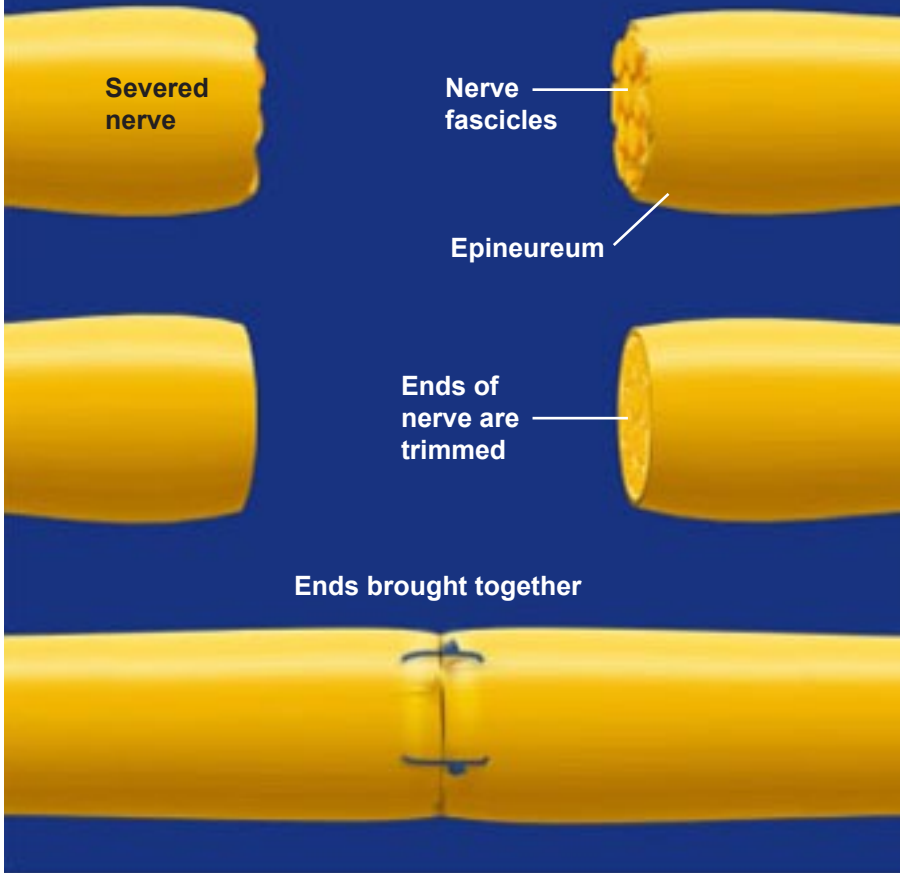


DIGITAL NERVE REPAIR

REPAIR WITH SUTURES



Overview

This microsurgical procedure is used to reconnect the severed ends of a nerve in the hand to allow the nerve to heal and to reduce the possibility that a neuroma will form. Nerve repair can help restore sensation and muscle function, however, in many cases normal sensation and function is not fully restored.

Preparation

After anesthesia is administered, the surgeon uses an operative microscope to identify the damaged ends of the nerve. The nerve consists of two parts, an outer covering, called the epineureum (or nerve sheath), and tiny bundles of nerve fibers, called fascicles, which carry nerve signals. The surgeon will reconnect the nerve sheath, allowing the nerve fibers to rejoin.

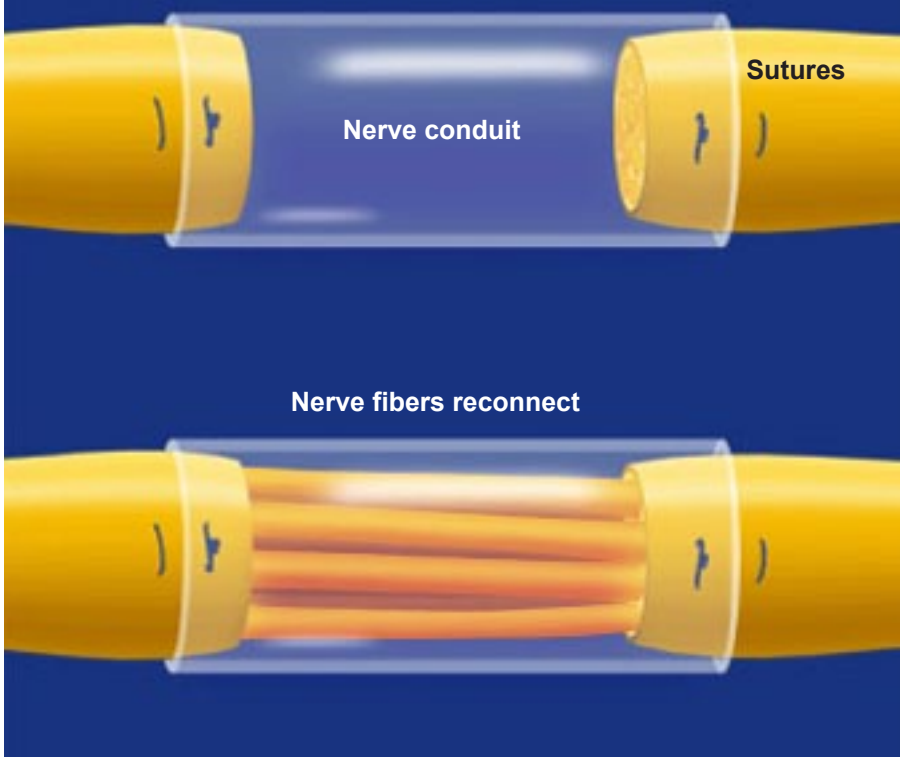
Repairing With Sutures

The surgeon trims the ends of the lacerated nerve to expose healthy tissue. If the ends of the nerve can be brought together without creating tension, the surgeon sews them together with fine sutures placed in the epineureum. For larger nerves with both motor and sensory function, the surgeon will also align the groups of fascicles, and may sew them together as well.

Repairing With Nerve Conduit

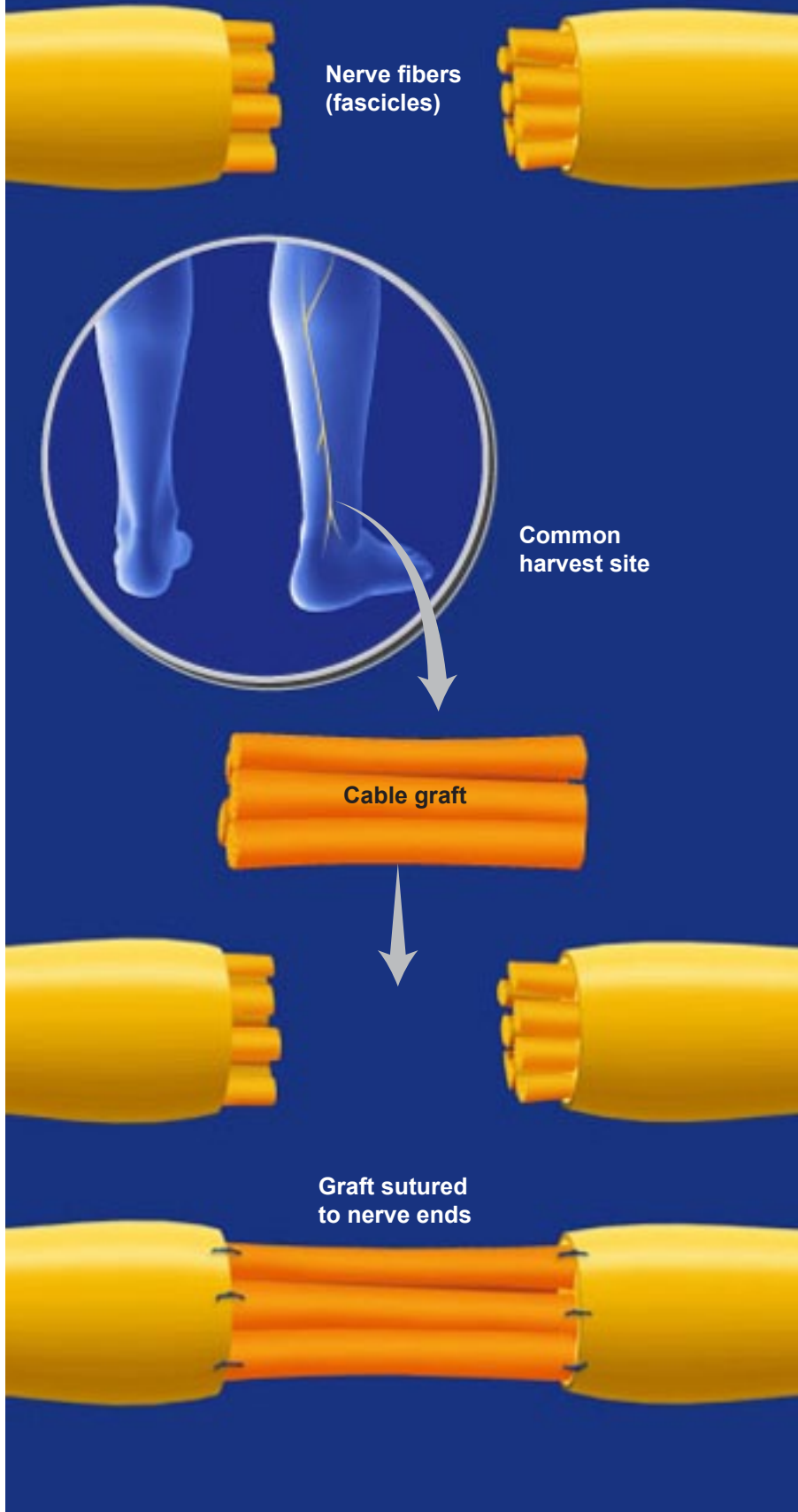
If a portion of nerve is missing, or if there is too much tension to pull the ends together, a nerve conduit may be used to bridge the gap. The conduit is usually a soft tube made from absorbable material or silicone, or a piece of vein harvested from the patient's body. Fine sutures are used to attach the nerve ends to the ends of the conduit, creating a channel to guide the nerve fibers as they grow together and reconnect.

REPAIR WITH NERVE CONDUIT



DIGITAL NERVE REPAIR

REPAIR WITH NERVE GRAFT



Repairing With Nerve Graft

In some cases for large nerves such as radial or ulnar nerves, the surgeon may need to bridge the gap with a nerve graft. The graft is a segment of a large sensory nerve harvested from a less critical place in the patient's body, typically the back of the leg. The surgeon carefully prepares the harvested nerve by forming a bundle called a cable graft. The surgeon lines up the fascicles of the graft with the fascicles of the nerve ends and anchors the graft with fine sutures.

End of Procedure

The skin is closed, and the finger is bandaged and usually splinted. After a month the nerve fibers will begin to regrow at a rate of one millimeter per day, or one inch per month. The patient may experience a prickly sensation or hypersensitivity as the nerve fibers heal. Hand therapy will be needed to help reduce the sensitivity and retrain the nerve.