



## **Balloon Kyphoplasty**

### Overview

Balloon Kyphoplasty is a minimally invasive procedure to treat vertebral body compression fractures.

The technique is designed to:

- Reduce and stabilise the fracture in a controlled way.
- Correct spinal deformity.
- Prevent new fractures.
- Provide immediate and sustained pain relief and improved quality of life.

What are the indications?

Painful vertebral compression fractures in the lumbar or thoracic region, due to:

- Primary osteoporosis
- Secondary osteoporosis
- Osteolytic lesions due to multiple myeloma or bone metastasis
- Trauma

### Procedure

This can be performed under general anaesthetic or with local anaesthetic plus sedation, and this will be discussed with you.

The procedure involves the passage of a needle under Xray guidance into the broken bone in the spine. Once in position the balloon is passed into the bone prior to inflation, which then creates a space within the bone, which is then filled with a special bone cement.

What are the results?

- BKP provides an early clinical improvement by relieving the pain (95%) and improving function & mobility
- BKP stabilises the fracture, providing immediate pain relief
- BKP enables a reduction of the height loss
- BKP can reduce the Kyphosis angle by over 50%, thus correcting the spinal deformity



- Quality of Life data, measured by SF-36 are significantly improved after BKP
- BKP allows a fast return to the activities of daily living
- A number of authors stress the importance of the height restoration and The sagittal alignment, thus reducing the long-term co-morbidities of VCF's, such as reduced lung capacity, early satiety, chronic back pain, increased risk of further vertebral fractures, etc ...
- BKP has a significant lower cement leakage rate compared to other cement augmentation techniques



## **Lumbar decompression**

### Overview

Decompression is a surgical procedure that is performed to alleviate pain caused by pinched nerves (neural impingement).

In this type of back surgery, a small portion of the bone over the nerve root and/or disc material from under the nerve root is removed to give the nerve root more space and provide a better healing environment.

Several conditions may cause neural impingement, including spinal stenosis, a disc herniation, isthmic spondylolisthesis, degenerative spondylolisthesis, or (rarely) a spinal tumour.

There are two common types of spine surgery decompression procedures:

Microdiscectomy (or microdecompression)

Laminectomy (or open decompression)

### Procedure

With modern spine surgery techniques, both a microdiscectomy and laminectomy can usually be done with a minimum amount of morbidity (e.g. post-operative discomfort) and a high degree of success in alleviating low back pain and/or leg pain.

Sometimes in addition to the decompression procedure a spine fusion surgery is also necessary in order to achieve adequate decompression of a nerve root. This is especially true if the nerve root is compressed as it leaves the spine (in the foramen), known as foraminal stenosis.

Foraminal stenosis is difficult to decompress simply by removing bone because if the bone is fully removed in the location of the foramen it is generally necessary to also remove the facet joint. Doing so leads to instability; so a spinal fusion is necessary to restore stability.

The foramen can be opened either through an anterior approach (by "jacking" open the disc space in the front of the spine) or by distracting between two pedicle screws inserted posteriorly (through the back of the spine). After the foramen is opened up



a spine fusion is also done to keep it open so the instrumentation does not fail and the foraminal stenosis does not return later.



## **Microdiscectomy and nerve root decompression**

### Overview

Nerve root compression due to a protruded (slipped) disc causes pain in the part of your leg that is supplied by the nerve.

This often gets better on its own given time, but occasionally the pain is too severe, or lasts too long and surgery is recommended.

Microdiscectomy and nerve root decompression is a common operation performed for leg pain (Sciatica).

In addition to the pain you will often experience numbness, tingling, pins & needles, and sometimes a feeling of weakness in the leg.

The operation is to remove the loose piece of disc that is compressing the nerve so as to improve the pain.

Spinal discs are shock absorbing joints in our spine. When we are young they are rubbery and tough. As we get older they dry out and get stiffer. Often as part of normal daily life a piece of the disc works loose and this can press on the nerve to your leg causing sciatica.

### What are the indications?

In general, if a patient's leg pain due to a disc herniation is going to get better, it will do so in about six to twelve weeks. As long as the pain is tolerable and the patient can function adequately, it is usually advisable to postpone back surgery for a short period of time to see if the pain will resolve with conservative (non-surgical) treatment alone.

If the leg pain does not get better with conservative treatments, then a microdiscectomy surgery is a reasonable option to relieve pressure on the nerve root and speed the healing. Immediate spine surgery is only necessary in cases of bowel/bladder incontinence (cauda equina syndrome) or progressive neurological deficits. It may also be reasonable to consider back surgery acutely if the leg pain is severe.



Microdiscectomy spine surgery is typically recommended for patients who have experienced leg pain for at least six weeks and have not found sufficient pain relief with conservative treatment (such as oral steroids, NSAID's, and physical therapy). However, after three to six months, the results of the spine surgery are not quite as favourable, so it is not generally advisable to postpone microdiscectomy surgery for a prolonged period of time (more than three to six months).

### **Procedure**

The operation is usually performed under general anaesthetic, with a small cut on your back along the spine about one inch long. Using a microscope (so as to see better) your surgeon makes a small window into your spine by removing a small amount of bone and ligament. When in the nerve tunnel inside your spine the nerve is moved to the side and the loose piece of disc is removed. The wound is then stitched with dissolvable sutures, and a wound dressing is applied. The wound heals very quickly and no stitches need removal. It is safe to shower after a few days.

The operation takes about 2 hours altogether and you will wake up in recovery. Your back will be a bit sore, but often your leg will feel much better straight away.

### **After your surgery**

After your operation you will be given pain killers to help your sore back. It is important to get your back going again to prevent stiffness from setting in. It is NOT dangerous to move around, and you will be encouraged to move around, stand up and walk as soon as possible. You will get a better result from you surgery, and be back to normal much quicker the sooner you start to move your back.

Your physio will show you some simple exercises to help, but the most important thing is to return to normal as soon as you can.

It is common to have twinges, and a sore leg to start with as it often takes time for the nerve to settle down. Typically any numbness that you have to begin with can take quite a while to improve, but it often resolves steadily. Most patients leave hospital the day after surgery, and you can return to work as soon as you feel able, generally at between 2 and 4 weeks.

After the surgery your back is NOT weaker than before, and it is safe to exercise, and play sport as soon as you feel able.

Your surgeon will arrange to see you in clinic after about 6 to 8 weeks to see how you are getting on, and often again at about 6 months after surgery.



You may be asked to fill in a questionnaire about your pain, and symptoms. This helps your surgeon advise you of your best options, charts your progress. We thank you for cooperation in this.

### **What are the results?**

There is a 9 out of 10 chance that your leg will feel better after your operation.

### **What are the risks?**

All operations carry some risk. This is generally a very safe and effective operation, but carries a small risk of infection or bleeding (less than 1%). Unfortunately there is no guarantee that you will get better, and rarely can it make your back feel worse. There is a very small risk of nerve damage. This will NOT paralyse you, but could leave you with a numb, slightly weak ankle or foot.

Sometimes (less than 5%) there is a leak of spinal fluid from around the nerve, and this can mean you have to lie flat for 24 hours after the operation to allow this to settle.

Rarely scar tissue can form around the nerve after surgery, and this can mean a gradual return of pain over a period of a few months. This can be treated with medication or injections.

As only the loose portion of disc is removed, another piece can displace in the future causing recurrent symptoms. Recurrent herniated discs are not thought to be directly related to a patient's activity, and probably have more to do with the fact that within some disc spaces there are multiple fragments of disc that can come out at a later date.

Very rarely problems with the nerves to the bladder can cause incontinence.

A very rare complication of a slipped disc can cause pressure to the bladder nerves. This can cause numbness around your bottom or groin area, and difficulty in passing urine. If this occurs to you seek urgent medical advice at your local Accident and Emergency department.



## ***Spondylolisthesis***

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### **Overview**

The skeletal anatomy involved in spondylolisthesis is complex but, in brief, it works like this: Each vertebra in the spine has a thick anterior body (called the centrum). A vertebral (or neural) arch on the surface of the centrum encloses a "vertebral foramen," which the spinal cord passes through. On each side of the neural arch on each vertebra, a pair of "superior articulating processes" projects up, and pair of "inferior articulating processes" projects down, supplying support and flexibility. (fig spondylolisthesis)

*Spondylolysis* is the degeneration or deficient development of these articulating parts of the vertebra. It can range from a serious condition to a mild one.

Spondylolysis may permit forward slippage of a vertebra onto the next vertebra below it, producing a *spondylolisthesis*. Spondylolysis occurs in 6% of the population, but only in people who can stand upright and walk. Spondylolysis is more common among athletes active in sports that require repetitive hyperextension, such as diving, weight lifting, wrestling and gymnastics.

Children and teens with this condition may have no symptoms, though symptoms often develop during the preadolescent growth spurt. The magnitude of symptoms does not always correlate with the severity of the slipped vertebra. Many people with this condition don't require treatment. Spondylolysis or low-grade spondylolisthesis may be managed conservatively without surgery. However, young ("skeletal immature") people with more than 30 to 50% slippage are at increased risk for progression and are candidates for spinal fusion without delay. For other patients, treatment can vary from surgery to physical therapy to modification of activities.

Spondylolisthesis has an emotional impact because pain can limit function and impair quality of life. Education is important in giving the patient a sense of control and the information necessary to make informed treatment decisions.

Click on your area of interest above to see more information.



## ***Nerve root injection***

### Overview

This procedure is done for many reasons but is usually done to help your surgeon diagnose the cause of your leg and/or buttock pain or as an attempt to treat it.

### Procedure

The procedure is done under local anaesthetic as a day case. There is no need to starve before the procedure. You will come into hospital on the day of the procedure and it is advised you bring a dressing gown and comfortable shoes to walk to theatre in.

After initial nursing checks will be taken to theatre. Here you will be helped onto a theatre 'table' lying on your tummy. This special table will allow the surgeon to use the x-ray equipment. Once you are comfortable in this position, the surgeon will wash his/her hands and prepare the equipment necessary to perform the injection.

The surgeon will then prepare the skin of your back with a cleaning solution – please inform us if you are allergic to anything. Local anaesthetic will then be placed in the skin and a needle guided down close to the nerve root using the x-ray machine. It is important for you to inform the surgeon if you experience any leg pain during the needle insertion as this may indicate that the needle is close to the nerve and may need repositioning.

For ladies of child bearing age, it is very important for you to tell us if there is any chance you might be pregnant.

Once the surgeon is happy the needle is correctly placed, a dye (contrast) will be injected to confirm the correct position of the needle. This may reproduce the symptoms in your leg and/or buttock. Once the surgeon is happy with the needle position, steroid and local anaesthetic (kenalog and bupivacaine) will be injected and again may reproduce your leg and/or buttock pain. This is the end of the procedure and you will be helped down from the theatre table and into a wheelchair and taken back to the ward.

The steroid is not absorbed into your blood and will not produce any of the generalised side effects of long term oral steroids

### After the procedure

After a short period of observation on the ward you will be allowed to go home and an appointment will be made for you to see your surgeon between 2 and 8 weeks after the procedure. You should not drive on the day of the procedure but in most cases will be fine to drive and return to work the next day.



### **What are the results?**

The injection improves the leg and/or buttock symptoms in 80% of cases and can start to work anytime after the procedure up until 2 weeks. It works for between a few hours and forever with most patients getting between 6 weeks and 6 months of significant pain relief. One in 12 injections will give good pain relief for more than a year.

The risks of this procedure include:

1. Infection – approximately 1 in 2000
2. Nerve injury resulting in some pain and weakness in the affected leg – 1 in 5000
3. Tearing the lining of the nerve (dural tear) requiring a period of bed rest and possible a further injection – 1 in 3000
4. Initial worsening of symptoms for a few days – 1 in 20