Nerve Biopsy - Questions and Answers

What is a nerve biopsy?
A nerve biopsy is obtaining a small piece of a peripheral nerve for pathological examination.

What nerve is usually biopsied?
The sural nerve is most commonly used for a nerve biopsy. It is located behind the ankle. The nondominant side, which is usually the left side, is commonly used for this process. Other nerves such as a superficial peroneal nerve, which is located at the front of the shin, can sometimes be used, especially if a piece of muscle is also needed for histological examination along with the nerve biopsy.

Is special preparation needed before a nerve biopsy?
A nerve biopsy is a minor procedure done under local anesthesia. No fasting is required. Anticoagulants, such as Coumadin, should be stopped five days prior to and three days after the nerve biopsy after checking with your referring physician or with your cardiologist. Aspirin, Plavix, and other antiplatelet agents are preferable withheld for five days prior and two days after the biopsy, but even with their continuation, a nerve biopsy can be done with minimal risk of bleeding.

Patients are encouraged to bring somebody to drive them back home.

What does the procedure involve?
After the risks and benefits of the procedure are explained to the patient, the patient is asked to lie down on his or her back and the left leg is positioned. The skin behind the ankle is cleaned with Betadine or alcohol (if the patient is allergic to Betadine), then, the field is covered with sterile towels. The skin overlying the nerve is anesthetized with 1 to 2% Xylocaine using a fine needle. Usually two to three injections are used. With each injection, a brief burning sensation is felt. An incision about 2 to 2 1/2 inches long is made behind the ankle and the skin is retracted. The patient should not feel the incision because the area is already anesthetized. A blunt dissection is used to gently separate the nerve from the surrounding tissue. About 2 inches of the nerve is severed and sent for pathological evaluation.

When the nerve is cut, a brief sharp pain is felt, the patient is usually informed before the nerve is cut.

How is the wound closed?
Using a self-absorbable suture the wound is closed in two layers. The skin is closed using subcuticular suturing. That means that the sutures will not show up on the skin.

When can I resume my usual activity?
For the first 24 hours, the biopsied limb should not be used. The patient is instructed not to walk, and to use a cane to go to the bathroom. After 24 hours and for about three to four days, light activities are allowed such as walking a few steps in the home. After a week, full activity can be resumed if no complications have occurred. The patient is encouraged to move the ankle up and down after the first 24 hours, even if he or she experiences pain to avoid stiffness of the ankle joint.
Do I need to come back to have the sutures removed?
No. These are self-absorbable sutures. However, it may take up to four to six weeks for complete absorption of the sutures. The two ends of the wound might become tender at the end of the healing process. This should not be alarming unless it is associated with bloody or purulent discharge or fever. Mild tenderness usually resolves after the sutures are totally absorbed.

What signs should prompt immediate medical attention?
- Fever or discharge of blood or pus from the wound. These signs may indicate infection.
- Extensive bruises of the involved limb. This may indicate internal bleeding.
- Extensive swelling of the involved limb. This may be caused by bleeding or infection of the soft tissue.

Mild local pain and redness around the wound are usual and should not be alarming.

What should I take for pain?
Mild wound pain is expected after the biopsy. Regular or Extra-Strength Tylenol, one to two tablets every three to four hours when needed, should be adequate. If the pain is severe, you may need to have stronger pain medication.

What are the possible complications from a nerve biopsy?
- Bleeding.
- Wound infection. This is more common in patients who are immunosuppressed with steroids or have diabetes.
- Scarring of the incision. Some patients have a tendency to form a thick scar in the areas of skin incisions.
- Permanent numbness on the outer aspect of the foot. The sural nerve is a purely sensory nerve and once severed a permanent loss of sensation along the outer aspect of the foot is expected. Practically the area of sensory loss or alteration usually shrinks to a much smaller area within a few months.
- Chronic pain of the site of the biopsy occurs in less than 5% of patients.

How can a nerve biopsy help me?
If the indication of a nerve biopsy is well contemplated and if the appropriate stains are performed, there is a good possibility that the nerve biopsy will help diagnose your condition. If nerve inflammation is noted, the report will be immediately sent to your referring physician so he or she can start treating your condition promptly.

Other conditions that can be diagnosed with a nerve biopsy are leprosy, amyloidosis, and inflammation of the blood vessels of the nerve (vasculitis), which can be part of a more
generalized and serious inflammatory condition.