GENERAL INFORMATION REGARDING SPINAL OPERATIONS

DR. E. COETZEE, PR NR: 028 00 000 34673,
MB ChB(Pret) MMED (Ortho) FCS (SA)
ORTOPEDIESE CHIRURG / ORTHOPAEDIC SURGEON

Suite 11, Faerie Glen Consulting Block
cnr. Atterbury Road & Jacqueline Drive
Faerie Glen 0043 South Africa

PO Box 2202, Wingate Park 0153

Tel: +27 (0) 12 348 3234
alda@etspine.co.za
www.spinecareatfaerieglen.com
I HAVE BACK PAIN... WHAT NOW?

Dear Patient,

This information booklet is structured to give you an overview of the different causes of back and neck pain and their potential treatment plan. Back pain is a very common symptom and will affect 80% of us during our lifetime at some stage.

The vast majority of patients will benefit from a structured conservative treatment protocol, and only a small group will be candidates for surgical intervention. Spinal surgery is a specialized field, and orthopedic spinal surgeon and neurosurgeons dedicate most of their practices to the maintenance of their patient’s spinal health.

What causes my back or neck to be painful?

To understand what causes pain we need to know what anatomical structures constitutes the “functional spinal unit”.

In between the vertebral bodies the vertebral disc is found which acts as a shock absorber and is filled with a semi-solid tissue called “the nucleus”. As we age, normal wear and tear leads to degeneration and loss of disc height. The process will be enhanced by trauma, overweight, abnormal posture and repetitive picking up of heavy objects.

Furthermore degeneration of the stabilizing structures like the facet joints and ligaments leads to functional and mechanical back pain. This age and time-related degenerative changes are called “spondylosis” and in time will lead to narrowing and compression around the neural structures (nerve roots), which can cause severe back pain, diminished walking distance and even weak bladder control.
WHAT IS A “SLIPPED” DISC?

Acute disc herniation implies a tear in the outer layer of the disc with compression on neural structures by a piece of the disc. The fluid substance which leaks and spills into the nerve root and surroundings, causes an acute inflammatory response with severe pain and muscle spasm.

How can this pain be treated?

In this practice conservative treatment of back pain includes the following:

i. Bed rest for no longer than 3 days.
ii. Anti-inflammatory drugs.
iii. Pain medication.
iv. Anti-spasmodic medication.

These drugs can be administered orally or in some cases the patient can be hospitalized for intravenous medication

v. A soft back brace can also be prescribed.
vi. A physiotherapy and bio-kinetic rehabilitation program such as DBC can be constructed. (Usually 6 weeks program with re-evaluation after the therapeutic program).

vii. In some instances a facet block and epidural (nerve) block might form part of the conservative treatment plan.

Indication for surgery will be the following:

i. Intractable pain which doesn't respond to conservative treatment and this might even be after a period of 6 months.

ii. Progressive neurological deficit with a weakness in motor function (muscle function) and increase in paresthesia (needles and pins) in extremities.

iii. Any bladder or bowel function loss e.g. Incontinence or perineal asensation.

NB. Please mention any of these symptoms specifically to your doctor.

iv. Signs of mechanical instability like spondylolisthesis (forward slip of one vertebra on the other) or degenerative scoliosis (S-curvature in the spine).
WHAT ARE THE DIFFERENT SURGICAL OPTIONS?

1. Discectomy:

This procedure is indicated when compression on a nerve root causes leg pain in the presence of a sequestrated disc fragment. This is a small procedure, done from the back with removal of only the fragments which cause compression on the nerve.

Although this is a small procedure it doesn’t stop the further degeneration of the disc and there are a percentage of these discs that will sequestrate again.

2. Laminectomy and Decompression:

In these cases the vertebral arch or small window (laminotomy) is removed to gain access to the spinal cord and nerve roots. This procedure allows the surgeon access to the entrapped nerve and compressive structures. In some cases this procedure can lead to instability and a fusion might be indicated.

3. Spinal fusion (Posterior)

This is a time honored procedure and is seen as the “gold standard” of surgical care. This is where bony bridging is achieved between the vertebrae resulting in a permanent stable situation. This is achieved by inserting instrumentation (screws) into the vertebrae though the pedicles and connecting these screws with a rod. Most of these systems are made of titanium. In most cases bone is harvested from the iliaca crest through the same incision. To strengthen or augment this bony fusion it is advised that an invertebral spacer - called a “cage” is inserted between the vertebrae where the disc was removed. This can be done by a procedure called a “PLIF or TLIF”, from a posterior (the back) approach trough the same incision. In some cases it might be necessary to insert the “cage” from anterior (the front) through a separate incision. This procedure has added morbidity because of vascular and urologic structures being involved in the approach.
4. Spinal fusion (Anterior)

The procedure involves an incision from the front on the abdomen and inserting instrumentation from the front of the vertebrae. Specific concerns like:

i. Vascular structures (bleeding).

ii. Urologic structures (urether damage and retrograde ejaculation).

iii. Ileus or absent bowel movement will be discussed by your surgeon.

iv. This procedure is done in conjunction with a vascular surgeon.

5. Disc Arthroplasty (Replacement)

Although the technology has been used for 20 years or more it is regarded as new technology. This device allows the surgeon to address disc pathology without a fusion. The procedure is done via an anterior approach with the help of a vascular surgeon (usually Dr. R. Jacobs). The procedure allows the patient to start rehabilitation much earlier, mobilizing with a soft brace and return to normal activities much earlier than a fusion procedure.

The prosthesis that is widely used is mostly combinations of metal and polyethylene or metal on metal products. The surgeon uses mostly metal on metal prosthesis. The indications for this procedure are the following:

i. Discogenic back pain not responding to at least 6 months of conservative treatment.

ii. Patient younger than 60 years.

iii. Disc space should not be diminished.

iv. Facet joint arthritic changes should not be present.

v. One level early disc degeneration.

vi. Osteoporosis should not be present.

To determine the specific disc causing the pain, a discogram is usually done. This is a diagnostic radiological procedure done by radiologists. During this procedure contrast is injected into the disc under x-ray vision and leakage of the disc is confirmed, while also creating the similar pain the patient is complaining of.
Other requirements:

At least 3 months of conservative care. Patients must be informed that the complications are usually reversed by one of these procedures:

1. Re-implantation of device.
2. Posterior fusion with pedicle screws.
3. Removal of device and reversed to a fusion, both anterior “cage” device and plating or posterior pedicle screws.

Postoperatively patients are mobilized on day one (1) with only a soft corset. Gentle movements are allowed and walking, sitting and lying down are permitted. The soft brace will be worn for 4 weeks and driving can be resumed after 2 weeks. A bio-kinetic exercise program will be introduced after 4 weeks of surgery.

6. Facet Infiltration and Caudal Block

This procedure is done as part of the conservative treatment protocol for neck- and back pain.

Due to degeneration and arthritis of the facet joints, patients develop mechanical pain and this should be treated in a conservative way.

This procedure is done in hospital, under sedation and X-rays. The procedure takes 5-15 minutes and patients can usually go home 1 hour after the procedure.

During this procedure a needle is placed in the facet joint and a long working anti-inflammatory is injected into the joint and a nerve block is done.

**Complications:**

1. Nerve and spinal cord damage
2. Needles and pins for a period up to 6-8 hours after procedure.
3. Infection

This procedure does not cure the disease, but is a tool in the pain intervention protocol for mechanical pain. Physiotherapy and medication should form part of the post procedure protocol.
WHAT FACTORS INFLUENCES THE OUTCOME OF SURGERY?

1. The surgical team and hospital:
The training, experience and judgment of the surgeon is of the utmost importance. Spinal surgery has evolved into a specialty of its own and should be done by dedicated spinal surgeons. Other members of the team including the anaesthetist, assistant, theater sister and staff, physiotherapist and orthotist are of great importance. In acquiring the necessary equipment for surgery of quality of the spinal column, a high cost factor is involved. Because of this, certain hospitals tend to specifically cater for such cases. The nursing staff in these wards all have special training as well as special interest in and knowledge of the nursing of spinal patients.

2. Patient factors:
It is of great importance that the patient should have the discipline to follow the pre-and postoperative program. The prescribed program should not be changed on advice from outside individuals. It is your responsibility to familiarize yourself with all aspects of the surgery and that all concerns are directed to the surgeon.

3. Health factors:
Certain health factors have a detrimental influence on the eventual success of the procedure:

   i. General poor health such as cardiac diseases, diabetes or other chronic diseases.
   ii. Smoking
   iii. Overweight
   iv. Pulmonary problems e.g. Asthma, emphysema and recurrent respiratory infections.
   v. Osteoporosis
   vi. Chronic medication.
   vii. Please be advised that if any of these conditions are present a consultation with a specialist physician will be arranged.
GENERAL INFORMATION REGARDING HOSPITALIZATION

Because of extreme changes in the medical aid profile, it has become necessary in many cases to make the necessary arrangements with the medical aid before admission. A number of medical aids prefer the patient to be admitted on the day on which surgery is to take place. In certain cases this is not possible or even dangerous and the surgeon will supply the necessary documentation to arrange for admission.

It is your responsibility to obtain authorization from your medical aid for the prescribed procedure. In this regard documentation will be provided by my staff with ICD-10 codes and procedure codes. Please familiarize yourself with any payments as anaesthetists and surgeons have the option to contract MASA fees and discount early payments. The hospital provides a pre-admission clinic to streamline these arrangements and my staff will be happy to assist.

In certain instances your medical aid will only allow procedures to be done at certain hospitals, this will be dealt with on an individual basis and arrangements to accommodate the patient can be made.

1. **Items to bring to hospital:**
   
   i. Toiletries such as a comb, shower, shampoo, gown and slippers.
   
   ii. Pajamas: Comfortable and loose fitting. Bring a vest or T-shirt of an absorbent material when you expect to wear a brace.
   
   iii. Bring all medication that you take on a regular basis.
   
   iv. X-rays and MRI-scans in your possession should be brought to the hospital.
   
   v. It is better to leave jewellery, large amounts of money and other valuable articles at home.

2. **Pre-operative Investigation:**
   
   i. The patient that need to wear a hard back brace. Measurements and custom fitment of the brace will be done while the patient is in hospital
   
   ii. Pre-operative investigation will be done by Dr. L. Wilken. These might include lung functioning tests, stress ECG and blood investigations.
GENERAL INFORMATION REGARDING POST OPERATIVE REHABILITATION.

The program you will follow after surgery varies from patient to patient. This is determined by the surgeon or the group of surgeons involved in the surgery.

i. On the first day after surgery all patients are admitted to the high care unit for observation. During your stay in high care a physician will do rounds. His duty will be to evaluate and treat organ function including lung, heart and kidney. The decision to move back to the ward will in certain cases be made by the physician.

ii. Pain control postoperatively is managed by the anaesthetist and will include a PCA (patient controlled anaesthesia) and other pain medication.

iii. Following lower back surgery, there is usually a reduction in intestinal activity for a period of 1 to 3 days and during this phase; you may have sips of water and suck on ice cubes. Once the intestinal activity has returned to normal, the fluid intake will be increased, followed by a soft diet and eventually solids.

iv. Usually one or more draining tubes will have been inserted in the area of surgery to drain blood and assist in the evacuation of blood from the wound. This drain will be removed once it has drained less than 50 ml in 12 hours.

v. The period of confinement to bed after surgery is on average 2 days or until the back brace has been delivered for mobilizing. Exercises in bed will be given by the physiotherapist for the first 2 days.

vi. A catheter will be inserted in theater and only removed once the patient can easily mobilize.

vii. As soon as you are ambulant and able to get up by yourself, the personnel will help you to bath and shower and teach you easy and safe methods.

How far may you walk?

As soon as you are ambulant, you may walk until you are tired or experience discomfort or pain, in which case you should lie down again. The distance and the period of walking are usually gradually increased and it is recommended that you rather walk short distances more often than long periods at a time. Initially after you have started walking, it is recommended that you lie down with your corset and only release the ties. It is then easy for you to tighten up the laces, get up and walk around. Should you wish to lie down for long periods of time or overnight, the staff will help you to take off the brace until you have been taught to do so by yourself. In most cases it is not necessary to sleep with the brace. 7.
Sitting:
In most cases of lower back surgery, sitting is restricted. Patients are allowed to sit with the brace on from the first day after surgery for 15 minutes three times a day. Sitting periods will be increased after the 6 weeks follow-up consultation.

Wearing the brace:
The spinal corset needs to be worn regularly. In most cases it is not necessary to sleep with the lumbar corset, the brace usually has to be worn for a period of 6 weeks. You must under no circumstances discard the corset before you are given permission to do so. During the 7 week, the brace will be weaned according to the protocol discussed by your doctor and physiotherapist (or otherwise specified by your surgeon).

Driving:
You are only to drive yourself after 2 weeks (unless otherwise discussed). Transport from the hospital after surgery is easily done by dropping the passenger’s seat to 45° and stretching every 45 minutes during your trip back home.

Sex:
It is recommended that normal sexual activities should only be resumed after 6-8 weeks.

Sport:
Generally no contact sports are allowed. Swimming, cycling, jogging and muscle strengthening exercises are allowed. It is quite obvious that this will vary from case to case, depending on the pathology the patient has had as well as the kind of surgery done.

General discomfort after back surgery:
For a period of a few weeks after surgery, a sensation of pins and needles, stitches or cramp-like pains might be experienced in the legs and should not be regarded as abnormal. Should this, however, be very intense or continuous, you should contact the surgeon.

Discomfort in or around the area of surgery, could last for a few weeks while healing is taking place. The upper end of the incision after surgery is usually an area which causes discomfort because of tension placed on the spot. The back
brace is inclined to compress soft tissue in the mid-line into a “sausage” shape, but this should not be regarded as abnormal.

Any progressive discomfort, weakness or problems regarding bladder or bowel function, should be reported to the surgeon. Pain medication will be dispensed before leaving the hospital.

GENERAL RISKS INVOLVED WITH LUMBAR (BACK) SURGERY

Risk involved in anterior surgery

During anterior surgery in the lumbar area, the entrance is via the abdomen and around the back of the peritoneum which contains the intestines (retroperitoneal). The major arteries in the abdomen are moved away from the surface of the vertebrae. This is the reason why an experienced vascular surgeon is usually used to do the exposure. The ureter and sympathetic nervous system (which influences limb temperature) also have to be protected. Retrograde ejaculation (semen moves back into the bladder and not out) during intercourse can occur in 0.2% of men. This does not constitute impotence. Ileus (delayed bowel movement) might also be evident after surgery. Some anterior thigh pain and hip weakness, especially on the left side might be present after surgery, but this is transient.

Risks involved in posterior surgery

The general risks involved in any anaesthetic, are obviously also applicable in spinal surgery. These risks will be influenced by the patient’s general condition of health, his/her previous medical history and specific procedure planned. As mentioned, negative factors such as systemic disease, cardiac and blood vessel disease, pulmonary disease, smoking, overweight, diabetes, inclination to sepsis, etc. raise the risk of surgery. All this will be discussed with the anaesthetist preoperatively.

i. Non-union in about 2% to 5% of cases, a non-union of the bony transplant might transpire.

ii. Thrombosis and pulmonary embolism: All steps to prevent blood clotting includes: blood thinning injections (Fragmin), anti-thrombosis stockings, foot and calf pumps and early mobilization.

iii. Instrumentation complications include: misplacement of pedicle screws with nerve root irritation, although instrumentation is made of titanium in most cases, the screws and other instrumentation can break.

iv. Neurological complications can include the following: on certain high risk cases- paraplegia, pins and needles or severe nerve related pain, weakness or loss of motor function in ankles or legs. Although these symptoms are
rare you should be aware of the fact that spinal surgery is done around and in close proximity to nervous structures.

v. Chronic and long standing pain in the back and in one or both legs usually do not recover or subside 100% after surgery, due to nerve damage and pain pathways which are laid down in the brain.

vi. The spine is made up of several motion segments which are at different phases of degeneration due to generic, traumatic and age related problems. This is the reason why certain levels in the spine might be included in the procedure and other levels not addressed. As we age the degenerative process continues and might lead to further surgery on the level above or below your previous surgery. This is a known condition and certain steps can be taken to try and avoid further degeneration.

**NECK SURGERY**

Most neck procedures are done through an incision on the right side of the neck. This incision may vary from 3-8cm in length, depending on the specific surgery that is done. In some cases bone might be taken from the hip area, but this will be discussed with patient on an individual basis. All patients receiving neck procedures will be admitted to the high care unit after surgery and monitored. Most patients will be discharged on the second day after surgery. All aspects of the brace and activities will be discussed by the physiotherapist.

Complications of anterior cervical spine surgery (neck fusion).

i. Sore throat.

ii. Hoarseness.

iii. Dysphasia (difficulty or pain while swallowing).

iv. Haematoma (bleeding).

v. Infection.

vi. Vascular damage.

vii. Oesophageal damage.

viii. Nerve root damage.

ix. Cord damage.

Please note that general discomfort will be felt between the shoulder blades after surgery for +/- 6 weeks due to the brace and driving can be resumed after 2 weeks. All this information is non-specific and general. Any specific questions or problems that you have, should be discussed with the surgeon involved without hesitation.
SCOLIOSIS SURGERY

x. Why does my child have this condition?

The cause of scoliosis is multi-factorial, recently all indications point to an underline generic cause. Some children are born with the condition (congenital or early onset scoliosis) and other children will develop scoliosis during their growth spurt, especially during their teens.

What are the signs that my child has scoliosis?

Scoliosis is mostly painless and the first sign of scoliosis could be the development of a rib hump (mostly on the right side of the shoulder blades). A secondary curve in the lower back might even cause a prominence over the lumbar area (usually on the left side with an asymmetric skin crease on the right).

What are the treatment options?

i. Conservative treatment is a combination of observations, physiotherapy, and biokenetics and even brace therapy. The options will be discussed with the parents according to the specific indications. Most curvatures greater than 40° will not be treated conservatively. Follow up visits every 4 months to obtain radiographs or scoliosis views will be made.

ii. Surgical Options are necessary to obtain the following goals:

iii. To prevent further progression of the curve and to obtain primary stability and straightening of the spine.

iv. To prevent lung functional especially early in the respiratory development of the child. This is especially important in children under the age of 5.

v. Certain cosmetic features of the disease can be addressed with the appropriate surgery.

vi. If conservative treatment has failed.

vii. In some cases the progression of the underlined disease or syndrome necessitates early correction and surgery e.g. Neuromuscular disease.

How does the brace work?

The brace is custom made according to the type of curve and the magnitude. This brace will be worn 22 hours of the day, except when the child is exercising or batting. The curve will be examined radiological in the brace every 4 months. Non compliant patients especially boys are not good candidates for bracing. The general rule is that the brace needs to be worn until skeletal maturity (15-17 years of age).
What are the surgical options?

In most cases of progressive deformity or scoliosis correction is done with a posterior fusion and instrumentation (screws and rods that push and pull the spine straight). In younger children a “growing rod” system might be an option to accommodate growth until a final fusion is done. This type of surgery is very technical and is only done by a handful of surgeons dedicated to deformity surgery. The specifics of your case will be discussed by your surgeon. In general the children do extremely well and return to most of their pre-operative activities and lead a normal life. It should be emphasized that this is a collaborative decision and that options should be gathered only from surgeons that deal with scoliosis. Please see the insert and visit the Scoliosis Research Society website for further information. (www.srs.org)

Post-operative care

1. 3 Weeks post-op recovery at home before going to school.
2. 10 weeks of post-op bracing.
3. Sport activities after 4 months.

Signature

Date

I HAVE READ AND UNDERSTOOD THIS DOCUMENT

Click if you have read the above
If any of the following information is not absolutely clear, please feel free to inquire telephonically on 012 348 3234 or schedule an appointment for specific discussion.

**I hereby acknowledge the following:**

i. That Dr. E. Coetzee has explained the surgical procedure in Lay man’s terms to me.

ii. I understand my pathology (problem) and how this creates pain.

iii. I understand what complications may arise from the specific surgery.

iv. I have had time to read this information booklet and time to ask Dr. E. Coetzee any questions concerning my surgery.

v. I will bring any concern regarding my surgery under the attention of Dr. E. Coetzee

Signature

Date