



## **Anterior Cervical Discectomy and Fusion ( ACDF )**

### **Introduction**

The discs in the neck lie between the vertebrae at the front of the spine which together form the cervical spine. The nerve roots coming out of the spine pass very close to the disc through holes in the spine called foramina. Sometimes due to “wear and tear” of the spine, the disc becomes weakened allowing the disc to bulge. The body tries to repair this weakened area by forming additional bone called “osteophytes”. If these disc bulges or bony spurs press on the nerve roots, the nerve can be irritated and becomes painful. Nerve pain is usually felt along the path of the nerve, which varies depending on which nerve root is affected and usually travels to the shoulder and the arm. Nerve pain is often very difficult to control with pain killers.

If these disc prolapses or osteophytes press on the spinal cord, it can cause damage to the internal structure of the spinal cord called “cervical myelopathy” – this results in numb and clumsy hands and stiff legs with parasthesias or commonly called “pins and needles” (typically a sensation of walking on cotton wool). This can affect the mobility and progress to weakness affecting all four limbs. In the event of an injury to the neck, instant paralysis can occur which may be slow to recover if at all. This process is usually slowly progressive and surgery is aimed at halting this progression.

The symptoms from the cervical spine problems involve a combination of neck pain, loss of function and weakness and numbness. Rarely bowel and bladder function can be affected. If neurological symptoms like weakness or bladder/bowel symptoms are experienced they should be reported immediately as they may require urgent treatment.

### **What is an ACDF?**

ACDF is an operation performed under general anaesthesia from the front of the neck designed to take away the disc and bony spurs which are irritating the nerve and/or the spinal cord resulting in resolution of the arm pain. The procedure is performed using a small incision in the middle of the neck usually along a neck crease for added cosmesis. The spine is approached and the disc is removed using a microscope to free up the spinal canal and the foramina. The nerves are free at the end of the procedure. The gap which is left is filled with a solid “cage” (which is a small matchbox like structure aimed at preserving the height of the disc space after it has been removed hence it is sometimes called a “disc

spacer”) . This cage is usually filled with your own bone pieces and/or some other material to promote fusion.



Fig.1: A type of Disc space used.

A microscope is used to improve light and vision enabling a minimal access approach to be used and to enable the surgeon to perform the operation safely. In case of pressure on the spinal cord, the aim of the operation is to prevent worsening in the future.



Fig. 2 : The Xray of the neck showing the cage in position.

The wound is closed with absorbable sutures leaving a short scar with no cross hatching and no need for suture removal. Occasionally the suture ends do require trimming. A drain (small plastic tube) is sometimes left in the neck as a precaution to prevent a blood clot forming in the neck and is removed on the day after the operation.

This operation is also called “ **The Smith-Robinson**” procedure.

## Post operative course

After the operation you will be encouraged to mobilize as soon as possible with the assistance of physiotherapists and nurses. Once mobile enough to manage at home you can be discharged. You may sometimes be prescribed a soft collar.

You will be give instructions with regard ongoing mobilization and physiotherapy. An outpatient appointment will be arranged.

## Outcomes

Most patients experience a dramatic reduction in arm pain. Improvement in numbness and weakness due to irreversible spinal cord damage if present is less certain. Any reduction in neck pain is considered a bonus as the operation is not designed to primarily treat back pain. Sometimes the neck movements may improve as a result of improved pain and muscle spasm. Occasionally there may be restriction of neck movements due to the fusion especially if it is at multiple levels.

In order to monitor the results of surgery you will be asked to complete outcome questionnaires from time to time.

## Possible Complications

*Most patients are pleased with the result of their surgery and do not suffer any adverse problems. Occasionally complications do occur and can require further treatment.*

Scars in the neck usually heal very well but can sometimes have a cosmetic impact. We make every attempt to use the neck creases to make the scar as less visible as possible and use absorbable subcuticular stitches to prevent any stitch hole scars.

Speech problems (hoarse voice) and swallowing problems can occur and are usually temporary and recover well as the swelling from the operation settles but can rarely be permanent

Nerve damage is rare during surgery. If it occurs it can cause areas of numbness, pins and needles and weakness. Neuralgic pain can also be troublesome.

Spinal cord injury is very rare and occurs when the spinal cord is damaged. This can result in paralysis from the neck downwards..

Scar tissue can form around the nerve root tethering the nerve causing ongoing pain. Occasionally further surgery is required to free up the nerve either from the front or from the back of the neck.

Infections can occur in the wound and rarely in the disc implant. These can be treated usually with antibiotics but occasionally require surgical cleaning , debridement and removal of the cage.

Recurrence of the arm pain can occur and may require a further surgical procedures on the neck.

Damage to the lining of the nerve root/ spinal cord (Dura) can result in a leak of fluid (CSF). This is usually noticed and repaired at the time of surgery. A short period of bed rest is advised after the operation. Occasionally a drain may have to be left in the back to allow the leak to seal itself. Rarely the leak persists and has to be repaired surgically.

Adjacent level degeneration is the name given to the problem of having a damaged disc at the level above or below the operated levels due to accelerated degeneration in the years following surgery and is rare. It causes similar symptoms of the type described for a disc prolapsed in the neck. It may require a similar surgery.

Bleeding, most commonly from the small veins within the spine can be troublesome and is controlled at the time of surgery. Rarely bleeding continues post operatively and a second procedure is required to control it.

Neuralgic pain occasionally persists after surgery despite a successful operation and is thought to be due to inflammation, damage and fibrosis inside the nerve itself. This can not be treated surgically.

Anaesthetic complications will be explained by your anaesthetist.

Please be assured that every effort is made to avoid the complications listed and any others which can very rarely occur.

## **Questions**

If you have any questions or wish to discuss things further please ask at any time. It is important that you have all the information you require and we will assist you in every way possible.

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