well as antibiotics in an attempt to lessen any chance of infection. You will also be taking pain medication through your IV until you are comfortable taking it by mouth. After that, the pain medication will be given by mouth.

You also may have a catheter placed into your bladder. This is simply for your comfort and to allow you to not have to get on and off the bed pan. This will be removed when you are voiding comfortably.

The dressing will be changed as needed after surgery and if a small drain tube was left in the incision it will be removed once the drainage has subsided. Once the drain tube has been removed, you are free to shower and change the dressing each day. Once the wound has quit draining, it is not necessary to keep a dressing on it. You may simply leave it open to the air.

If you remained in the hospital overnight, most patients go home from the hospital on the second or third day after surgery. Dr. Kitchel will see you in the hospital that morning and discuss with you the medications to take home as well as a prescribed program of activities. In general, you are not to be out of bed without your brace. You should do no bending, lifting, or stooping at home until you are seen back in the office by Dr. Kitchel. You should take your medications as he prescribes. Be sure that Dr. Kitchel answers all of your questions before you go home from the hospital that morning.

Generally, Dr. Kitchel will see you back in the office about ten days to two weeks after surgery to assess your wound, and take an x-ray. If, during that first week of surgery, you have any questions or problems, you should call him at the office immediately.

The Operation

Lumbar laminectomy and fusion attempts to eliminate the symptoms of leg pain, numbness, and weakness by removing whatever is irritating or compressing the spinal nerve. This is accomplished through a posterior incision over the back with removal of all tissues pushing on the nerves.

An incision is made down the mid-line of the back, long enough to gain access to all the areas of spinal stenosis. The muscles are moved out of the way to each side to expose the bones of the spine. All bone and ligament that is compressing the spinal nerves is then removed with instruments which allow protection of the nerve. Once this is done, each individual nerve root is then followed out through the spinal canal to assure that there is no further decompression. Once the nerves are decompressed, the fusion will be done. This is done by placing two screws into each vertebra to be fused and connecting them with rods. Donor bone from your pelvis is rarely used anymore. More

commonly now, bone graft substitutes are used to replace bone from the pelvis. Sometimes some bone marrow be aspirated from your pelvis through a needle stick in the skin. This reduces the pain of bone grafting. Once this has been accomplished, the entire wound is washed out and sewn up. A sterile dressing is applied. You are rolled back onto your bed and the anesthesia is reversed. When the anesthesiologist feels it is safe, you are taken to the recovery room.

Risks and Complications

Your decision to undergo surgery should not be made lightly. You need to understand that there are certain risks and complications which accompany any surgical procedure. Thankfully, complications in lumbar spine surgery are rare. The most common complication is an infection. This occurs in approximately 1-2% of all spine surgery. Dr. Kitchel will do everything he can to avoid this complication. A sterile scrub will be performed on your back and the operation will be performed in a sterile room. Gloves, gowns, and masks will be worn by all personnel in the room. You will be given antibiotics during the 48 hours following surgery. Despite all of these precautions, infection does occasionally occur. Infection is generally not a devastating complication, but may require that the patient come back into the hospital for further antibiotics and possibly to reopen the wound. If you have any personal history of susceptibility to infections, this should be communicated to Dr. Kitchel before surgery.

The complication of blood loss is rarely significant in lumbar laminectomy and fusion. The general blood loss will vary with how extensive a procedure must be done. In rare instances, catastrophic blood loss can be encountered, putting the patient's life in jeopardy. If Dr. Kitchel feels that there is a likelihood of enough blood loss to require replacement, you will be asked to predonate some of your own blood ahead of time so that it may be stored and used at the time of surgery. Your blood volume will be monitored carefully while you are in the hospital and if blood replacement is required, this blood will be returned to you.

A tear in the sac around the nerves may occur at the time of surgery. This is technically called a dural laceration. If this should occur it will be repaired at the time of surgery. if this does occur, Dr. Kitchel will keep you down in bed for a day or two following surgery. Generally, there are no long-term problems associated with dural tears. The important thing is that the tear is repaired and does not leak.

New nerve damage is the rarest of all complications. This occurs in approximately 1/1000 cases. If there is new damage to your nerve, it could result in numbness, tingling, or pain. In all likelihood it would not result in permanent paralysis.

Nonunion or pseudarthrosis is the outcome of the fusion not becoming solid. This occurs between 5-20% of the time, depending on the underlying problem and the surgery. Dr. Kitchel will discuss with you what can be done in your individual case to make this less likely. Should this occur, another operation might be needed to add more bone graft. In a very small number of patients, the rods and screws may be removed if they are irritating your back and causing pain.

The risks of anesthesia should be covered in your conversation with the anesthesiologist. It is up to you to be sure that you are comfortable with the form of anesthesia which you have chosen.

Expectations After Lumbar Laminectomy and Fusion

The desired result of your lumbar laminectomy and fusion is to eliminate your back and leg pain and allow the numbness and weakness in your legs to resolve. The earliest result to be expected is the lessening of the pain. This will often be difficult to tell in the immediate postoperative period because the back will be painful from surgery. However, most patients notice that within a day

or two the leg pain has significantly diminished. It is not unusual during the first few weeks after surgery to have waxing and waning of the leg pain with some occasional jolts of severe pain. This should not scare you or make you think that the old pain is returning.

The return of the muscle function in your leg will be somewhat slower. You should not anticipate that this will return as quickly as the pain goes away. A general rule of thumb is that the strength will return over the same course of time that it took to lose it. In other words, if you have had weakness in your leg for six to eight weeks before surgery, it will take six to eight weeks after surgery to regain that strength.

The loss of sensation or feeling in the leg will return very slowly and is often discouraging to patients. You can anticipate that it will be several months before the sensation returns. In some cases all sensation may never return. This is because the sensation is the most sensitive portion of the nerve and in some cases will never fully recover.

When you first go home from the hospital or surgery center, the best form of therapy is simply daily activities and walking in your brace. You should not be engaged in any lifting, bending, or stooping. You will find that frequent changes in your position will help your back to be its most comfortable. Once Dr. Kitchel feels that your wound is adequately healed, he will start to increase your activities. The first of these will be a walking program. Once there has been further wound healing you will begin a supervised physical therapy program of exercises to strengthen your back.

When You Go Home

If you remain in the hospital overnight, Dr. Kitchel will generally tell you the evening before he plans to dismiss you the next morning. The hospital prefers that you go home in the morning before 11:00 a.m. That morning, Dr. Kitchel will come in and visit you to answer any questions as well as discuss your take-home medications and an appointment to see him back in the office.

When you get home, it is important to maintain moderate physical activities. You should not overdo it, but by the same token you should not spend all your time in bed or sitting.

You will have medications to take home as they are ordered by Dr. Kitchel. It is important that you take all of this on the schedule which he has provided you.

Unless Dr. Kitchel has specifically told you otherwise, it is all right to shower and cleanse the wound with simple soap and water. Simply dry the wound well after showering. It is not necessary to cover the wound unless there is any drainage.