DIRECT REPAIR OF STRESS FRACTURES IN THE LUMBAR SPINE

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Spondylolysis - the prelude to spondylolisthesis - is currently thought by many Orthopaedic Surgeons to represent a fatigue fracture in the pars interarticularis of the affected vertebra and although it is not a commonly recognised sports injury so many cases have been seen in the past few years that the matter was thought worthy of presentation.

In weight lifting repeated stresses are applied to the lumbar spine increasing with the amount of the lift and increasing even more with errors in technique and it is repeated trauma rather than a single incident which leads to fatigue fractures both in metal and in bone. This point is emphasised by the number of dock workers in the series who often lift heavy weights repeatedly and in the wrong way - much more so, in fact, than the weight lifters!

An operation to repair the defects by internal fixation and bone grafting is described - - treating the condition like any other ununited fracture. Fig.1 shows how the screw passes through the lamina across the defect and into the pedicle and is supported posteriorly and laterally by bone chips from the iliac crest, care being taken to keep clear of the facet above and well as the nerve root in front. Twenty six cases have been operated on to date with one failure and two re-explorations for screw removal and at both these operations solid fusion of the defect was demonstrated. The following three cases are typical of the series in their results but have some interesting individual details.

Case 1. An Army P.T.I. with a history of repeated minor back trouble culminating in a prolonged attack which led to the taking of X-rays. In Fig.2 three fractures are seen namely at L 3 healing, at L 4 healed and at L 5 recently immobilised **and** grafted.

Fig.2

Fig.3

Fig.4

The condition of the 3rd and 4th vertebrae was confirmed at operation. Figs 3 & 4 show antero-posterior and oblique views for screw position.

Case 2. Figs. 5 & 6 show lateral views of a 4th lumbar vertebra immediately after screw fixation and two months later. Even in this short time the gap has disappeared and fusion has taken place and when the projecting screw was removed at three months the solidity of the repair was confirmed.

Fig.5

Fig.6

Case 3. The defect in the 4th lumbar vertebra has a cystic appearance rather like a fractured carpal scaphoid. Figs. 7 & 8 show the preoperative state and Fig. 9 confirms early healing and the partial disappearance of the gap and one month. The patient played amateur cricket and football within six months.

Fig. 7

Fig. 8

Fig. 9

Fig. 10

The following three cases show that surgery is not always required:-

Fig. 10 A professional footballer who had a single attack of backache four years ago and no further trouble.

Fig. 11 A regular Amy P.T.I. and later school games master who first had backache at the age of 63 which settled with simple conservative measures.

Fig. 11

Fig. 12

Fig. 12 a professional colleague with a single figure golf handicap who played rugby for his University – he admits to occasional backache!

And finally – a member of B.A.S.M. who only required operation 10 years after his X-ray was taken and whose postoperative treatment is illustrated in Fig. 13.

Fig. 13

Full details of the operative procedure are in press elsewhere.