Scoliosis

Scoliosis is a sideways curvature in the spine, although the deformity is usually in 3 dimensions and not 2. Deformity in the sagittal or side-on plane is known as a kyphosis (forwards) or a lordosis (backwards). Technically, a scoliosis curve has to be more than 10 degrees to be officially described as a scoliosis. Scoliosis can be separated into structural or postural scoliosis.

Postural scoliosis is very common and usually caused by pain e.g. a disc prolapse. When the pain goes it corrects and the spinal column is structurally normal. Sometimes a postural scoliosis remains despite treatment of the painful problem but this usually responds well to physiotherapy.

Structural scoliosis is best classified according to its cause – although in the vast majority there is no known cause and this is therefore known as idiopathic scoliosis:

1. Idiopathic Scoliosis
2. Degenerative scoliosis
3. Neuromuscular Scoliosis
4. Congenital Scoliosis
5. Post-traumatic scoliosis
6. Scoliosis due to connective tissue problems
7. Syndromal scoliosis

In a short help sheet it is not possible to be comprehensive and treatment should always be indivualised. The links page on this site suggests some helpful resources, but no single source is comprehensive.

Idiopathic Scoliosis

This is described as early v. late onset or infantile v. juvenile v. idiopathic. It is surprisingly common although the vast majority of patients need no treatment or do not realise that they have a curved spine. Observation is the mainstay of treatment in most patients and bracing or plasters are sometimes used. Surgery is reserved for those curves that are symptomatic or are at high risk of becoming symptomatic because of the size that they have reached. Although not too much emphasis should be placed on actual sizes of curves and when one should intervene, generally any progressive or symptomatic curve greater than 40 degrees may be considered for surgery. This of course depends on a multitude of other factors including sex, age, position of curve, spinal balance and stage of development which is why decision making together with frank open discussion is needed before embarking upon surgery. Unfortunately, many patients take untreated moderate or large curves into adulthood and then develop significant problems. Exact data on this is not well known, but it is considerably easier to treat a flexible curve of smaller magnitude than to treat a stiff one of large

magnitude later in life. For details on the management of the adult with scoliosis visit www.adultscoliosis.com. In children, excellent websites for information include the scoliosis research society www.srs.org. In the UK, the scoliosis association is updating their site but it should be online soon.

Figure 1 – an adolescent idiopathic scoliosis treated aged 15

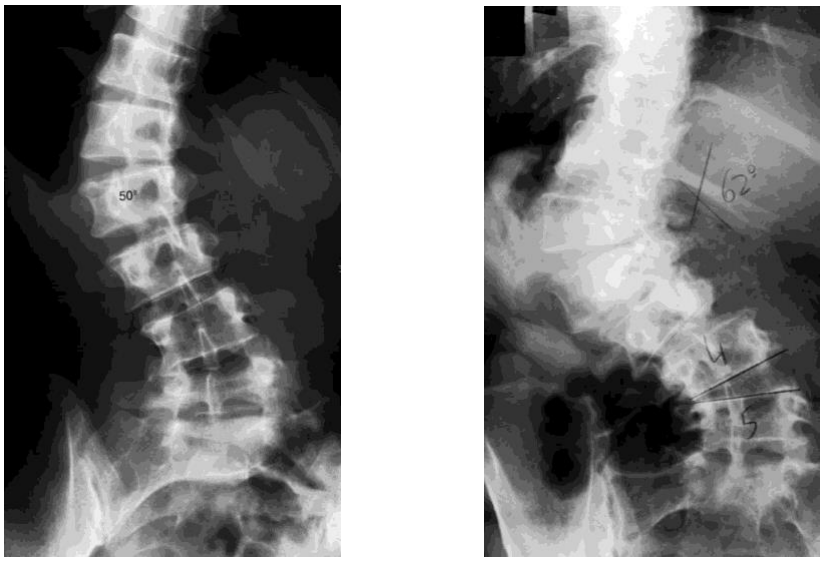

Figure 2 – progression from age 18 to 46 of an untreated adolescent curve

Degenerative scoliosis

This occurs in adults and is by far the most common group, resulting in pain from spinal collapse and osteoarthritis as well as nerve compression causing leg problems. It is due to the uneven collapse of the discs and facet joints in the lumbar spine resulting in slipped vertebra and a crooked spine. It is often a lot worse on standing and becomes increasingly apparent from the age of 50. MRI has a limited role in diagnosis which is why standing xrays are mandatory in this age group if the patient presents with spinal stenosis. For further and detailed information on this disabling common but treatable condition visit www.adultscoliosis.com.

Neuromuscular Scoliosis

This occurs due to problems with the nerves or muscles in the body and can therefore affect anyone that has a problem with these. Nerves can affected from the brain (e.g. cerebral palsy) down to the spinal cord (e.g. polio). If the muscles do not work e.g. spinal muscular atrophy or Duchenne muscular dystrophy then a scoliosis can also develop.

This problem needs a multi-disciplinary approach from neurologists as well as the spinal surgeon. In Bristol, Mr Harding has close links with the physicians at the Children's hospital and performs regular Neuromuscular Scoliosis clinics. Often wheelchair modification can help greatly but in some patients surgery can be of great benefit, but again needs a full multi-disciplinary team to decide if and when it should be performed together with parents and patients.

Congenital Scoliosis

This is a scoliosis that develops before birth due to a defect in the formation of the spinal column. Either, pieces are missing or segments fail to separate leading to asymmetry and a curved spine. Sometimes it is picked up on a prenatal scan but can sometimes go unrecognised into adulthood. If a large curve develops, progresses or becomes symptomatic then treatment in the form of surgery may be needed. Sometimes the abnormality can be removed. But more recently growing systems have been placed to indirectly treat the problem and allow the spine to grow before definitive surgery is performed.

Others

Other types of scoliosis are less common. Sometimes, one may develop after a fracture or in the presence of a connective tissue disorder e.g. Marfan's syndrome. In some rare syndromes e.g. neurofibromatosis, Rett's scoliosis develops and this may be described as a syndromal scoliosis. Again, specialist advice and treatment (if needed) is mandatory.