

LIFELINE



Figure 2
Oblique view of the lumbosacral spine showing the "scotty dog sign" in spondylolysis

A bone scan may diagnose stress or acute pars fracture and can be helpful in certain situations. A bone scan will define how recently the pars fracture occurred, and may influence how the pars defect is treated. For instance, with a recent onset of pain and a hot bone scan, the pars defect may have a chance to heal like a typical fracture.

Treatments

Conservative Treatment:

i. Activity modification and therapy

The first line of treatment includes rest, activity modification, and anti-inflammatory medications. In patients who are involved in hyperextension activities, the offending activity should be stopped. In addition, hamstring stretching should be employed. Physical therapy for abdominal and gluteal strengthening helps to stabilise the mobile junction through secondary support. Many children will improve with these conservative measures because the irritation decreases and the tissues have time to heal. Although the slip is still there, the patient may feel markedly improved. The chance of having a recurrence of pain depends on the amount of slippage. The higher the degree of slippage, the greater the chance of recurrence.

ii. Brace

A brace is indicated in patients with an acute pars defect (as defined with a hot bone scan), in patients with significant pain, and in patients who are not improving after activity modification and therapy. The brace can either be an orthosis that encompasses the spine and pelvic brim (TLSO-thoraco lumbar sacral orthosis) or may include a thigh cuff (TLSO with thigh cuff). The brace works to limit the motion across the area of the slip or the pars defect. This allows the tissues to heal and decreases the irritation in the offending structures. The thigh cuff helps to reduce lumbosacral motion when locked by immobilising the pelvis.

Operative Intervention:

i. Indications

An operation is indicated in patients who have recalcitrant pain despite conservative measures; in patients with significant neurological deficits (rare); in patients with a worsening neurological deficit; and in patients with a high-grade slip.

ii. Levels

In patients with slips from 0 to 50 per cent, fusion of the one level involved is usually undertaken. In higher-grade slips, two levels usually are required for fusion. Because of the high degree of slip, not enough bone surface exists between the two levels involved to achieve a fusion; therefore, the level above needs to be included (Figure 3).

iii. Anterior/Posterior or Posterior Only

The classic fusion for spondylolisthesis is through the back of the spine only. In certain situations, adding a procedure from the front of the spine may allow better correction and increased fusion rates.



Figure 3 Radiographs illustrating the post-operative lumbar spine x-rays of a case of L5S1 spondylolisthesis. In this case, fusion is performed from L4 to S1 using titanium interbody cages and pedicle screws