SPINA BIFIDA Handbook

What is it?

Spina Bifida is a structural defect where the neural tube or casing surrounding the spinal cord fails to develop and close over the cord. This occurs approximately the fourth week of pregnancy. Later in development, the vertebrae fail to form over the defective area of the spine.

- The area where the neural tube fails to close is technically referred to as **mylomeningocele**.
- The baby is born with an open lesion, usually at the base of the spine, which may or may not be covered with skin or a translucent bluish or white membrane.
- This defect can occur at any level of the spine but most frequently occurs in the lower spine area.
- The newborn infant must undergo immediate surgery to repair and close the lesion to prevent infection from occurring. This surgical procedure does not repair the spinal cord but merely closes the open wound.

The **spinal cord** functions like a highway with nerve impulses traveling from the brain down the spine to various organs, skin cells and skeletal muscles. When Spina Bifida occurs **there is an area of interruption of these nerve impulses** producing a roadblock effect.

- Messages coming from the brain to the muscles of the legs are blocked and sensory information coming from the legs to the brain is blocked.

What problems result from Spina Bifida?

There are three categories of primary problems related to the spinal cord defect:

- There is a **loss of awareness of touch, pain, pressure and temperature** below the level of the lesion.

- There is **muscle weakness** in muscles below the level of the lesion. Because the defect rarely reaches the level of the upper back, the muscle weakness is nearly always confined to the lower limbs and lower trunk.

- There is **weakness of the muscles** in the wall of the **bladder and bowel**, which usually result in urinary and bowel incontinence.

- The **degree of severity** in each of these areas varies widely from one child to another depending on the extent to which the spinal cord development is impaired.

Sometimes there is only partial damage allowing some messages to get through to the legs. Thus, some children may be able to walk with the assistance of crutches or braces while another child may require a wheelchair for mobility. This is dependent on the ability of nerve impulses to be transmitted below the level of the lesion.

What is the cause of Spina Bifida?

Spina Bifida was first described more than three hundred years ago by a man named Dr. Tulp. Since that time there have been volumes written on its cause. It is generally considered to be caused by an unknown environmental agent interacting with genetic factors. There is some reference to low folic acid being the culprit. Spina Bifida is not considered to be hereditary

but there is a genetic influence that is expressed by an increased risk of having a second child with Spina Bifida after having a first child with the defect.

What are the associated defects?

- Nearly 70% of infants born with Spina Bifida develop an associated defect known as **Hydrocephalus**.

Cerebral spinal fluid circulates around the brain and spinal cord. This flow may be interrupted due to Spina Bifida. As a result there can be a buildup of fluid in the brain that causes increased intracranial pressure leading to brain damage. Brain damage is avoided by placing a shunt (rubber tubing) leading from the brain down into the stomach to drain excess fluid off, relieving the pressure that is so deadly to brain cells.

Summary

- Mobility is the major obstacle confronting a child with Spina Bifida. Once the child's means for mobility is well established, she/he can function within the classroom fairly normally.

- Intellectual development is normal provided there was no further damage to the brain either by untreated Hydrochephalus or other brain trauma.

- Bowel and bladder incontinence can be managed well as the child matures.

The role of Physical Therapy in Schools:

- To assist the student with Spina Bifida in mobility throughout the school setting, as well as transfers and self help skills when needed.

- To educate students and educators about the limitations and possibilities involved when a person lives with a physical disability.

- To lend support to the school staff by providing necessary equipment, tools and training to enhance the child's access to her education.

- To recommend adaptations insuring accessibility to playground equipment, classrooms, bathrooms and gyms.

- To provide direct therapy as it relates to school and if that therapy will enable the student with Spina Bifida to achieve her educational goals.

- To instruct all staff in safe ways to physically assist a student with Spina Bifida including proper evacuation techniques in case of emergencies.

Reference: Spina Bifida Association

Further Resources:

1. **http://www.kidshealth.org**
2. **http://www.ldinfo.org**