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Mechanical disorders of the lumbar spine: differential diagnosis

Activity-related lumbar disorders have a multifactorial origin. Diagnostic precision is difficult, and imaging techniques usually have a relatively low specificity. Nevertheless, the clinician is required to make an accurate diagnosis, to choose an appropriate management strategy and to determine prognosis.

Therefore there is a need for a classification of spinal disorders based on simple clinical criteria. With the information gained from the history and examination, clinical syndromes can be defined and used as a basis for a classification which also embraces the concepts that have been described.

Syndromes
- Lumbago (Box 38.1)
- Backache (Box 38.2)
- Sciatica (Box 38.3).

Concepts (Fig. 38.1)
- Dural
- Ligamentous
- Stenotic.

Both syndromes and concepts have to be considered in the context of the normal changes in the ageing lumbar spine.

Box 38.1

Lumbago

Definition

- A sudden attack of severe and incapacitating backache

Mechanism

- Always caused by disc displacement, and thus comes entirely under the dural concept
- A large posterior shift of disc material compresses the dura mater: mechanism is dual; there is a discodural interaction

Symptoms

- Slow onset if the displacement is nuclear: *nuclear lumbago*
- Sudden onset if the shift is annular: *annular lumbago*
- *Articular*: twinges; severe pain during particular positions and movements, especially pain on sitting and on bending
- *Dural*: extrasegmental pain; pain on coughing and sneezing

Signs

- *Articular*: deviation; gross partial articular pattern
- *Dural*: painful neck flexion; limited straight leg raising

Natural history

- Spontaneous cure within 2 weeks in most cases

Treatment

- Hyperacute lumbago: epidural
- Annular lumbago: manipulation
- Nuclear lumbago: bed rest in psoas position; mobilizations–McKenzie techniques; no traction in the presence of 'twinges' or deviation

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Box 38.2

Backache

Definition

- Pain in the lumbar area, with or without radiation in a dural diffuse manner; in most cases pain does not radiate beyond the gluteal folds
- Pain can be acute or chronic, intermittent or constant

Mechanism

- *Acute and recurrent backache*: almost always caused by a discodural interaction, thus symptoms and signs are very similar to acute lumbago, although milder. Dural symptoms and signs are sometimes subtle or even absent. A clear non-capsular pattern or a painful arc during flexion is pathognomonic for a small central disc protrusion
- *Chronic backache*: caused by either a discodural interaction or a lesion of a posterior structure (facet or ligament)
- Differential diagnosis depends on the clinical picture

Symptoms

Discodural backache	Ligamentous postural syndrome	Ligamentous dysfunction syndrome
• Moment of onset is known • Acute: annular lesion • Gradual: nuclear lesion	• Pain comes on gradually • Moment of onset is known	• A hypertension trauma is often present
• Pain intensity is not constant but can fluctuate	• Pain appears during some postures; intensity depends on duration	• Pain is constant during the posture that provokes pain
• Pain is often unilateral but bilateral radiation is possible	• Bilateral and vague pain, seldom radiating beyond the glutei	• Localized and strictly unilateral pain, except in bilateral facet joint lesion • Central pain in lesion of the supra- and interspinous ligaments
• Localization changes: shifting pain	• No change in localization	• No change in localization
• Sometimes dural symptoms	• No dural symptoms	• No dural symptoms
• Twinges?	• Never twinges	• No twinges
• Pain is caused by movements	• Pain is caused by posture, increases with maintenance of posture and disappears during movement	• Pain is caused by posture and increases with maintenance of posture, sometimes with particular movements
• Sitting and bending are particularly painful	• Standing and strolling are particularly painful	• Movements and postures that increase the lumbar lordosis are painful

Signs

Discodural backache	Ligamentous postural syndrome	Ligamentous dysfunction syndrome
• Partial articular pattern	• Full range	• Full range, sometimes pain at the end of range
		• Facet lesions: convergent or divergent patterns
• Sometimes painful arc	• No painful arc	• No painful arc
• Sometimes positive dural signs; pain or limitation of straight leg raising; neck flexion increases the pain	• No dural signs	• No dural signs
• Improvement after manipulation/ traction	• No improvement after manipulation/traction	• No improvement after manipulation/traction

Natural history

- Unpredictable: backache may recover spontaneously, but often does not. Chronic backache in particular shows no tendency to spontaneous cure

Treatment

Acute backache	Recurrent backache	Chronic backache
• Annular: manipulation and prevention (back school) • Nuclear: traction (epidurals)	• Annular: manipulation and sclerosing injections (or back school) • Nuclear: traction and sclerosing injections (or back school)	• Discodural: manipulation and traction • Bruised dura mater: epidurals • Self-reducing disc: back school and prevention; sclerosing injections • Postural ligamentous: sclerosing injections • Dysfunction of posterior structures: triamcinolone/sclerosing injections

Box 38.3

Sciatica

Definition

- Radicular pain resulting from compression of the dural investment of a nerve root
- Pain is limited to the dermatome of the root involved. If there is parenchymatous involvement, the pain is accompanied by paraesthesia, motor and/or sensory deficit

Mechanism

- Radicular compression can result either from a posterolateral disc herniation or from a narrowed lateral recess
- *Discoradicular* conflicts have a typical age of onset and typical natural history
- *Entrapment of the nerve root* in the lateral recess occurs in elderly patients; there is virtually no spontaneous evolution

Symptoms

Discoradicular interactions	**Lateral recess stenosis**
• Young to middle-aged patients	• Middle-aged to elderly patients
• Evolution in the pain localization	• No evolution of the symptoms
• Secondary posterolateral protrusions: ◦ First backache ◦ Then leg ache	• No moving pain
• Primary posterolateral protrusions: ◦ Pain starts in the calf ◦ And moves upwards	
• Dural symptoms	• No dural symptoms
• Spontaneous recovery within 1 year in most cases	• No tendency to spontaneous recovery
• As a rule, sitting and bending are worst, although continuous pain is possible	• Pain on standing and walking, disappears during sitting and forward bending
	• Sometimes pain in prone-lying position

Signs

Discoradicular interactions	**Lateral recess stenosis**
• Partial articular pattern	• Full range or slight capsular pattern due to osteoarthrosis
• Limited flexion, sometimes with deviation	• Sometimes limited extension
	• Pain provocation after standing for a while
• Impaired nerve root mobility: ◦ Positive straight leg raising or L3 stretch	• Normal mobility of the nerve roots; sometimes slight pain at end of straight leg raising
• Often signs of parenchymatous involvement/loss of motor and/or sensory functions, sluggish reflexes	• Seldom signs of parenchymatous involvement
• Diagnostic response after epidural local anaesthesia	• No diagnostic response after epidural local anaesthesia

Treatment

Discoradicular interactions	**Lateral recess stenosis**
• See p. 568	• Back school • Nerve root blocks • Surgery

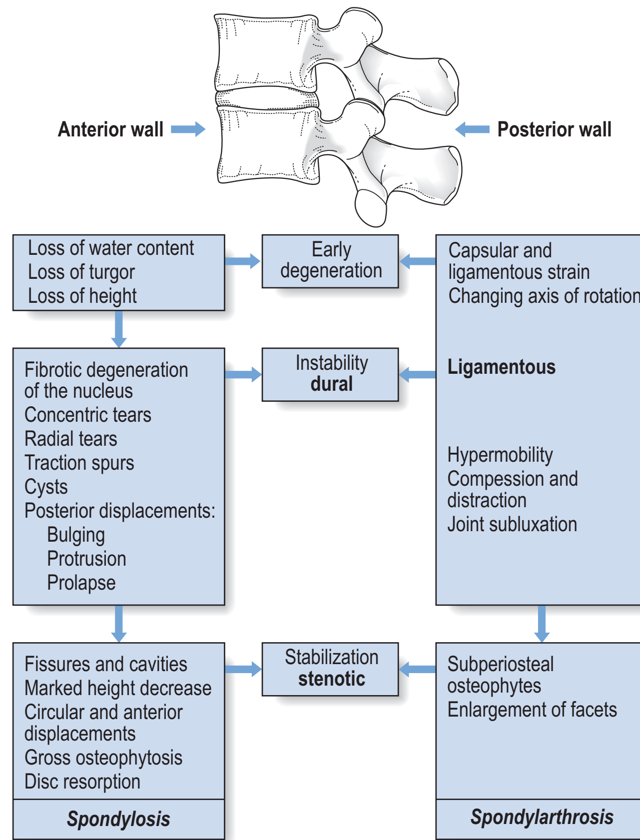

Fig 38.1 • The three clinical lumbar concepts in relation to the natural ageing of anterior and posterior walls of the vertebral column.