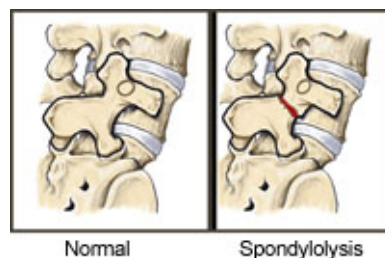




Stress Fracture Pars Inter-articularis

What is it?

A fracture in the spine which occurs as a result of repetitive strain, not a single traumatic incident. It is thought that some children have a genetic weakness at this site and that the combination of weakness and repetitive stress (caused by movements and sports which extend and rotate the back) can lead to this defect. It can occur on one or both sides of the vertebra. It usually occurs at the lowest lumbar vertebra (L5) but may occur at L4 or rarely higher. Other names for a stress fracture of the pars interarticularis are pars defect or spondylolysis.



Normal

Spondylolysis

What are the symptoms?

Children with pars inter-articularis stress fractures usually present with pain in the lower back which may be on one side or both. The pain may radiate into the buttock region. It is typically worse with bending backwards. Other activities which may increase the pain include: prolonged standing, running, bowling at cricket, serving at tennis and back-flips in gymnastics or diving. The pain usually comes on gradually rather than with a single incident.

Who gets it?

Children who play sports which require lumbar extension and rotation are most at risk. That is, sports such as gymnastics, diving, cricket and tennis. Some children may be at risk because of a genetic weakness. It commonly occurs in adolescents.

Stress Fracture Pars Inter-articularis (cont.)

How is it diagnosed?

Findings on physical examination will often make the doctor or physiotherapist suspect a stress fracture. To confirm the diagnosis however, further investigations are usually required. These include X-rays of the lumbar spine, a bone scan and a CT scan to determine the stage and healing potential of the fracture.

What is the treatment?

The treatment will depend on the stage of the fracture and its healing potential. Treatment options include;

- rest from provocative activities for 6 - 12 weeks
- use of a back brace to prevent extension movements of the back
- physiotherapy to strengthen the abdominal and back muscles and to correct factors such as posture which may have contributed to the injury
- gradual introduction of sporting activity
- observation during the growth spurt to ensure condition does not worsen

What is the prognosis?

With appropriate treatment and preventative measures, most children's symptoms resolve and they are able to resume their previous sporting activity. In some children, who have stress fractures on both sides of the vertebra, one vertebra can slip forward on another. It is impossible to predict who this will occur in, therefore all children with defects on both sides should be observed, especially during the adolescent growth spurt. Despite most children having complete resolution of their pain, some fractures do not unite. The CT scan is useful for determining the likelihood of the fracture uniting. Most children with un-united fractures however, get complete resolution of their pain.



Management of Stress Fractures in the Pars Inter-articularis

- Rest from sport

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- Physiotherapy

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- Modified Boston Brace



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- Further investigations required

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- Plan for return to sport

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- Next review date

