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Surgery Section

Role of Imaging in Diastematomyelia in a 2-year-old Child

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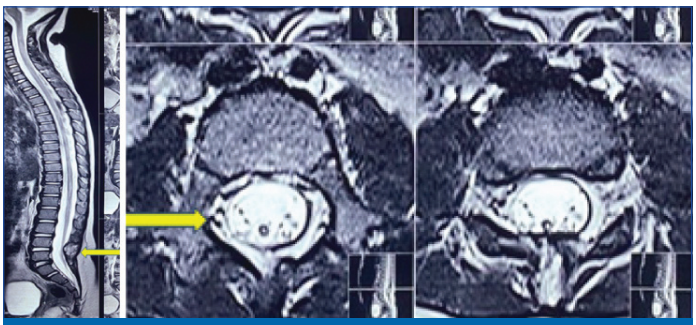
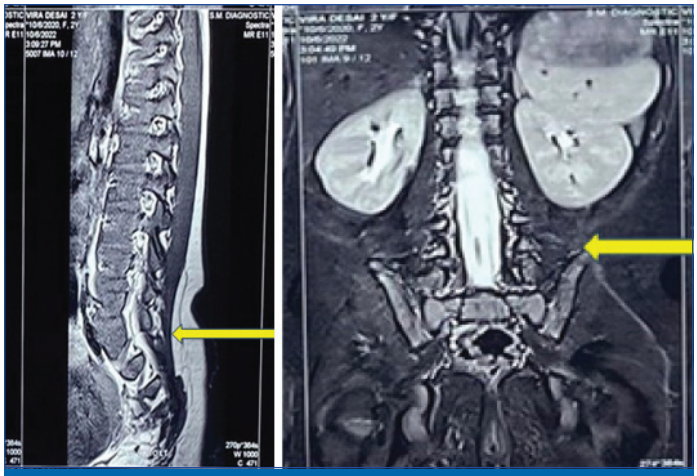
A 2.6 month-old female child was brought to the Surgery Outpatient Department (OPD) with the chief complaints of bladder incontinence, paraesthesia over the lower limb, deformity of the legs, and club foot from the past six months. The mother first noticed symptoms of spinal abnormalities, leg weakness, low back discomfort, scoliosis, and incontinence when she was two years old, but the symptoms began to worsen in the last six months.

The patient's results of routine lab tests were normal, and an Ultrasound (USG) revealed normal kidney size, and her general and physical examinations showed a leg deformity called clubfoot. She was directed to a specialist for a full imaging examination. There was the presence of low-lying tethered cords with the tip of the conus medullaris adherent to the posterior dura at the level of the L5 vertebra [Table/Fig-1,2]. There was a small focal defect seen in the posterior elements of L5 and S1 vertebrae, and the overlying skin, subcutaneous tissue, and posterior paraspinal muscles appeared unremarkable. There was focal diastematomyelia of the lower dorsal and lumbar cord seen at D12 and L1 level [Table/Fig-3,4]. These imaging findings led to a diagnosis of closed spinal dysraphism with a low-lying tethered cord and focal diastematomyelia. Hence, a diagnosis of diastematomyelia was made, and the patient was shifted to surgery. Decompression (surgery) of neural elements and removal of bony spurs with repair of the duplicated dural sacs were performed. The patient was treated with pain management, muscle strengthening and mobility ambulation physical therapy. Patient was kept on follow-up.



[Table/Fig-1,2]: Low-lying tethered cord seen with the tip of the conus medullaris adherent to the posterior dura and small focal defect seen in the posterior elements of L5 and S1 vertebrae. (Images from left to right)

Diastematomyelia, also known as split cord malformation, is characterised by the division of a hemicord into two symmetrical or asymmetrical hemicords, each with a central canal, anterior horn, and posterior horn. In addition, each coating has its own pia layer [1]. Women are more likely to develop the illness, and a lumbar area is a common place. The majority of patients with this condition are experiencing symptoms. The clinical manifestations of diastematomyelia are similar to those of tethered cord syndrome in that most patients present with neurologic disturbances such as back pain, asymmetric reflexes, progressive weakness, muscle atrophy, loss of sensation, paraesthesia, bowel and bladder dysfunction, spasticity, or paresis due to limited space



[Table/Fig-3,4]: Focal Diastematomyelia of the lower dorsal and lumbar cord seen at D12 and L1 level. (Images from left to right)

in the vertebral canal [2,3]. In children, other spinal abnormalities (myelocele, myelomeningocele) and vertebral defects may be present.

Spinal anomalies can be seen more clearly on a Computed Tomography (CT) scan. However, only high-resolution T2-weighted scans can show a fibrous septum. The bony septum is clearly visible using tomodensitometry. Additionally, the new multidetector CT scanning technology may enable greater visualisation of any associated vertebral anomalies on coronal and sagittal reformatted pictures [4]. Magnetic Resonance Imaging (MRI), on the other hand, is the best diagnostic tool for evaluating spinal dysraphisms, since it can better reveal a split spinal cord and the existence of other abnormalities.

According to a study conducted by Gan YC et al., surgical resection of the spur should be done if the patient's neurological symptoms develop; otherwise, patients who are asymptomatic or have no neurological deterioration should be monitored [5]. In a case reported by Thappa S et al ., they first exposed the bony spur and then went ahead with laminectomy of D4-5 and it was removed with the help of a high speed electric drill under with the microscope [6]. Surgery should also be performed if the patient exhibits signs and symptoms that are consistent with a tethered chord. Early surgical intervention may be able to save the spinal cord from additional injury [7].

CONCLUSION(S)

The recognition and diagnosis of a spinal dysraphism can be aided by being aware of certain irregularities, allowing for faster treatment. It is necessary to provide adequate training to the parents and caregivers of such patients in order to ensure that people suffering from this benign entity lives healthy lifestyle.

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