

DEFINITIONS

1. **Spondylolisthesis** is the slipping forward of a vertebra and the whole of the spine above it on the one below. Most commonly, Lumbar 5 slips forward on Sacral 1 but Lumbar 4 may slip forward on Lumbar 5 and, very occasionally, the displacement is at a higher level.
2. **Spondylolysis** is the term applied to a lesion of the pars interarticularis in which there is a loss of bony continuity between the superior and inferior articular processes, the deficiency being bridged by fibrous tissue. This lesion frequently precedes spondylolisthesis.

CLINICAL MANIFESTATION

3. The condition may be entirely symptomless but, when symptoms do arise, they are dependent upon the type of spondylolisthesis present. Commonly, the condition presents with low backache and pain radiating into the lower extremities, this being worse on standing and relieved by rest. Weakness and stiffness of the lower spinal column may be present and a deformity is evident when the displacement is severe.

CLASSIFICATION AND AETIOLOGY

4. The following classification – proposed by Wiltse et al in 1976 – is based on aetiological features.

4.1. Dysplastic

The lesion is a congenital dysplasia of the upper sacrum or the neural arch of L5, resulting in insufficient strength to withstand the forward thrust which thus leads to the last lumbar vertebra gradually slipping forward on the vertebra below. The pars interarticularis may remain unchanged but commonly it elongates and, in minority of cases, the pars interarticularis come apart. The slipping generally takes place in adolescence.

4.2. Isthmic

The lesion in this type lies in the pars interarticularis. In the series studied and reported on by Newman, this was the commonest type below the age of 50 years. The male to female ratio was approximately 9:7. With the exception of sub-type 4.2.1 the aetiology is considered to be repeated fatigue micro-fractures over a very prolonged period of time, probably beginning in childhood.

4.2.1. **Lytic**

In this sub-type, there is separation or dissolution of the pars. It is thought to be a fatigue fracture and is the most common type below the age of 50 years. Radiographic studies have indicated that these lesions tend to appear between the ages of 5 and 7 years when it is thought that the beginning of the strenuous activities of childhood produce fatigue fractures through flexion or extension stresses. There is a strong hereditary tendency.

4.2.2. **Elongated but intact pars**

In this sub-type, there is elongation of the pars without separation and this is essentially the same disease as sub-type 4.2.1 above. The pars may in time separate and, in this event, the condition cannot be differentiated from sub-type 4.2.1 above. There is a strong hereditary component.

4.2.3. **Acute pars fracture**

This is always secondary to severe trauma and heredity plays no part in the aetiology.

4.3. **Degenerative**

This type is seldom seen before the age of 50 years and occurs in females 4 times as frequently as in males. It is a specific entity characterised by instability of paired zygapophyseal joints which undergo progressive degeneration, permitting forward slipping of the cephalad vertebra. It is commonly associated with a straight, stable lumbo-sacral joint which puts increased stress on the intervertebral joint between the 4th and 5th lumbar vertebrae, at which level the lesion is most commonly noted.

4.4. **Traumatic**

This type is secondary to severe trauma causing a fracture in some other part of the neural arch than the pars, thus permitting subluxation of one vertebra upon another.

4.5. **Pathological**

This type is rare, the forward slipping being caused by developmental defect as in Osteogenesis Imperfecta, a local manifestation of a general disease as in Paget's Disease or from local disease as in neoplasm.

CONCLUSION

5. **Spondylolisthesis** is the forward slipping of one vertebra on another. The various types and their causes are classified at paragraph 4 above. Flexion and extension stresses may adversely affect the condition once it has occurred.

REFERENCES

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