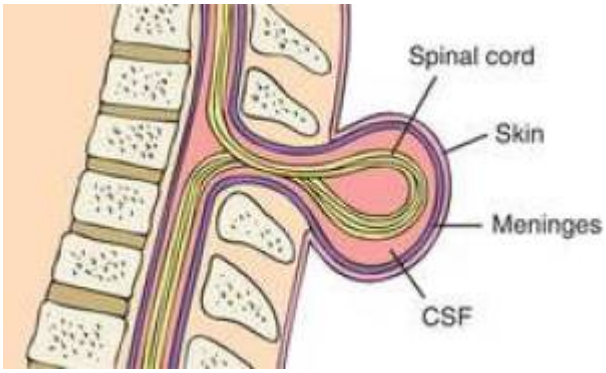
Myelomeningocele (MMC)



Myelomeningocele, also known as open spina bifida, is the most severe form of spina bifida.

Epidemiology

Myelomeningocele (MMC) is the most common neural tube defect.

see also Anterior myelomeningocele

Diagnosis

Myelomeningocele Diagnosis.

Treatment

see Myelomeningocele treatment.

Complications

see Myelomeningocele complications.

Outcome

It is a common birth defect that is associated with significant lifelong morbidity.

In myelomeningocele, the bones of the spine (vertebrae) don't form properly. This lets a small sac extend through an opening in the spine. The sac is covered with a membrane. It holds cerebrospinal fluid (CSF) and tissues that protect the spinal cord (meninges). The sac may also contain portions of the spinal cord and nerves. The sac itself may be opened up either before birth or during the birth.

Myelomeningocele results in significant life-long disabilities, impaired quality of life, and difficult medical management. The pathological progression of MMC involves failure in neural tube and vertebral arch closure at early gestational ages, followed by subsequent impairment in spinal cord and vertebral growth during fetal development. MMC is irreversible at term.

Patients with myelomeningocele have significantly lower health-related quality of life (HRQOL) scores than those with other spinal dysraphisms. History of shunt treatment and Chiari decompression correlate with lower health-related quality of life (HRQOL) scores [1].

Case series

see Myelomeningocele case series.

Case reports

A 12-day-old female, who underwent prenatal MMC repair via a two-layer closure (dural replacement patch, primary skin closure), was born at 34 weeks' gestation. Her Group B streptococcal infection positive mother received appropriate antepartum prophylactic antibiotics. She remained stable until day 11 of life when she underwent rapid clinical deterioration. Despite aggressive intervention, she expired on day 12. Review of placental pathology showed maternal and fetal inflammatory response. Autopsy revealed Gram-positive cocci and inflammation within the basilar leptomeninges and lumbosacral region. Neural and dermal elements were present within the MMC repair. This case documents integration of the dermal matrix patch to neural elements, adhering the spinal cord to scar tissue, the clinical implications of which remain unclear [2].

1)
Rocque BG, Bishop ER, Scogin MA, Hopson BD, Arynchyna AA, Boddiford CJ, Shannon CN, Blount JP. Assessing health-related quality of life in children with spina bifida. J Neurosurg Pediatr. 2015 Feb;15(2):144-9. doi: 10.3171/2014.10.PEDS1441. Epub 2014 Nov 21. PubMed PMID: 25415252.
2)
Edminster S, Wu TW, Van Speybroeck A, Chu J, Lapa DA, Chmait RH, Szymanski LJ. Neuropathology Evaluation of in Utero Correction of Myelomeningocele and Complications of Late-Onset GBS Infection. Fetal Pediatr Pathol. 2022 Dec 7:1-10. doi: 10.1080/15513815.2022.2150528. Epub ahead of print. PMID: 36475417.