

Scalpel Erasmus 1st online session

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Case report

- ▶ Patient – female 55 years old
- ▶ History: hypertension, hypercholesterolemia, hysterectomy 5 years ago
- ▶ Pain in right forearm, irradiation into the fingers, especially during the night
- ▶ When the arm is hanging out from the bed, it seems to be helpful
- ▶ During past few weeks, she is suffering from the arm weakness, she is not able to open the door, even to hold a cup or to thread the needle

Case report

- ▶ Any suggestion?
- ▶ Any other questions to make the diagnosis more certain

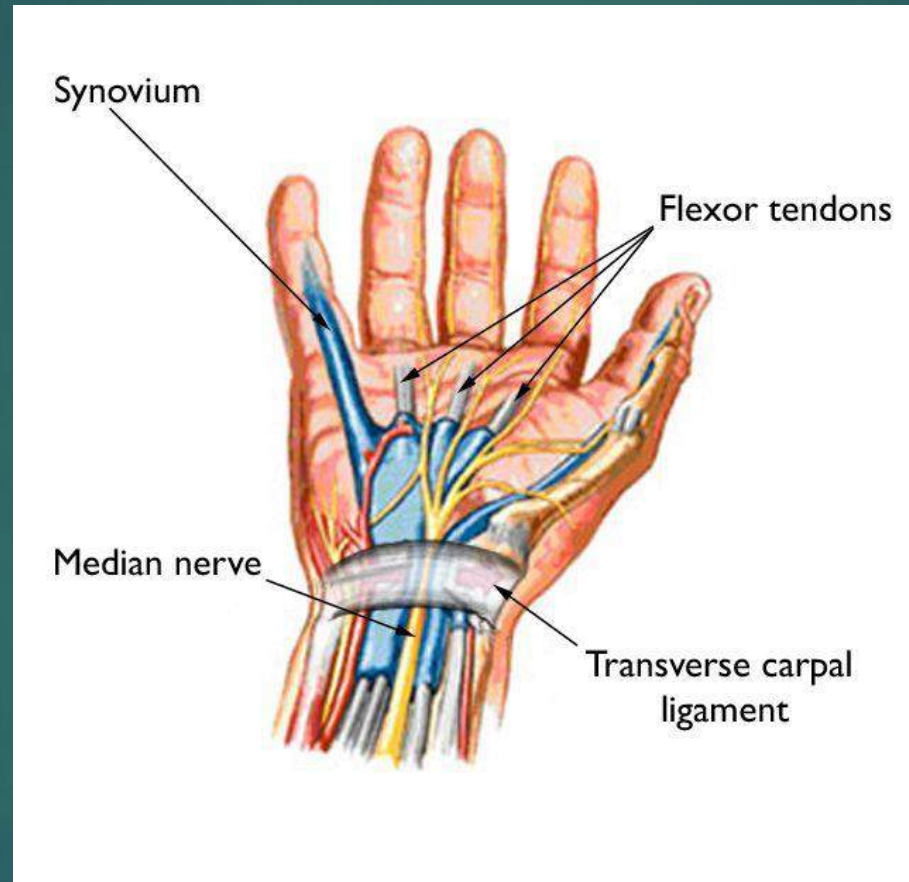
Case report

- ▶ Suggestion of any other diseases or syndromes which look similar in comparison with the most probable diagnosis of carpal tunnel syndrome
- ▶ Several possibilities to make our diagnosis clear

Carpal tunnel syndrome

- ▶ Carpal tunnel syndrome is a common condition that causes numbness, tingling, and pain in the hand and forearm
- ▶ The condition occurs when the median nerve is squeezed or compressed as it travels through the wrist and it gets worse over time
- ▶ If untreated for too long, it can lead to permanent dysfunction of the hand, including loss of sensation and weakness in the fingers

Carpal tunnel syndrome



Carpal tunnel syndrome is caused by pressure on the median nerve as it travels through the carpal tunnel

Symptoms

- ▶ Numbness, tingling, burning, and pain — primarily in the thumb and index, middle, and ring fingers (it often wakes people up at night)
- ▶ Occasional shock-like sensations that radiate to the thumb and index, middle, and ring fingers
- ▶ Pain or tingling that may travel up the forearm toward the shoulder
- ▶ Weakness and clumsiness in the hand — may make difficult to perform fine movements such as buttoning your clothes
- ▶ Dropping things — due to weakness, or a loss of proprioception

Symptoms

- ▶ In most cases, the symptoms of carpal tunnel syndrome begin gradually, without a specific injury
- ▶ The symptoms are “come and go” at first, as the condition worsens, symptoms may occur more frequently or may persist for longer periods of time
- ▶ Night time symptoms are very common
- ▶ Symptoms often occur when holding something for a prolonged period of time with the wrist bent forward or backward, such as when using a phone, driving, or reading a book
- ▶ Many patients find that moving or shaking their hands helps relieve their symptoms

Cause

- ▶ Most cases of carpal tunnel syndrome are caused by a combination of factors
- ▶ Studies show that women and older people are more likely to develop the condition
- ▶ Your suggestion

Cause

- ▶ Heredity - the carpal tunnel may be naturally smaller in some people, or there may be anatomic differences that change the amount of space for the nerve
- ▶ Repetitive hand use - Repeating the same motions or activities over a prolonged period of time may aggravate the tendons in the wrist
- ▶ Hand and wrist position - extreme flexion or extension
- ▶ Pregnancy or menopause - Hormonal changes
- ▶ Health conditions. Diabetes, rheumatoid arthritis, thyroid gland imbalance
- ▶ Previous trauma – wrist fracture

Physical examination

- ▶ Your suggestion?

Physical examination

- ▶ Pressing down or tap along the median nerve on the palm side of the wrist and hand to see if it causes any tingling into fingers (Tinel's sign)
- ▶ Bend and hold wrists in a flexed position to test for weakness or tingling in patients hands
- ▶ Test sensitivity in the fingertips and hands by lightly touching them with a special instrument while patients eyes are closed
- ▶ Look for atrophy in the muscles around the base of the thumb. In severe cases, these muscles may become visibly smaller

Tinnet sign



tap on the inside of your wrist over the median nerve.

Additional investigation

- ▶ Suggestion of any additional tests

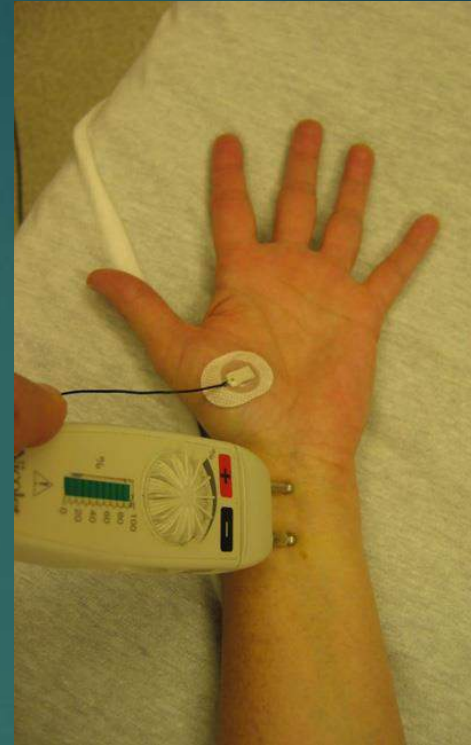
Additional examination

- ▶ Electrophysiological tests – nerve conduction study, EMG
- ▶ Ultrasound
- ▶ Magnetic resonance
- ▶ X rays

Electrophysiological tests

► Will be helpful to determine:

1. The severity of carpal tunnel syndrome
2. Whether the nerve is compressed in other locations
3. Whether other nerves are affected
4. Whether there is a medical condition (e.g., neuropathy) affecting the nerves in addition to carpal tunnel syndrome



Treatment



Early symptoms can often be relieved with simple measures like:

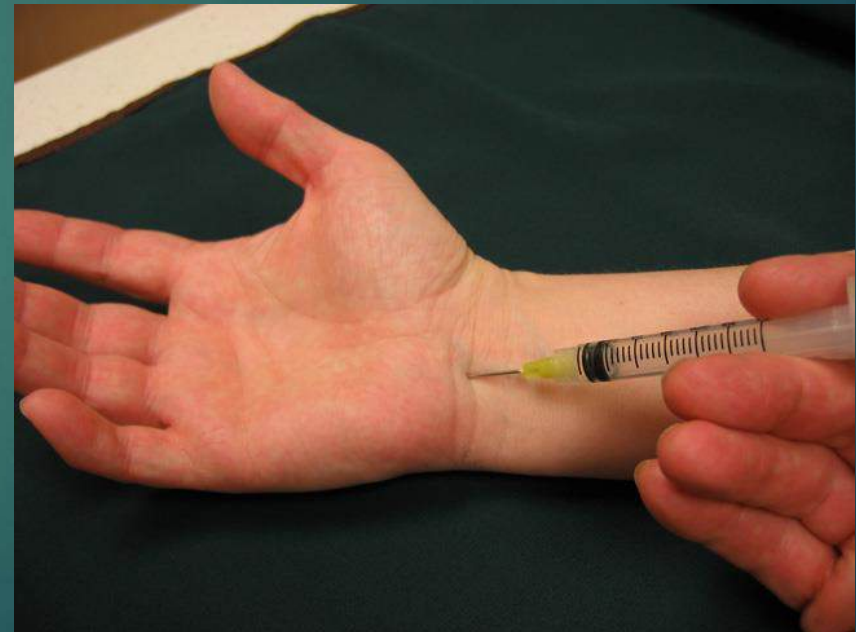
- ▶ Wearing a wrist splint while sleeping
- ▶ Exercises to keep the nerve mobile
- ▶ Avoiding certain activities that aggravate your symptoms
- ▶ A steroid injection into the carpal tunnel

Treatment

1. Nonsurgical
2. Surgical

Nonsurgical treatment

- ▶ If it is diagnosed and treated early, the symptoms of carpal tunnel syndrome can often be relieved without surgery
- ▶ If the diagnosis is uncertain or if the symptoms are mild, there will be recommended nonsurgical treatment first
- ▶ Bracing or splinting
- ▶ Nonsteroidal anti-inflammatory drugs
- ▶ Activity changes
- ▶ Nerve gliding exercises
- ▶ Steroid injections



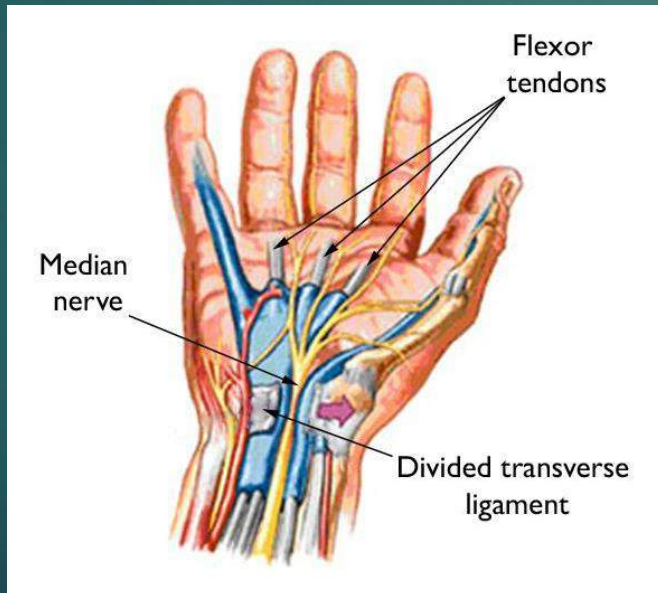
Surgical treatment

The decision of whether to recommend surgery is based on:

- ▶ The severity of the symptoms
- ▶ Physical exam findings
- ▶ Response to non-operative treatment
- ▶ Results of testing
- ▶ In long-standing cases with constant numbness and wasting of the thumb muscles, surgery may be recommended to prevent irreversible damage
- ▶ Surgery may also be recommended if the patient does not get relief with non-operative treatments and/or demonstrate significant nerve changes on testing

Surgical procedure

- ▶ Most surgeons perform this procedure using one of two different surgical techniques, but the goal of both is to relieve pressure on a median nerve by cutting the ligament that forms the roof of the tunnel (transverse carpal ligament)
- ▶ Release of this ligament increases the size of the tunnel and decreases pressure on the median nerve, allowing for appropriate blood flow to the nerve and function of the nerve



Complications

- ▶ Bleeding
- ▶ Infection
- ▶ Wound healing issues
- ▶ Nerve aggravation or injury

Recovery and outcome

- ▶ For most patients, surgery will improve the symptoms of carpal tunnel syndrome
- ▶ Recovery, however, may be gradual, and complete recovery may take up to a year