Module 9: Neurosurgery

The level of detail required in relation to information covered in any individual course will be determined by the makeup of the participant group, with greater discussion of surgical principles and techniques appropriate for a neurosurgical audience. This section may also be expanded to include a discussion of craniocervical junction and intracranial pathology if appropriate for the region and the background of the expected participants in the course.

Case presentation: *Chiari malformation and syrinx in a patient with scoliosis*

Participants should be made aware of the possible association of intradural pathology to deformity and patients presenting with pain and neurological disturbance of the upper and lower limbs.

Lecture: *Chiari malformation and syrinx–clinical relevance and treatment principles*

Discuss the typical clinical features and history of patients presenting with a symptomatic Chiari malformation and outline the relevance in relation to spinal deformity, spine surgery, the development of a syrinx, and neurological dysfunction in the upper limbs.

Review the classification of these disorders and discuss typical imaging investigations and their interpretation.

Discuss differentiating clinical and radiographic features for intradural and extradural pathology as participants of a Principles course should be able to recognize common neurosurgical pathology – Chiari malformation, syrinx, intra and extradural neural tumors.

Also discuss, in general terms, the indications for, and the nature of surgical intervention that may be undertaken.

There is also an opportunity to discuss the place and principles of intraoperative neural monitoring in spinal surgery.

Learning outcomes

- Recognize features of intradural pathology and its relevance in relation to spinal deformity and neurological dysfunction of the upper and lower limbs
- Identify a Chiari malformation and other intradural abnormalities on standard investigations used to assess spinal pathology
- Outline the indications for and interpretation of intraoperative neural monitoring

Lecture: *Intradural pathology–assessment and management principles for AV malformations and tumors*

Review primarily the radiographic features on plain x-rays, CT, and MRI relating to intradural lesions such as AV malformations, congenital defects of the neural tube such as tethered cord, and intradural tumors.

Also review the salient clinical features of these lesions and outline the principles of management.

Participants should be introduced to the concepts in relation to the management of this type of lesion but in most cases referral will be made to neurosurgical colleagues to deal with this pathology.

Also discuss the management of postoperative dural leaks.

Learning outcomes

- Recognize features of intradural pathology and its relevance in relation to spinal deformity, pain, and neurological dysfunction of the upper and lower limbs
- Identify radiographic features of intradural pathology
- Outline the management principles for these conditions
- Recognize and manage common complications such as a postoperative dural leak