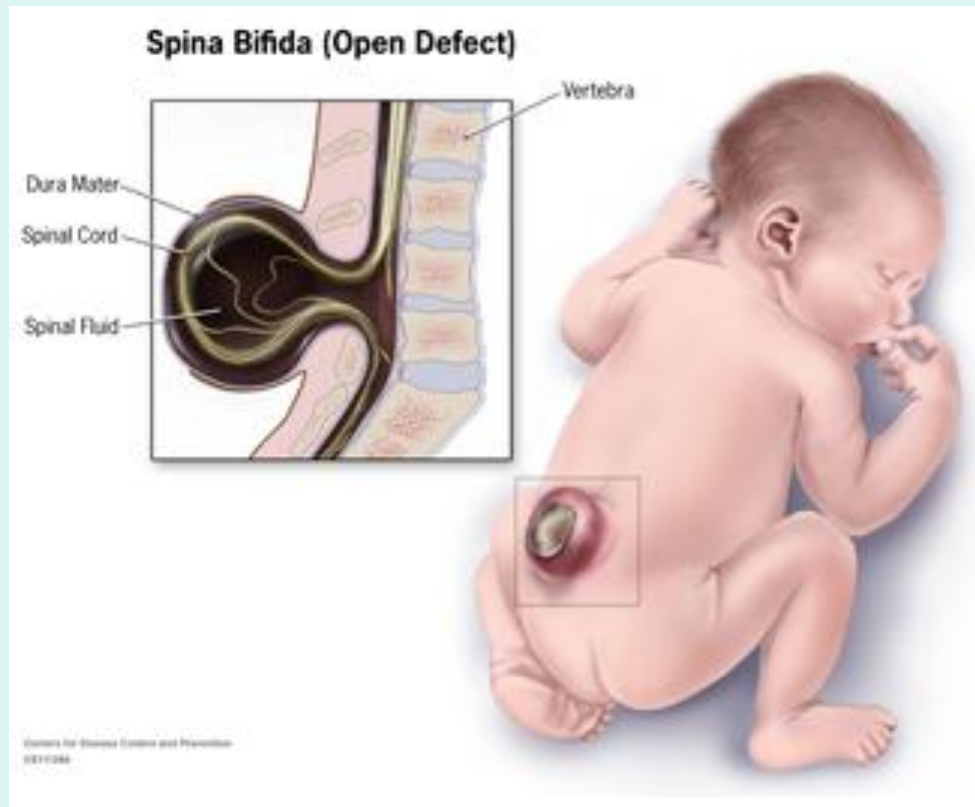


Neural Tube Defect: Spina Bifida



Angel Lee

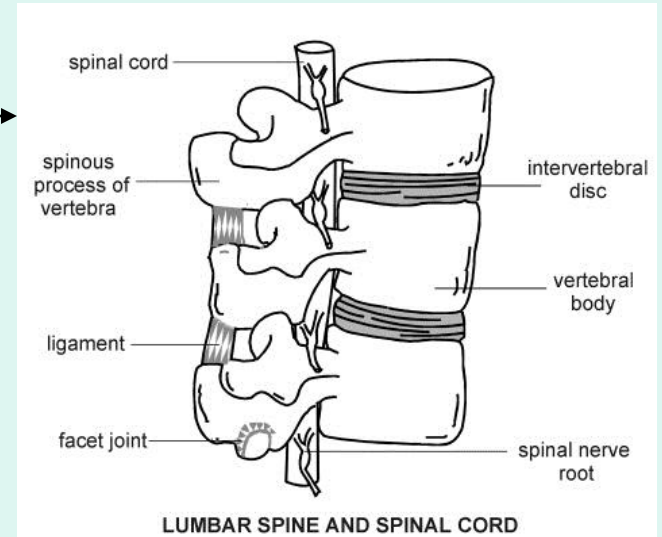
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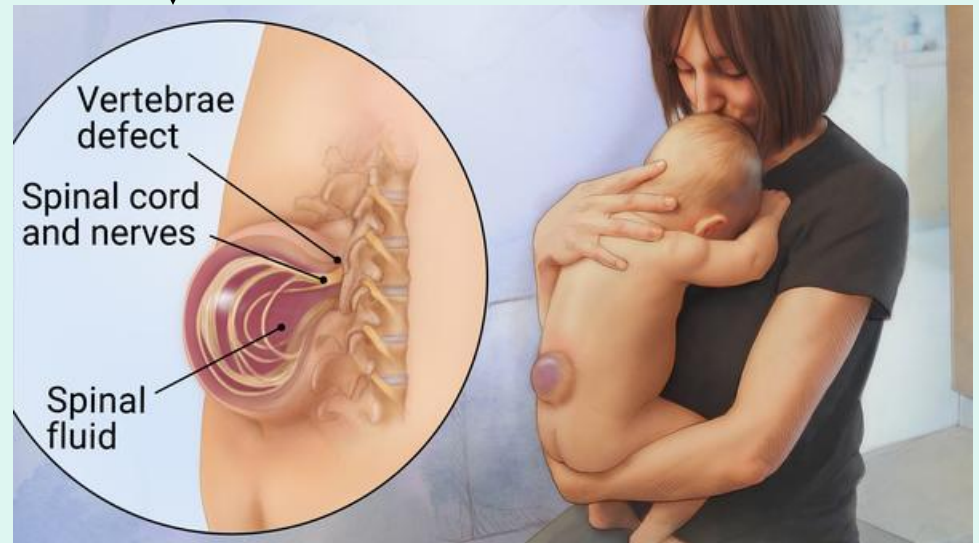
What is “spina bifida”?

- Spina bifida is a type of neural tube defect (NTD).
- It is a condition that affects the spine and is usually apparent at birth.
- It is characterized by “defects in the vertebral arches and in various degrees of disability”.

Normal spine

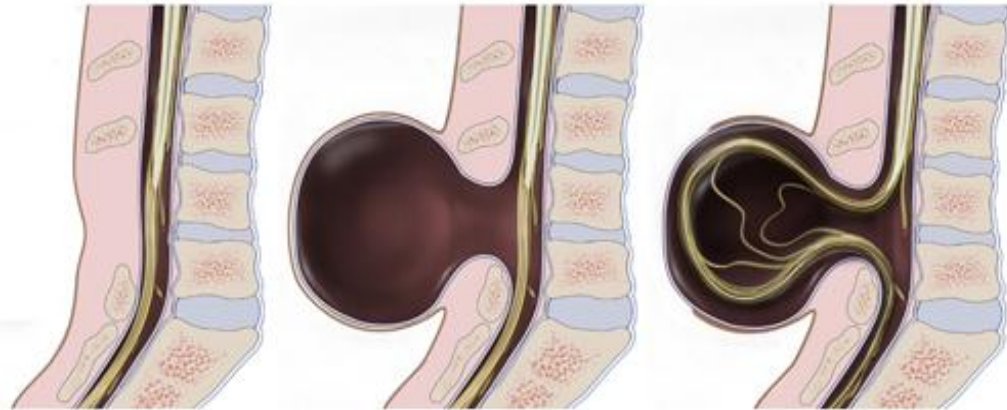


Baby with spina bifida



Types of Spina Bifida

- Categorized into **3 types**, ranging mild to severe.
- The degree of severity depends on:
 - The size and location
 - Whether part of the spinal cord & nerves are affected



Spina bifida occulta

Meningocele

Myelomeningocele

>> Spina Bifida Occulta (mild)

- small gap in the spine; no opening or sac on the back
- spinal cord and nerves are usually normal

>> Meningocele

- a sac of fluid comes through an opening in the baby's back, but spinal cord is not in this sac
- usually little to no nerve damage
- can cause minor disabilities

>> Myelomeningocele (severe)

- a sac of fluid comes through an opening in the baby's back
- part of the spinal cord and nerves are in this sac and are damaged
- causes moderate to severe disabilities

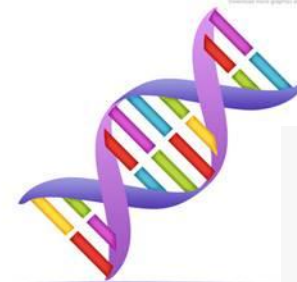
Big Question: At what point in the developmental process can spina bifida occur?

Around the **third - fourth weeks** during the embryonic period of the prenatal development

- Any problems with neural tube formation (week 3) can cause spina bifida, but neural tube does not completely close until 28 days after conception, so spina bifida can occur any time before then

Etiology: Possible Causes

- Exact cause is unknown, but spina bifida is *possibly* due to:
 - Genetics
 - Environment Factors
 - Nutritional Factors
 - Mother's Diet – insufficient intake of folic acid (a common B vitamin)



How does spina bifida impact the patient dentally?

- Spina bifida affects people differently, but common side effects include:
 - hydrocephalus, full or partial paralysis, bladder/bowel control problems, learning disorders, depression, latex allergy, and social difficulties (Kabani and Anderson)
- Patients may also develop stiffness and spasticity of arms or hands = restricted dexterity for brushing/flossing
- Patient may be at risk of bacteremia (blood infection) = may require antibiotic prophylaxis before dental treatment



Figure 4. Side view of the patient. Note the gibbus, for which accommodation must be made so the patient will be comfortable.

Role of Dental Hygiene Team & Special Considerations

- Treat patients and their family members with respect, support, and professionalism.
- Oral Care Considerations:
 - Offer anti-anxiety agent if parent/guardian of patient is concerned about dental anxiety
 - Place a soft bean bag in patient chair to help prevent pressure wounds
 - Conduct EO/IO and document it
 - If patient have gastrointestinal and/or tracheotomy tubes, then they should be placed upright as much as possible to maintain open airway
 - Use of water should be minimized to prevent gag reflex
 - Provide a latex-free environment



References

- Faizan Kabani, and Maria Anderson. "Treating Children with Spina Bifida." *Dimensions of Dental Hygiene*. Belmont Publications, Inc, n.d. Web.
- Fehrenbach, Margaret J., and Tracy Popowics. *Illustrated Dental Embryology, Histology, and Anatomy*. 4th ed., Elsevier, 2016.
- "Spina Bifida." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 17 Oct. 2016. Web.