

Children with Neurological Dysfunction (**SPINA BIFIDA**)




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Introduction

- ➡ Spina bifida (SB) is a condition that affects the spine and is usually apparent at birth.
- ➡ When the neural tube doesn't close all the way, the backbone that protects the spinal cord doesn't form and close as it should



➡ Spina bifida might cause physical and intellectual disabilities that range from mild to severe.

➡ **The severity depends on:**

- The size and location of the opening in the spine.
- Whether part of the spinal cord and nerves are affected.

Definitions

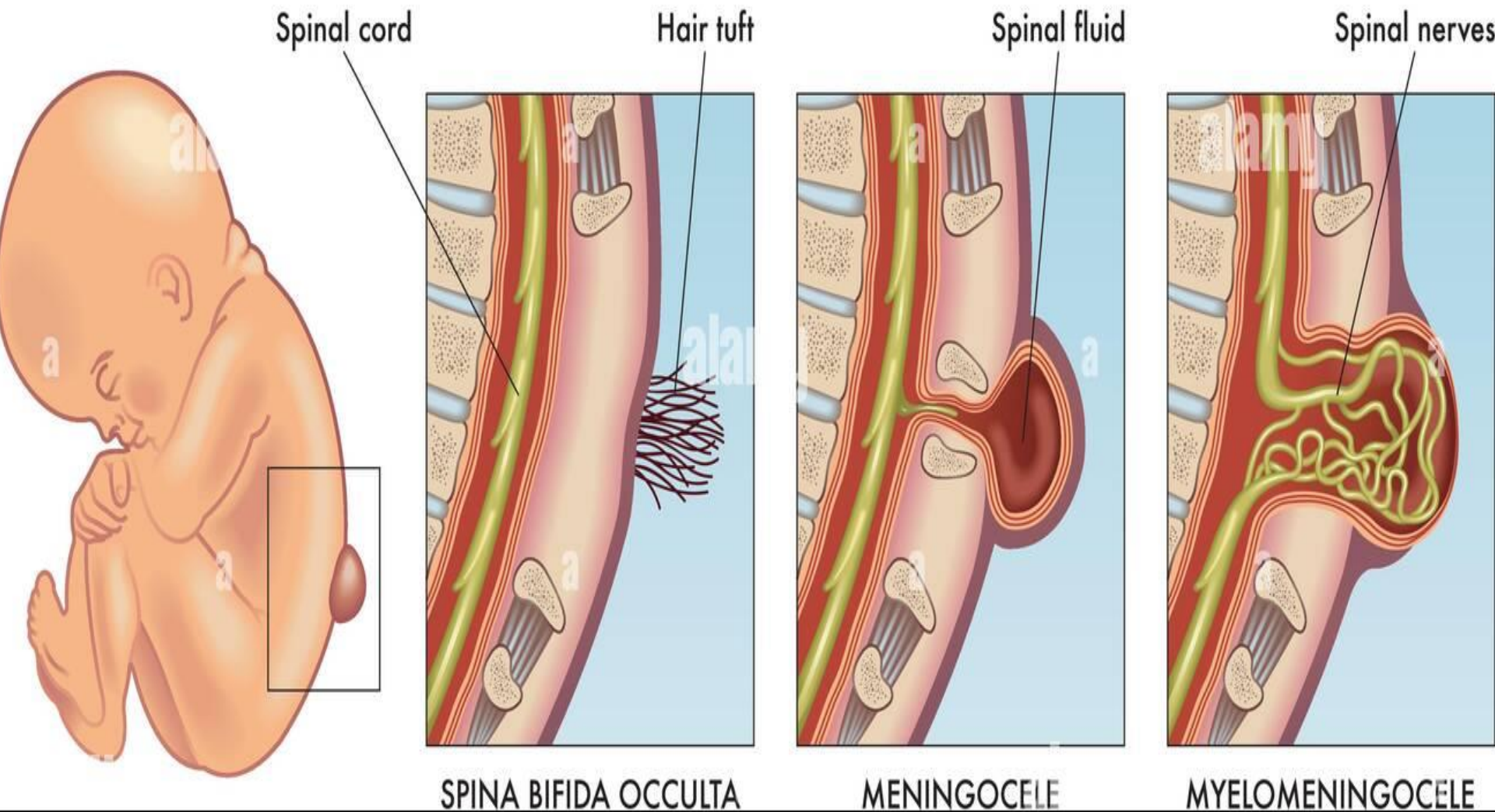
- ➡ SB is midline defects involving failure of the (bony) spine to close .
- ➡ SB is categorized into two types:

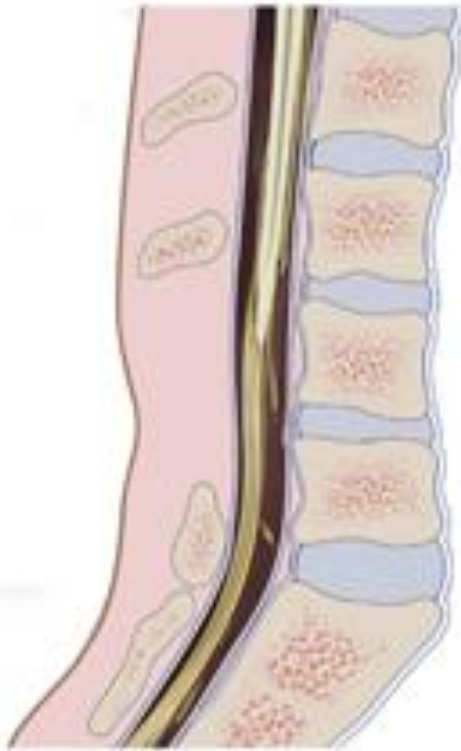
SB occulta and SB cystica.

Definitions

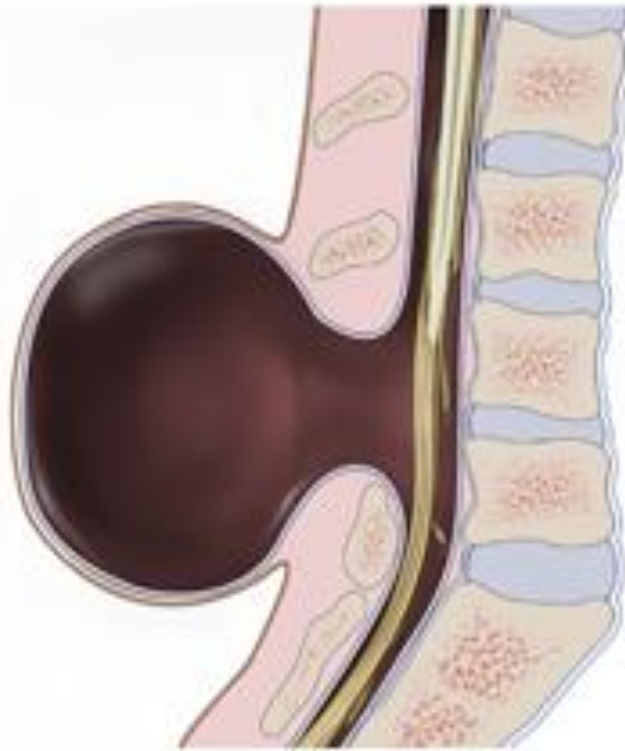
- ➡ SB **occulta** refers to a defect that is not visible externally.
- ➡ SB **cystica** refers to a visible defect with an external saclike protrusion.

TYPES OF SPINA BIFIDA





Spina bifida occulta



Meningocele



Myelomeningocele

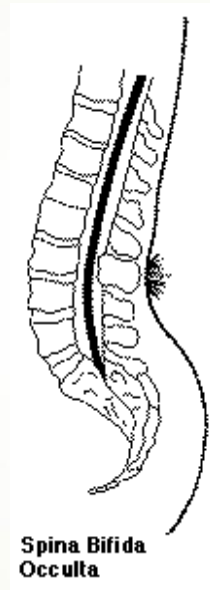
Spina Bifida Occulta


- Spina bifida occulta is the mildest type of spina bifida.

It is sometimes called “hidden” spina bifida.

- Failure of posterior vertebral arches to close, With it, there is a small gap in the spine, but **no opening or sac on the back**. usually not visible externally

Spina bifida occulta



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- The spinal cord and the nerves usually are normal.
 - Many times, spina bifida occulta is not discovered until late childhood or adulthood.
 - This type of spina bifida usually does not cause any disabilities.

Spina bifida cystica:

A defect in closure with external saccular protrusion through the bony spine with varying degrees of nerve involvement. It include :-

- Meningocele
- Myelomeningocele

Meningocele


a form of Spina bifida cystica, consists of a sac like cyst of meninges filled with spinal fluid only.

But, the spinal cord is not in this sac

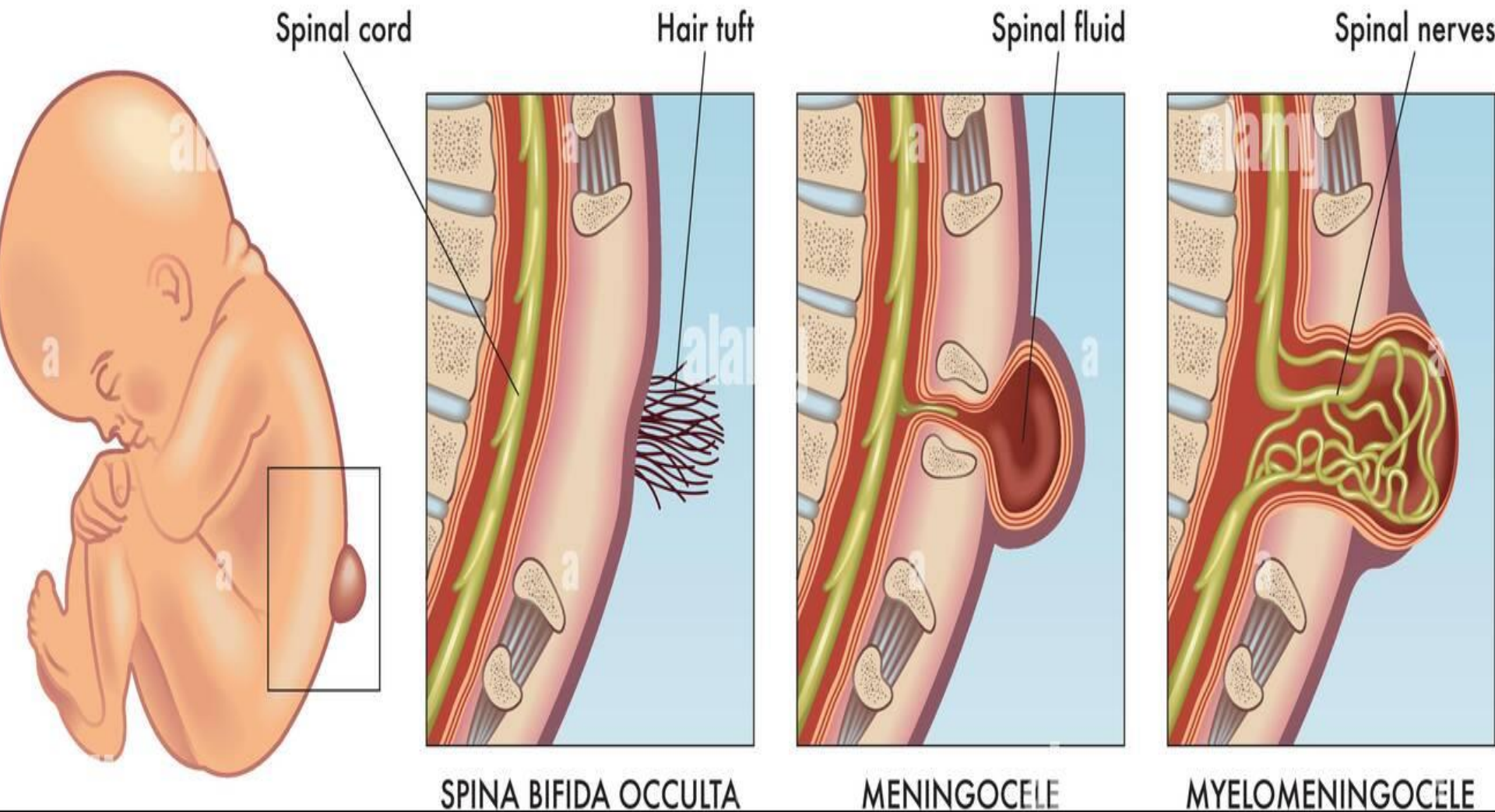
This type of spina bifida can cause minor disabilities.

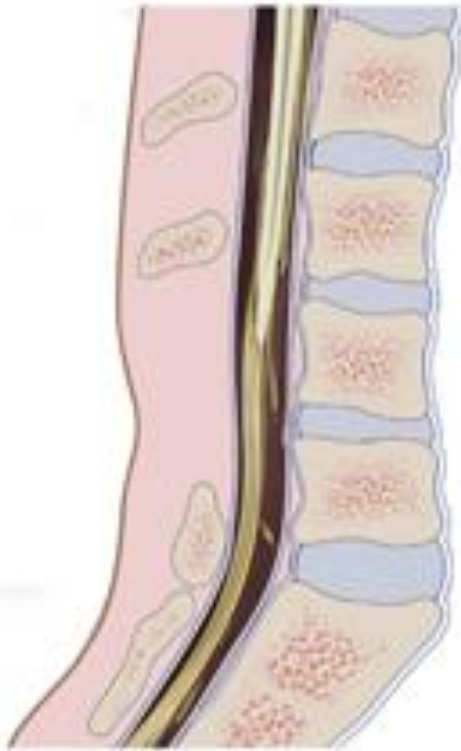
Myelomeningocele

- Myelomeningocele is the most serious type of spina bifida.
- form of Spina bifida cystica consists of hernial protrusion of a sac like cyst containing meninges, spinal fluid and a portion of spinal cord with it's nerves.

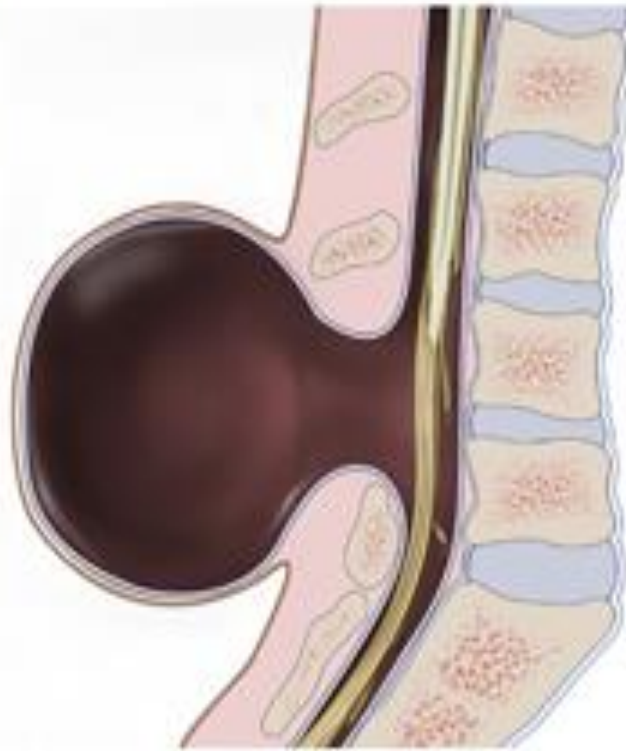
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- ➡ This type of spina bifida causes moderate to severe disabilities, such as problems affecting how the person goes to the bathroom, loss of feeling in the person's legs or feet, and not being able to move the legs.

TYPES OF SPINA BIFIDA





Spina bifida occulta



Meningocele



Myelomeningocele

Spina bifida cystica



Causes

- Unknown – Increase in families, suggest a genetic influence.
- Viral cause
- Radiation or environmental
- Recent evidence supports the hypothesis that neural tube deformity may be caused by the interaction of a genetic predisposition with an essential nutrient deficiency
- (Folic Acid) and that multivitamin containing folic acid taken during the first six weeks of pregnancy will prevent by more than 50% their occurrence

Clinical manifestations

1- Spina bifida occulta

1. Frequently no observable manifestations
2. May be associated with one or more cutaneous manifestations:
3. Skin depression or dimple
4. Port-wine angiomatous nevi
5. Daft tufts of hair
6. Soft subcutaneous lipomas
7. May be neuromuscular disturbances:
8. Progressive disturbance of gait with foot weakness



Clinical manifestations

2- Spina bifida cystica

Sensory disturbances usually parallel motor dysfunction

- Flaccid paralysis of lower extremities
- Varying degree of sensory deficit
- Overflow incontinence with constant dribbling of urine
- Lack of bowel control
- Rectal prolapse some times



Diagnosis

- Evaluation of the sac by translucent light to detect the presence of nerves that suggest = Meningomyelocele
- Plain radiography identify boney defect
- Spinal tomography and myelography

Therapeutic management

- Multidisciplinary approach is needed i.e. neurosurgery, pediatrics, urology, orthopedics, rehabilitation and physical therapy and intensive nursing care in a variety of special areas

There are several different treatments for the various problems spina bifida can cause.

- Initial surgery to repair the spine. ...
- Treating hydrocephalus. ...
- Physiotherapy. ...
- Occupational therapy. ...
- Mobility aids. ...
- Treating bone and joint problems. ...
- Treating bladder problems. ...
- Treating bowel problems.



Nursing considerations

Assessment:

- In the newborn the intactness of the membrane is performed
- Neurological defect and other signs of complications
- Head circumference daily, and fontanelles assessed for tension and bulging
- Vital signs to detect any infection




Nursing Diagnosis:

1. High risk for infection R/T presence of infective organisms and nonepithelialized sac
2. High risk for trauma R/T delicate spinal lesion
3. High for impaired skin integrity R/T paralysis, and unprotected meningeal sac
4. Altered family processes R/T birth of a child with a physical defect

Implementation:

- Place infant on prone position or side-lying with hand extended if permitted to decrease tension on the meningeal sac
- Keep area over the sac sterile and moist to prevent drying
- Give antibiotics as prescribed
- Monitor for signs of infection

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- Monitor urine output to ↓ stases.
 - Ensure adequate oral intake of fluid.
 - Diapers changed as soon as possible to keep skin dry and free of irritation
 - Keep perineal area clean and dry
 - Explain condition to parents
 - Encourage questions and provide answers
 - Encourage participation in care

