

Dr Paul Annett
'The Sporting Spine'

www.orthosports.com.au

29-31 Dora Street, Hurstville



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ORTHOPAEDIC & SPORTS MEDICINE SERVICE

Dr Paul Annett
Sport & Exercise Medicine Physician

- Dennis Keith Lillie
- Overcame ‘career threatening’ stress fractures 1973
- Terrorized POMS ’74/75 Ashes
- World record 355 Test wickets



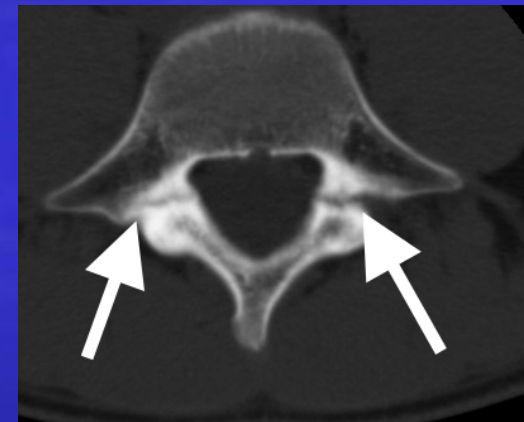
Pars Interarticularis Injury

- Confusing!
- Spondylolysis, pars defects, stress fractures, spondylolisthesis,



Spondylosis

- ‘bony defect of the pars interarticularis of the neural arch’
- Spectrum from acute to chronic
(Including pars defects)
- Bone stress > spondylosis
- The ‘ice cream’ container theory



Pars Stress Fracture

- L5 most common – 85%. L4 – 10%. Others
- Younger/Adolescent athletes
 - Back pain is common
 - Consider when not resolving
- Extension related activity
 - Gymnastics
 - Fast bowling
 - Active teenagers



Why Adolescents?

- Neural arch vulnerability
- 90% height = 60% peak bone mass
- Incomplete ossification of the neural arch
(Occurs by mid-20's)
- Increased disc elasticity > more stress on the neural arch
- Increased load = increased bone stress



Stress Fracture - History

- High index of suspicion
- Adolescent athlete
- Unilateral
- Extension related sport and pain
- Worsens with activity and improves with rest
- Back pain not resolving



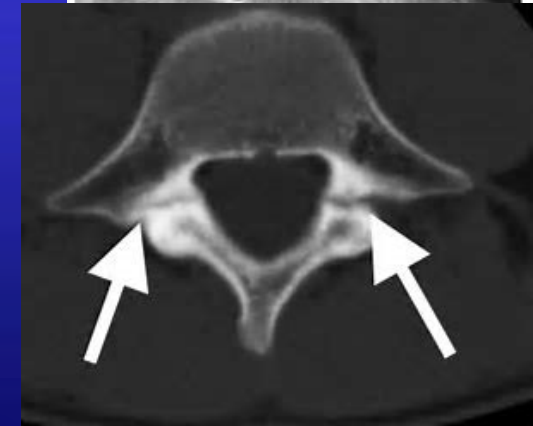
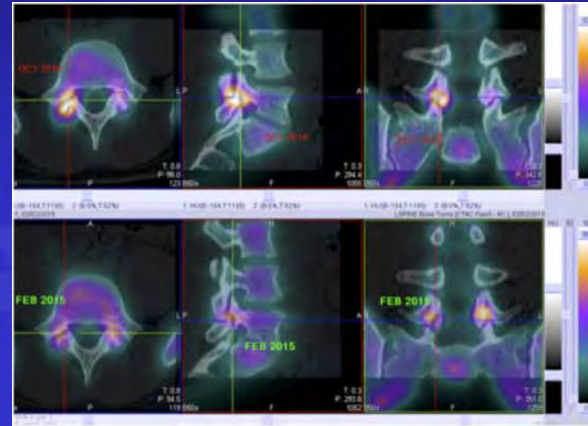
Stress Fracture - Examination

- Pain with extension
- ‘Stork test’
- Unilateral palpation
- Lumbopelvic stability
- Morphologic features



Stress Fracture - Imaging

- X-ray
- Bone scan/SPECT
- CT
- MRI
 - T1 VIBE sequences



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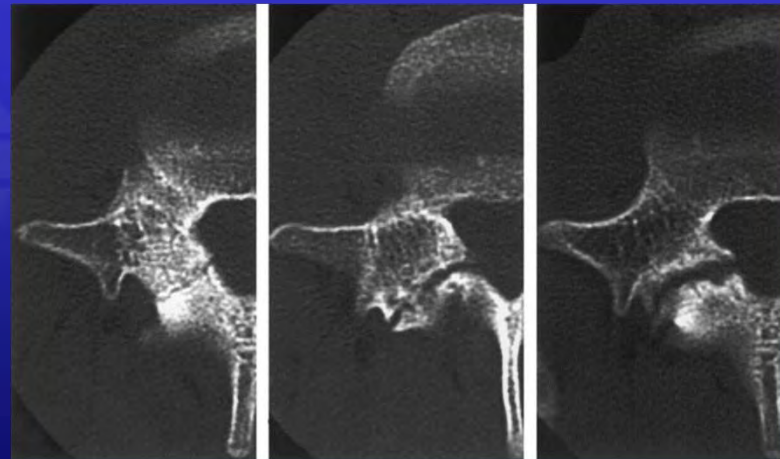


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Stress Fracture - Treatment

- Healing if possible (Moriata)
 - Early : 75%
 - Progressive : 40%
 - Terminal : <5% (sclerosis & widening)
- Unilateral vs bilateral
- Early diagnosis essential



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Stress Fracture - Treatment

- Rest!
 - Outcome favourable 80-90%
- How long?
 - Typically 3 months
 - Follow-up imaging. CT/MRI
- Should we brace?
 - Limited evidence



Stress Fracture - Treatment

- Avoid extension activity
- Physiotherapy
- Lumbopelvic rehabilitation
- Cross train



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Pars Defects & Spondylolisthesis

- Develop in early childhood (not in neonates)
- Familial predisposition (50% Eskimos)
- Common 1:25 people (4% population)
- Associated with spondylolisthesis
- Often asymptomatic
- Aggravated by extension sports



Pars defects - Treatment

- Rest from aggravating activity
 - Healing unlikely
- Physio/rehabilitation
- Gr1/2 spondylolisthesis settle
- Monitor with repeat X-ray for progression
- Gr 3/4 – surgical opinion



Surgical Management

- Seldom required
- Failure of conservative Rx
- Stabilisation of defects
 - Pedicle screw +/- bone graft
 - Lumbar fusion
 - Minimally invasive techniques
- Excellent Orthosports surgeons!



Case History

- 16 Y.O male RHD cricket fast bowler
- 3 months L sided LBP
- Worse with cricket, improves with rest
- Progressive symptoms
- Pain in ADL's
- Some help with physio



Case History - Outcome

- Positive MRI with bone marrow oedema at left L5 pars
- Advised to rest from all cricket/sport
- Continued LP rehabilitation
- Cross train – cycle/swim
- CT scan at 3 months no bone defect
- Returned to cricket with technique correction



Take Home Message

- Lower back pain is common in adolescents
- Always consider pars stress injury when symptoms not settling or in high risk sports
- Most settle with appropriate rest and rehabilitation
- Prevention involves load monitoring and technique optimisation, especially with cricket fast bowlers

