

IS IT SMALL FIBER NEUROPATHY?

SMALL FIBER NEUROPATHY results from damage to the small unmyelinated nerve fibers that connect the pain receptors in the skin to the spinal cord and brain. The condition is diagnosed by demonstrating a reduction in the Epidermal Nerve Fiber Density (ENFD) in a skin punch biopsy. Unlike large fiber neuropathy, the diagnosis is easy to miss, as the sensory examination and EMG and Nerve Conduction Studies are usually normal. The ENFD is reported as the average number of nerve fibers that cross the basement membrane at the dermal epidermal border, over a length of 1 mm.

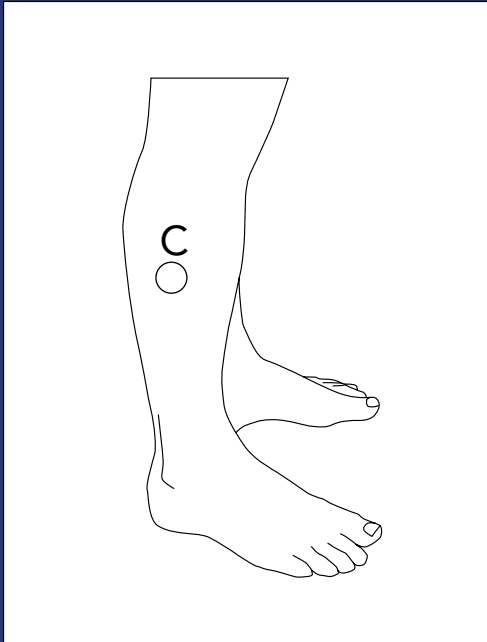
Making the correct diagnosis explains the symptoms, guides the evaluation for the underlying cause, and helps decide treatment.

REASONS FOR PERFORMING A SKIN BIOPSY IN A PATIENT

1. To diagnose small fiber neuropathy.
2. To follow progression of the neuropathy and the response to therapy.
3. To participate in clinical trial studies where skin biopsy is used to assess normal or abnormal status of subjects.
4. To provide documentation, for purposes of insurance coverage, to support recommended treatments .
5. To confirm the diagnosis of sensory neuropathy in a patient with a compatible clinical presentation but normal electrodiagnostic studies.
6. To differentiate between length-dependent neuropathy, ganglionopathy, or multifocal neuropathy.
7. To diagnose vasculitic neuropathy that also involves the skin.
8. To diagnosing amyloid neuropathy in a patient with amyloid skin deposits.

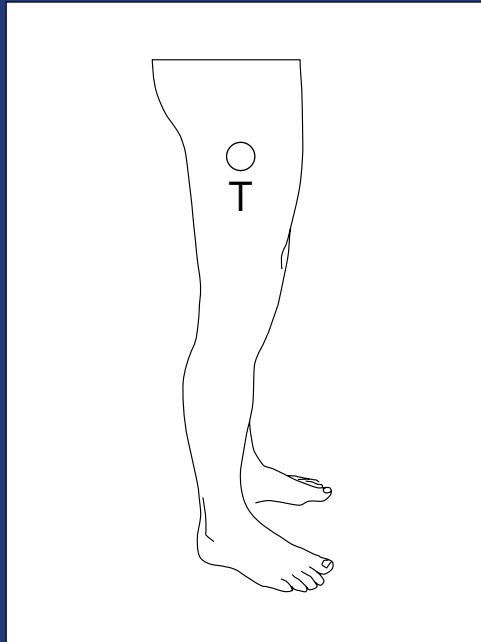
BIOPSY SITES

CALF



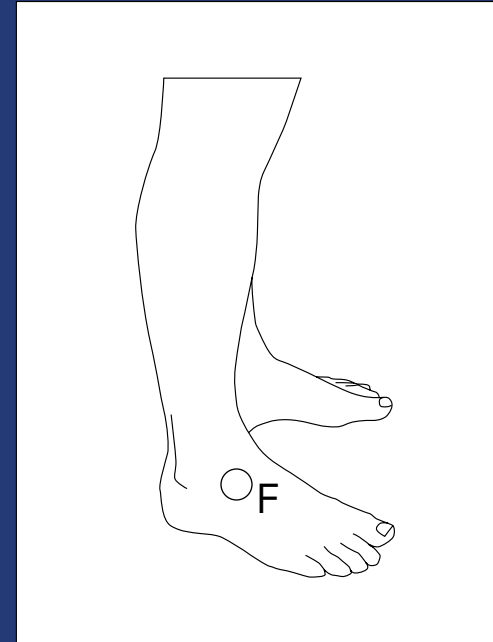
C = Calf, 10 cm above the malleolus

THIGH



T = Thigh, at the level of a pubis

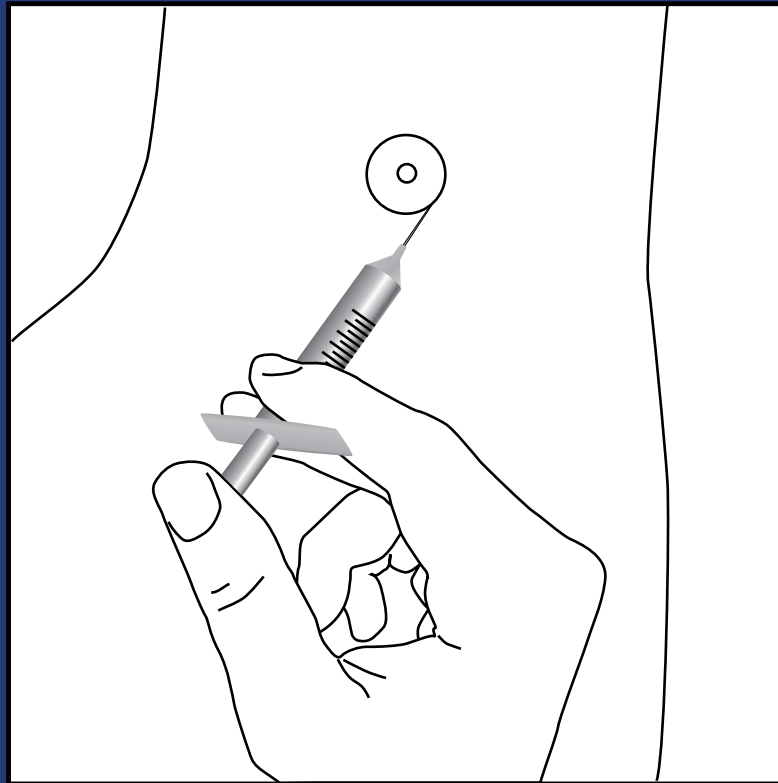
FOOT



F = Dorsum of the foot, at the extensor digitorum brevis muscle

In suspected small fiber polyneuropathy, skin punch biopsies are routinely done at the lateral calf (10 mm above the lateral malleolus), the thigh (at the level of the pubis) and the dorsum of the foot (at the extensor digitorum brevis muscle). If focal or compressive neuropathy is suspected, the biopsy can be done at the affected region, and compared to the corresponding region in the unaffected foot, as control.

BIOPSY PROCEDURE



Make a 1 cm circle around the biopsy site. Clean the skin with an alcohol swab. Anaesthetize the skin with 2% lidocaine with epinephrine, by injecting the edge of the circle but avoiding direct contact with the site of the biopsy.



A 3 MM PUNCH BIOPSY IS USED, with a depth of 3 mm. Therapath will supply the biopsy kit, including the punch biopsy, fixative vials, and self-addressed shipping container.

SAMPLE COLLECTION

Optimal analysis of the biopsy requires the sample size to be at least 0.3cm in length. This is approximately half the distance of the metal head on the punch tool.



- Before performing the biopsy, check the expiration date on the fixative/transport media vial to ensure that it is viable.
- Push the tool, with rotational motion and even pressure, into the epidermis to the mid point on the head of the punch tool.



LIFT THE EDGE OF BIOPSY with anaesthetizing needle or forceps, and free the biopsy from attached underlying fatty tissue using forceps or scissor. Forceps should never contact the upper layer of the skin, but only the underlying tissue, as it might destroy the nerve fibers.

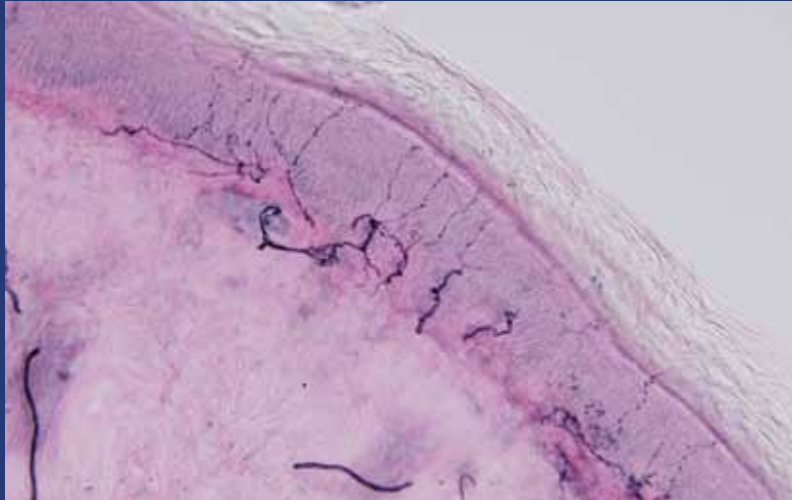


- Place one sample in each vial and verify that the sample is floating in the fixative before sealing the vial securely.
- Label the vials with the appropriate patient identifiers and body site location.

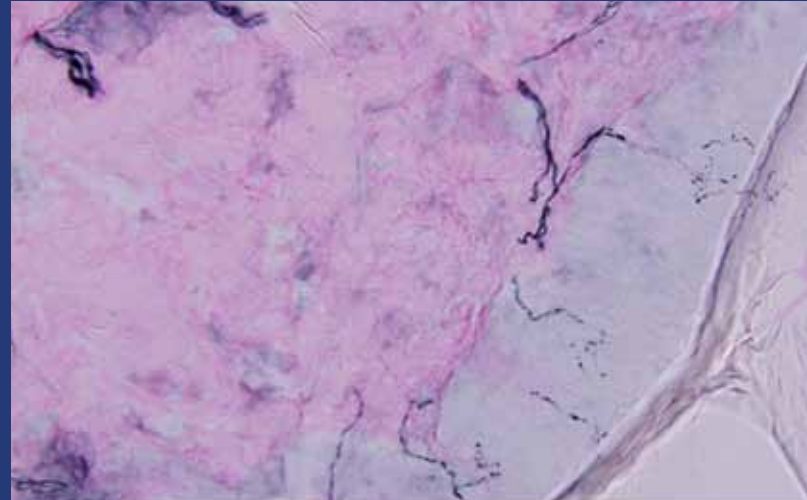
BEGIN TO RE-PACKAGE SHIPPING CONTAINER

1. Add the frozen ice pack to the cooler & insert the foam barrier (to prevent freezing of the sample).
2. Deposit the specimen bag of labeled vials on top of the foam barrier.
3. Enclose the completed requisition form (with patient's signature) and a copy of patient's insurance card.
4. Close the foam cooler.
5. Insert the cooler into the white cardboard, Therapath biopsy specimen container.
6. Insert the Therapath biopsy specimen container into pre-labeled UPS Laboratory pack.
7. Contact UPS PREFERRED # (1-800-377-4877) say "preferred" when prompted (before 2 pm, as same day pick-up is required), give them Therapath's UPS Account #: 3A93A3. They will ask if you're calling from Therapath. Say YES and give them your name.
8. Therapath must receive the biopsy sample the next business morning. Please do not retain the sample overnight in your facility.
9. Retain UPS package tracking number for your records.

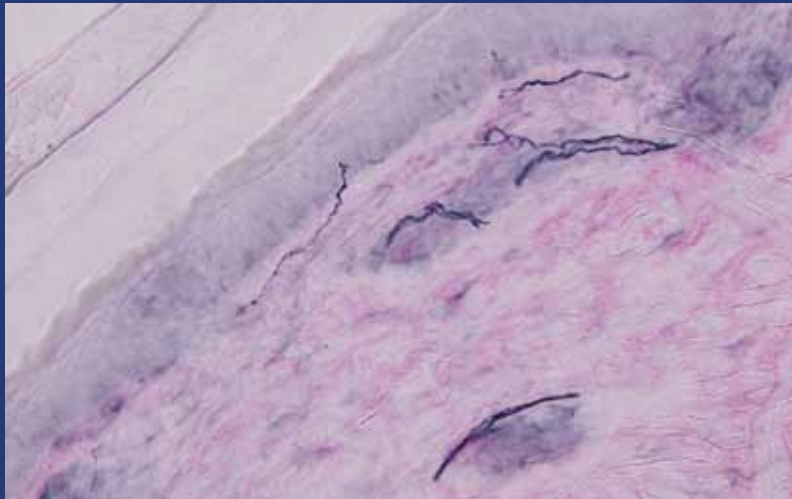
IMAGES OF SMALL FIBER NEUROPATHY



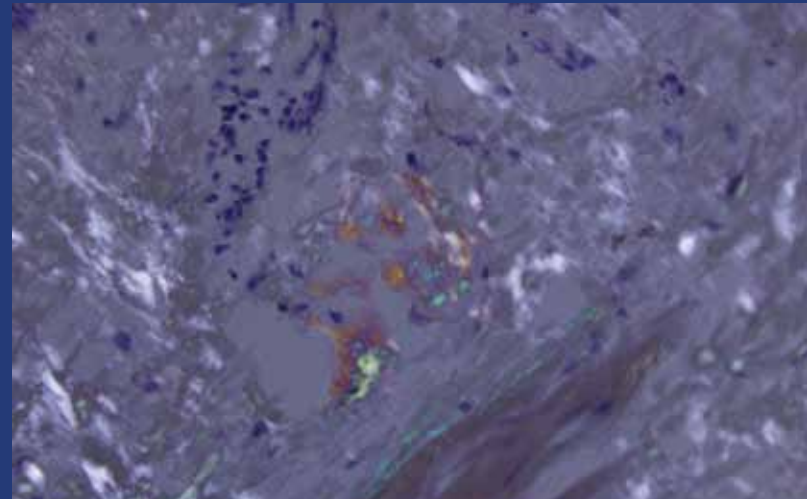
Skin with normal epidermal nerve fiber density.



Skin with reduced density of nerve fibers, as is seen in small fiber neuropathy.



Skin with significantly reduced epidermal nerve fiber density, consistent with small fiber neuropathy.



Amyloidosis with polarizing lens



THERAPATH

107 West 82nd Street
Park Green Medical, Suite 108
New York, NY 10024
Tel. 800.681.4338
www.therapath.com