Excision of Mediastinal Neurogenic Tumour

48

Mediastinal neurogenic tumours lie mainly in the paravertebral region at any level in the chest, and are usually incidental radiological findings. They should be removed because they may extend through an intervertebral foramen and compress the spinal cord (Fig. 48.1). Rarely, they may develop into a sarcoma. CT and MRI scanning is valuable in determining whether the tumour has extended into the spinal canal. If so, the operation should be preceded by a laminectomy to remove the intraspinal extension. If intraspinal extension is missed and only discovered at operation, an emergency laminectomy is necessary, because oedema and vascular thrombosis affecting the residual portion of tumour may rapidly cause spinal cord ischaemia.

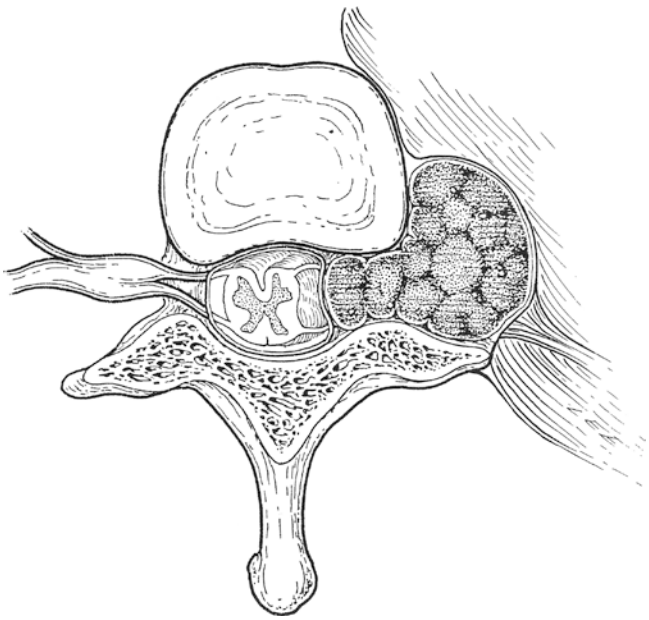

Fig. 48.1 The mass may extend through an intervertebral foramen and compress the spinal cord

48.1 Procedure

With the patient in the lateral position, a posterolateral thoracotomy is performed. Usually the rib space overlying the middle of the tumour is opened, but for lesions at the apex an incision in the fourth intercostal space is more suitable. The lung is deflated by the anaesthetist and retracted gently to the side.

Next, the parietal pleura is incised around the margins of the tumour. These tumours are frequently quite vascular and therefore as much dissection as possible should be carried out with diathermy and with regular application of ligaclips. Even when there is no intraspinal extension, the tumour is firmly fixed and its mobilization may be difficult. Traction is best achieved by passing three or four heavy thread sutures on a large needle through the tumour and collecting all the ends in a single haemostat (Figs. 48.2 and 48.3).

The ideal plane of dissection is deeper than may at first be apparent. The layers of compressed tissue surrounding the tumour should be picked up and incised serially until the yellow surface and whorled fibres of the tumour can be clearly seen. As the tumour is freed, additional thread sutures are passed through it to increased traction. The numerous vessels that enter the tumour should be identified without damaging them, coagulated and divided (Fig. 48.4).

Because many of these tumours arise from the sympathetic chain, which spreads out over the surface of the tumour, it is often helpful to divide this structure below the tumour and exert traction on its upper end.

The azygos vein must be kept in view and protected on the right side, as must the aorta on the left. The dissection proceeds centripetally all around the tumour until finally only its attachment in the region of the intervertebral foramina remains. The tumour may have extended into several foramina, which hold it firmly, and must be dislodged

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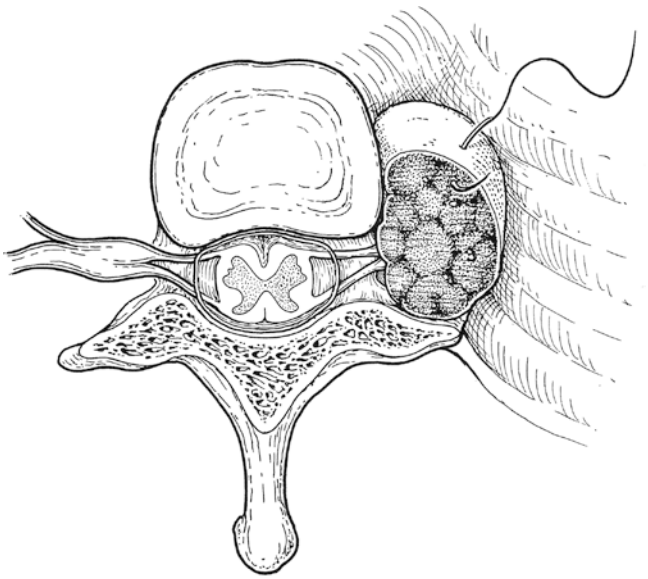

Fig. 48.2 Placement of traction sutures through benign lesions

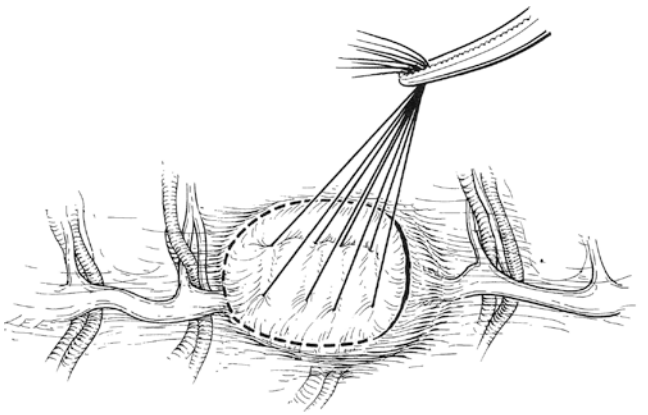

Fig. 48.3 Several traction sutures can be gathered together to allow gentle retraction

partly by instrumental dissection and partly by blunt dissection using pressure with the index finger. The assistant is warned to exert gentle traction to avoid tearing the tumour or the veins passing through the intervertebral foramen. With care these veins can be identified and secured with a clip as they leave the tumour. Each intervertebral foramen is treated in the same way in turn, and the tumour finally lifted out.

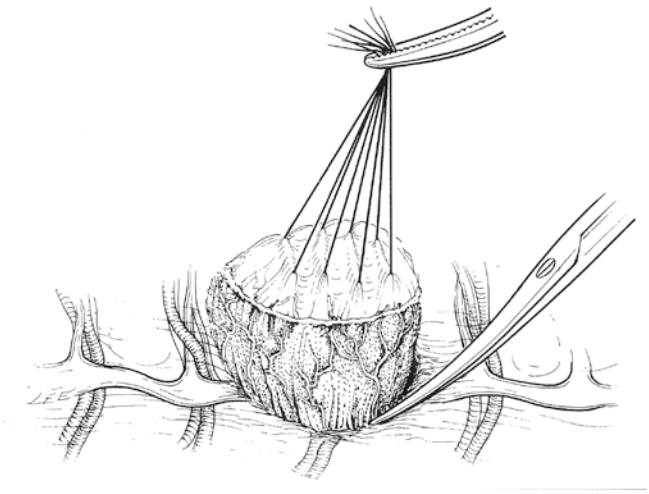

Fig. 48.4 The numerous vessels that enter the tumour should be identified without damaging them, coagulated and divided

Bleeding from an intervertebral foramen must not be treated by blind diathermy or by packing, as these procedures may damage the spinal cord or its blood supply. Bleeding may cease after a piece of oxidized cellulose has been laid in the foramen for 10 min.

Intrapleural haemostasis is now achieved and the incision closed after the insertion of a single pleural drain and re-expansion of the lung.

If there is any possibility of continued bleeding into the extradural space a neurosurgeon should be alerted. Neurological examination of the lower limbs must be carried out every 15 min for 3 h and then hourly for 12 h.

48.2 VATS

Only small tumours without extension into the foramen are suitable. If rib spreading is required to remove these often quite hard and fixed tumours then minimally invasive surgery has little role other than better visualization and teaching.