WEDGE RESECTION FOR SCOLIOSIS

ROBERT ROAF, LIVERPOOL, ENGLAND

The history of the treatment of scoliosis is largely one of extravagant claims which later experience has failed to substantiate. It is, therefore, with some diffidence that I put forward a new operation for the correction of this deformity. This paper is, unfortunately, no contribution to the far more important problems of etiology and prevention; it claims only to describe a good way of correcting severe, progressive uncompensated scoliosis.

Until recently the most popular way of trying to correct scoliosis has been by some form of transection jacket (Risser 1948). Although considerable cosmetic improvement is often obtained, the correction is usually more apparent than real in so far as the mobile transitional parts of the curve are straightened but the central fixed portion is unaffected (Figs. 1 and 2). Obviously the rational approach to the problem is to excise a wedge of bone from the apex of the curve—much as in the correction of a pes cavus. The operation described here differs considerably from excision of a hemivertebra (Royle 1928, Lackum and Smith 1933, Wiles 1951). It can be used both in the lumbar and in the thoracic regions. It is rational in that it achieves correction in the fixed part of the curve by a direct attack on its apex. The operation itself is relatively straightforward—certainly no more severe than the average antero-lateral decompression for Pott's paraplegia. It has been done sixteen times without any special hazards or complications, and on occasions correction of 90 degrees has been obtained. Illustrative radiographs are shown in Figures 3 to 10.

TECHNIQUE OF OPERATION

The essence of the operation consists in making an incision over the transverse processes on the convex side of the apex of the curve. The scapular muscles and longitudinal spinal muscles are split longitudinally; the deep oblique spinal muscles are detached from the
Case 1. Figure 3—Before operation. Curve 64 degrees. Figure 4—After wedge resection. Curve 18 degrees.

Case 2. Figure 5—Before operation. Curve 117 degrees. Figure 6—After wedge resection. Curve 50 degrees.
Case 3. Figure 7—Before operation. Curve 68 degrees. Figure 8—After wedge resection. Curve 10 degrees.

Case 4. Figure 9—Before operation. Curve 116 degrees. Figure 10—After wedge resection. Curve 70 degrees.
laminae, transverse processes and the inner ends of the ribs. The two laminae, transverse processes and the medial ends of two ribs are exposed (Fig. 11). The ligaments holding the medial ends of the ribs are divided and the medial three inches of two ribs are removed. The intercostal nerves are identified. The corresponding pedicles and laminae are nibbled away, the dura is exposed, and the vertebral bodies are well displayed as they are rotated towards the surgeon (Fig. 12). With a small gouge or burr and nibbling forceps the intervertebral disc space and adjacent wedges from the vertebral bodies are excised (Figs. 13 to 15). The resulting cavity is packed with a haemostatic agent and the wound is closed.
A plaster jacket including the arm and leg on the concave side is applied, securing as much correction as possible: the use of an Abbott’s frame is helpful. When the plaster is dry it is wedged open by stages until maximal correction is obtained.

Recently, at the suggestion of Mr. H. J. Richards, we have been using a transverse incision which appears to give better access than the original longitudinal incision. Also, in some of the older patients, we have removed more bone including a spinous process and part of the opposite lamina. Although this makes correction easier there is a risk of making the spine too unstable and it is too early to say whether or not this extended operation is an improvement.

**COMMENT**

Although the operation itself is not unduly difficult it requires a very competent anaesthetist. The corrective jacket must be fitted with great care and precision. The necessary correction must be obtained within a reasonably short time, and then the spine is held in the corrected position until the partly resected vertebral bodies have fused together.

**SUMMARY**

"Wedge excision" of the apex of the curve is the rational way of correcting a scoliosis. It is a straightforward procedure which is successful in practice.

**REFERENCES**


