

(A Health Awareness Initiative)

NEURO NEWSLINE

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TETHERED CORD (SPINAL DYSRAPHISM) IN CHILDREN - Intraoperative Neuromonitoring

Normally in human beings the spinal cord hangs loose in the vertebral (spinal) canal. The cord is able to move up and down freely with growth, and also on bending and stretching of our body during physical activities. Tethered cord syndrome or spinal dysraphism relates to malformations of the spinal cord which may or may not present with neurological deficits. Here the spinal cord is abnormally attached to the tissues around the spine, commonly at the base of the spine. These attachments cause abnormal stretching of the spinal cord. In these situations, the spinal cord cannot move freely within the spinal canal leading to nerve damage and problems with the child's ability to move freely. Though it is very common in children, at times it can manifest with symptoms in adulthood.

CAUSES

Normally the tip of the spinal cord lies opposite to the disc between the first and second lumbar vertebrae in the upper part of the low back. In spinal dysraphism, for example in a condition called myelomeningocele, the spinal cord fails to separate from the skin of the back during development of the embryo/fetus. This prevents the normal ascent of the spinal cord making the cord stay low or tethered. In children with

lipomyelomeningocele, the spinal cord has fat at the tip along with the thecal sac (the fluid sac in which the spinal cord usually 'floats') which connects to the surrounding tissues or skin. The other causes include a dermal sinus tract, split spinal cord (diastomatomyelia) and a thickened/rigid filum terminale.

adulthood. In such cases, strain on the spinal cord will increase leading to motor and sensory problems, as well as loss of bladder and bowel control. MRI can visualise the spinal cord, nerve roots and surrounding areas including the displacement of the spinal cord and associated lesions. CT scan with myelogram

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SYMPTOMS IN CHILDREN

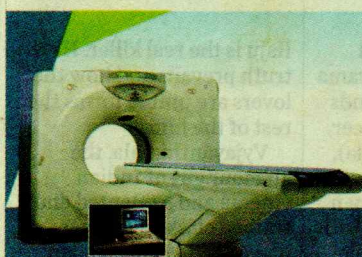
- * Skin discoloration on the lower back
- * Tuft of hair on the low back
- * Lesion or a swelling in the low back
- * Fatty tumour or dimple on the lower back
- * Back pain or leg pain, numbness or tingling in the lower extremities
- * Leg deformity, abnormal gait, decrease in strength in the limbs, scoliosis
- * Urinary incontinence and bowel dysfunction

DIAGNOSIS AND TREATMENT

If this condition is left undiagnosed in childhood, it continues into

and ultrasound of the low back area can be of use in some cases.

Surgery (untethering of the spinal cord) is performed if there are clinical signs or symptoms of deterioration. The cord is usually dissected away and freed from the scarred tissues and attachments that holds or stretches the spinal cord. Usage of intraoperative neurophysiological monitoring leads to safe surgical dissection, though the overall complication rate is upto 2 percent. The child usually resumes to its activities in a few weeks time. However recovery of the lost muscle power and bladder function depends upon the degree and length of the preoperative implications.



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