Spinal Accessory Nerve Palsy

What is a nerve?

A nerve acts as a pathway for messages to travel through the body. Nerves connect the brain and spinal cord to other parts of the body and organs. Cranial nerve XI (eleven), also known as the spinal accessory nerve, controls the sternocleidomastoid and trapezius muscles:

- The sternocleidomastoid muscle helps turn your head and flexes your neck.
- The trapezius muscle manages shoulder movement, such as shrugging your shoulders. The trapezius muscle keeps the scapula (shoulder blade) steady to allow a strong base for the use of your arm.

What is Spinal Accessory Nerve (SAN) Palsy?

Palsy is another word for paralysis. Paralysis is often linked with weakness and loss of feeling. Cases of spinal accessory nerve (SAN) palsy related to head and neck cancer is most often caused by cancer treatment, including surgery and radiation.

Nerve injury can happen during surgical treatments, such as lymph node biopsies or neck dissection. Neck dissection is surgery done to remove lymph nodes or tissues from the neck. In neck dissection:

- The nerve may be removed completely along with the submandibular gland (a gland that produces saliva in the neck), the sternocleidomastoid muscle, the jugular vein, and the spinal accessory nerve (to the trapezius muscle). Your neck may look flatter or thinner if the nerve was removed.
- Specific groups of lymph nodes are removed while the spinal accessory nerve, internal jugular vein, or sternocleidomastoid muscle are not always removed. Your neck may not look different, but strength, flexibility, and range of motion will likely be less.

If the nerve is only traumatized, it is possible for it to recover after surgery. If it was cut or removed, it will not recover on its own. The trapezius muscle cannot be strengthened unless the nerve functions to activate the muscle.

In SAN palsy, your nerve does not work properly, which affects how your sternocleidomastoid and trapezius muscles work. Because your muscles are not being used, they atrophy or waste away. Your shoulder may become depressed (drop down) and move forward. This can make it hard for you to raise your arm on the affected side. This lack of range of motion can lead to further complications and pain.

Long-term, SAN palsy can lead to:

- Loss of muscle function.
- Adhesive capsulitis (frozen shoulder).
- Rotator cuff impingement.
- Pain.

These side effects can affect your daily activities and quality of life. It is important that after surgery or radiation you start a treatment plan to manage SAN palsy.

How is SAN palsy treated?
There is no standard treatment for SAN palsy. It is often an overlooked side effect. The best outcomes occur if you start treatment early. The following treatments can be used alone or together:

- Physical and occupational therapy can help strengthen other muscles in your shoulder to help make up for the loss of function of the trapezius. Exercises are also used to regain range of motion, which helps with function and lessens pain.
- Braces can stabilize your scapula. A brace is used to improve your posture, promote the range of motion, and lessen pain.
- Surgery may be needed in some cases of SAN. Surgery options may include:
  - Nerve surgery.
  - Nerve grafting.
  - Nerve regeneration.
- Tendon or muscle transfer may also be an option. This attaches the scapula to your ribs or vertebra to stabilize the scapula and neck muscles.

While being treated for SAN palsy it is important to manage your pain. Talk to your provider about your pain and together you can make a pain management plan. Applying heat or ice in an area where radiation has been given or where you have lost feeling in the skin after surgery is not recommended, due to the risk of a burn or swelling.

If your treatment plan involves radiation and/or surgery, make sure to speak to your provider about the risk for SAN palsy and methods to treat this side effect.

OncoLink is designed for educational purposes only and is not engaged in rendering medical advice or professional services. The information provided through OncoLink should not be used for diagnosing or treating a health problem or a disease. It is not a substitute for professional care. If you have or suspect you may have a health problem or have questions or concerns about the medication that you have been prescribed, you should consult your health care provider.