

# Scoliosis Surgery

It is impossible to outline the specifics of potential surgery in an individual on this website. The following is some hopefully useful guidance on what one can expect from surgery for scoliosis.

The majority of surgery is performed through a posterior approach to the spine, but in approximately 10% of cases the procedure may be from the side (so called anterior) in isolation or as an adjunct to a posterior procedure. Anterior approaches to the spine are addressed in another factsheet on this page.

## Posterior Surgery

A midline incision at the levels that need to be operated upon is performed. The muscles are gently retracted from the spine to reveal the bony anatomy. The soft tissues that tether the spine are released and the facet joints excised. Sometimes it is necessary to cut the bone of the spine (an osteotomy – see below) to permit adequate release and correction of the spine. In adults, if any decompression of nerves is required it is then performed. Instrumentation is attached to the spine – predominantly screws (sometimes hooks) into the bone and the rods are contoured to the desired shape and attached thereby correcting the deformity. The spine is stripped of superficial bone to leave healthy bleeding bone for graft which is local recycled graft from the procedure. Only very rarely is bone taken from the pelvis. The operative field is copiously washed throughout and careful attention paid to any bleeding. The muscles, fascia and fat are closed with clips or absorbable suture to the skin. A pressure dressing is applied and usually no brace is needed and mobilisation is encouraged as soon as possible.

## Osteotomy

An osteotomy may be performed if the spine is rigid and to address the problem it is necessary to do so. Because the bone is cut, bleeding can occur and this is particularly the case for the larger cases. Osteotomies may be posterior or anterior or combined. The biggest corrections are obtained by removing a wedge of spine to allow a 3D correction. These are known as a transpedicular osteotomies and anterior column resections.

## Spinal Cord Monitoring

In many cases spinal cord monitoring may be required – especially if large corrections are needed. The spinal cord signals to and from the brain to and from the legs are monitored. Modern techniques have reduced the chances of neurological problems paralysis considerably. In some cases a 'wake up test' may be required when the patient is asked to perform simple tasks before being completely woken up to ensure function is normal.

## Cell saver

Bleeding can be a problem with such extensive surgery, but with modern techniques blood transfusion is now less although is sometime required. Blood lost can be recycled via a closed system (cell saver) and drugs can be given intra-operatively to reduce bleeding.

## Catheters

All patients having scoliosis surgery will have a urinary catheter under anaesthetic. This is to allow the careful monitoring of urine output and means urination is not necessary for its duration. The catheter is removed as soon as possible. A nasogastric tube may also be placed in the nose to the stomach to stop gas building up in the stomach...see below

## Lines

Under anaesthetic the anaesthetist will insert tubes into veins to give fluid and monitor fluid balance. A temperature probe may also be inserted orally or rectally and a line in an artery to

monitor blood pressure. In some cases a larger line (central line) may be placed in the neck veins. All these lines are gradually removed in the first few days after surgery.

### **Drains**

These are inserted during surgery to drain any excess blood that may collect after the operation has finished. In anterior surgery a chest drain may be inserted. Normally they remain for 24-72 hours depending on how much is drained. They are not always used.

### **Complications**

Because scoliosis surgery is so extensive the complication rate is not zero and because cases vary the rates are very different. For example, an elderly patient with medical problems having extensive revision surgery is at greater risk than a fit and well teenager having an operation it is therefore important to discuss these on an individual basis.

It is also important to note that most complications (although a setback) can be treated and have no effect on long term outcome. The chance of therefore being worse in the long run is very small indeed. In broad terms the complications include:

1. Infection – in adolescents the rate is less than 1% but higher in adults and much higher in neuromuscular scoliosis where incontinence is a problem.
2. Paralysis/nerve damage – very rare with modern techniques
3. Bleeding – inevitable, but transfusion requirement reduced with modern techniques
4. Metalwork problems – see 'Instrumentation' on this page – malposition, breakage
5. Failure of fusion (pseudarthrosis) – metalwork failure, poor environment e.g.smoker
6. Post-operative ileus
7. Medical problems

Complications specifically relating to anterior surgery are noted on the anterior surgery factsheet although the above also apply.

Finally, it is important to emphasise that the surgery is usually very successful and that the pros and cons can only really be addressed face to face with your surgeon. No patient is the same as another and all treatment has to be individualised.