

## Case reports

## Multiple spondylolyses and spondylolistheses

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Spondylolysis with spondylolisthesis is found in 2-3% of the general population (Zayer, 1982; Magora & Schwartz, 1980). The fifth lumbar vertebra is most often involved and spondylolysis at a higher level is rare. These defects rarely exist in more than one vertebrae in the same individual.

We would like to present a case with bilateral spondylolyses of the third, fourth and fifth lumbar vertebrae in addition to spondylolistheses involving the fourth and fifth lumbar vertebrae. No similar case has previously been reported.

## CASE REPORT

A 53-year-old Eskimo woman living in Greenland, experienced an acute atraumatic attack of pain in the lower back, 30 years ago, while walking on even ground. She described it as though something had struck her in the back; the pain was so severe that she was unable to walk for one hour.

Following this she experienced lower back pain periodically but despite it she was able to work normally in an old people's home without any specific treatment till 1982.

By that time she was suffering from chronic lower back pain and right-sided sciatic pain. Clinical investigation revealed palpable "steps" in the lower back from the fourth lumbar to the first sacral vertebra and pain when the right leg was raised straight. No other neurological symptoms were found. In her family her deceased mother had had back trouble and two out of four brothers and sisters had a long history of lower back pain and verified spondylolisthesis.

*Radiological findings*

Radiological investigation demonstrated spondylolisthesis and osteochondrosis at two levels, between LV4/5 and LV5/SVI in combination with spondylolysis at three levels, from LV3-5.

The spondylolysis at LV4 had a radiological appearance suggestive of pseudoarthrosis (Figs 1A, B) (X ray of the chest and thoracic vertebrae confirmed lumbarisation of SV1).

## DISCUSSION

Wiltse et al, (1976) classified the types of spondylolysis and spondylolisthesis. The most common type, below the age of 50 years, is the isthmic-lytic type. The spondylolysis is due to a separation or dissolution of the pars interarticularis of the neural arch, eventually permitting a forward subluxation, spondylolisthesis, of the involved vertebra. Early theories regarded spondylolysis as a congenital defect, considering that two ossification centres in the neural hemiarch had failed to fuse, causing the defect in pars interarticularis (Willis, 1931). More recent embryological and clinical studies have failed to substantiate this theory (Rowe & Roche, 1953; Stewart, 1953; Wiltse, 1962). Current consensus favours an acquired lesion originating some time between infancy and early adult life, the



FIG. 1A.

Lateral view of lumbar spine demonstrating both the spondylolistheses and the spondylolyses (see text).

isthmic-lytic spondylolysis being a non-healed fracture in the neural arch (Nathan, 1959; Wiltse et al, 1975). This theory fits well with this case report. Multiple spondylolistheses are very rarely seen in a Caucasian population, and only a few cases have been described in medical literature. The following authors report cases of multiple spondylolyses, but none as extensive as those presented in this paper, where spondylolyses were present in three lumbar vertebrae, two of which also showed marked spondylolistheses.

Privett and Middlemiss (1975) report the radiological and clinical findings of a patient with bilateral spondylolyses of three lumbar vertebrae but without spondylolisthesis.

Ravichandran (1980) presents six cases, all with spondylolyses in two lumbar vertebrae. Only one of these patients had spondylolisthesis as well, and all but one had a history of back trauma. Friberg (1939) includes in his monograph, based on 290 patients with spondylolysis and spondylolisthesis, five cases of multiple spondylolyses and another with spondylolistheses of the fourth and fifth lumbar vertebrae.

The frequency of spondylolisthesis in Eskimo populations is surprisingly high in Alaska (Kettelkamp & Wright, 1971), Canada (Mebs & Wilson, 1962) and in Greenland (Kalbak et al, 1972). Kalbak found

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FIG. 1B.

AP view of lumbar spine (see text).

spondylolisthesis in 34% of adult Greenlanders in a radiological survey covering 295 Eskimos. These reports also indicate a high incidence of multiple spondylolyses and spondylolistheses. Why these conditions are approximately ten times more frequent among Eskimos than Caucasians is still unanswered. Further studies of Eskimos could possibly give more information about the cause and nature of these defects in the lower back.

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