Spinal Stenosis

Stenosis is a term meaning narrowing and in the context of the spine it refers to a narrowing of the space available for the nerves as they pass along the spinal canal and leave the spine. It can either affect the main bunch of nerves as they pass down from the brain or the individual nerves as they leave the spine. Pressure on the nerves in the neck can cause arm or leg problems, whereas pressure below this cannot affect the arms. The most common area one sees spinal stenosis is in the low back and this will be discussed here. Cervical stenosis is addressed I another help sheet.

Spinal stenosis is most commonly seen in older patients who have degenerative changes in their spine resulting in collapsed discs and enlarged facets +/- slips (spondylolisthesis). If it is in younger patients then there may be an anatomical cause for this e.g. being born with a narrow canal, short stature. Anything that protrudes into the spinal canal and causes pressure on a nerve theoretically causes spinal stenosis and strictly one could therefore say a large disc prolapse or a spinal tumour causes spinal stenosis, but generally the term is used to describe patients with degenerative changes in the lumbar spine.

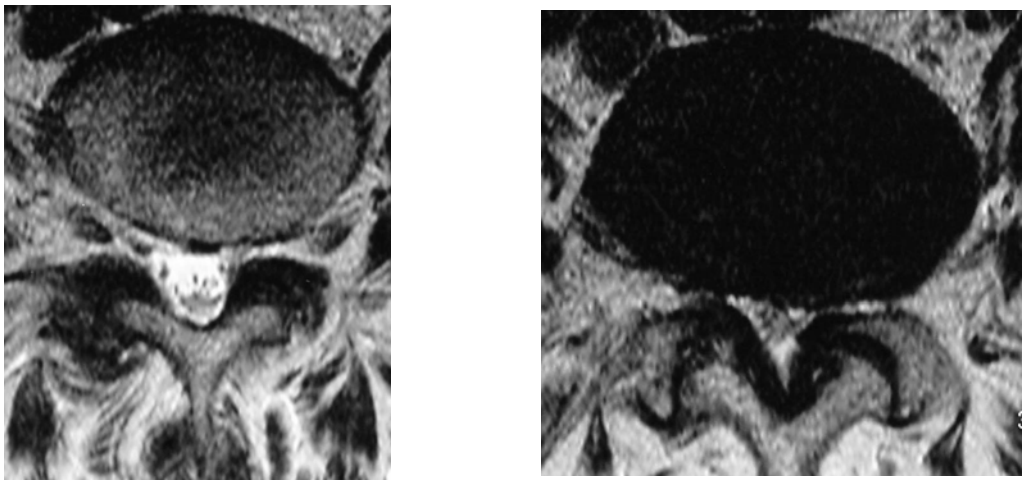

Figure 1 showing capacious canal on left and narrowed stenotic spine on right. On the left the whit spinal fluid with black dots (nerves) is clearly seen but on the right they are obscured by the bulging disc and enlarged joints.

History

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The usual symptoms are of pain or heaviness in the legs. This may be permanent caused by constant pressure on the nerve, but more usually is made worse by standing or walking when it is termed spinal claudication. After standing

or walking for a period of time the legs may feel heavy, painful or weak and the patient will need to sit, lie or lean on something to bend forward. Bending forward opens up the space in the spine for the nerves and gives symptom relief, but as soon as motion starts, the symptoms come on again. It is therefore often very disabling. An important distinction needs to be made between this and vascular claudication where the pains are due to circulation problems and this will be assessed in the clinic and with further investigations if necessary. Patients with spinal claudication often find cycling easy as they are leaning forward and may have no problems if they are pushing a trolley for example.

Examination

Neurological examination is often normal, although if any abnormalities are picked up then further investigation is mandatory. The pulses should be checked to ensure there is a good circulation and the spine examined to rule out any deformity. The presence of degenerative spinal deformity together with spinal stenosis is significant and careful attention should be made to the treatment options available as simple decompression may be inadequate.

Investigation

MRI will be arranged if indicated to confirm the diagnosis. Standing xray is mandatory in older patients and when deformity is suspected, especially as the MRI scan is taken lying and does not represent the standing position of the spine. If there is any question mark regarding the MRI scan – which sometimes occurs in spinal stenosis – then a CT should be organised together with a myelogram where a dye is injected into the back. This enables a thorough evaluation of the nerves in the back when you are standing and helps surgical planning.

Treatment

If the symptoms are encroaching on lifestyle then treatment is indicated. Non-operative treatments include using a walking frame with wheels, painkillers and injections. There is no evidence that there is any long term benefit from epidurals but they may have a role in pin-pointing the diagnosis and in mild stenosis affecting the nerve roots the benefit may be sustained.

The mainstay of treatment for this problem is surgical if the symptoms warrant it. The specific treatment depends on the exact site of compression, whether the problem is dynamic (and made worse by the spine collapsing or moving when you stand), the presence of spinal deformity and the overall health of the patient. Surgery should always take the pressure off the nerve. This can be either directly by removing the impeding structures of in some cases, indirectly by inserting an

interspinous spacer. In cases where there is deformity or instability then concomitant fusion +/- correction of spinal deformity may be required. Information on all these procedures is available on the treatment page.