

## Diagnosing and managing carpal tunnel syndrome in primary care

### Clinical Question

How can carpal tunnel syndrome be diagnosed and managed in a primary care setting?

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### INTRODUCTION

Carpal tunnel syndrome (CTS) is a symptomatic compression neuropathy of the median nerve at the level of the wrist; characterised by hand pain, numbness, and tingling in the distribution of the median nerve (thumb, index, middle finger, and the radial side of the ring finger) and a reduction in grip strength and hand function. The severity of symptoms can be clinically categorised into mild, moderate, and severe. A figure of 55–65% of CTS cases present bilaterally<sup>1</sup> and the condition can be associated with conditions such as hypothyroidism, diabetes, and rheumatoid arthritis. CTS may present in late pregnancy but is usually transient.

A study from the UK General Practice Research Database in 2000, calculated the incidence in males to be 88 per 100 000 and in females to be 193 per 100 000, with new presentations being most frequent at ages 45–54 years in females and 75–84 years in males.<sup>2</sup> CTS is a recognised work-related musculoskeletal disorder (WMSD) caused by strain and repeated movements (biomechanical overload) and is hence more common in manual workers. Work absence and associated healthcare costs contribute to a significant socioeconomic burden on the UK economy.<sup>3</sup>

Consultations and surgical referrals appear to be increasing and commissioners are engaged in the review of referral protocols, incorporating conservative treatments for mild-to-moderate disease, to help manage surgical demand.

### ASSESSMENT

A clear history and targeted examination, which identifies standard features and provocative factors, increases the likelihood of a diagnosis.<sup>4</sup>

Diagnosis can be achieved by use of criteria agreed by GPs with a special interest in musculoskeletal health, from the Primary Care Rheumatology Society. The criteria comprise eight questions (Box 1) followed by a decision tree (Figure 1).<sup>5</sup>

Alternative diagnoses that should be considered include: cervical radiculopathy, peripheral neuropathy, wrist/trapeziometacarpal, arthrosis, wrist tendonitis/tenosynovitis and ulnar neuropathy.<sup>4</sup> Contributing factors such as diabetes, hypothyroidism, and inflammatory conditions should be considered and managed appropriately, although there is no evidence that routine screening should be undertaken.<sup>6</sup>

Electromyography and nerve conduction studies may be considered if the diagnosis is uncertain, if surgery is being considered, or in the case of litigation;<sup>4,6,7</sup> although care pathways and local availability may vary.

### MANAGEMENT

CTS may improve spontaneously in up to one-third of patients over a 10–15 month period.<sup>8</sup> Treatment options depend on severity. Non-surgical management (splinting or injection) should be considered in cases of mild to moderate disease, whereby pain and numbness are intermittent and there is no wasting or weakness of the thenar muscles. Referral for surgical management (decompression of the carpal tunnel) should be considered if: symptoms are severe or constant, the motor or sensory deficit is

### Box 1. Questions to be asked to a patient presenting with hand or wrist symptoms

1. Do you have numbness or tingling in your wrist, hand, or fingers?
2. Do your symptoms spare your little finger?
3. Are the symptoms worse at night?
4. Do the symptoms wake you up at night?
5. Have you noticed your hand is weak; for example, have you found yourself dropping things?
6. Do you find shaking your hand, holding your hand or running it under warm water improves your symptoms?
7. Are the symptoms made worse by activities such as driving, holding a telephone, using vibrating tools, or typing?
8. Have splints or injections helped with your pain if you have had it in the past?

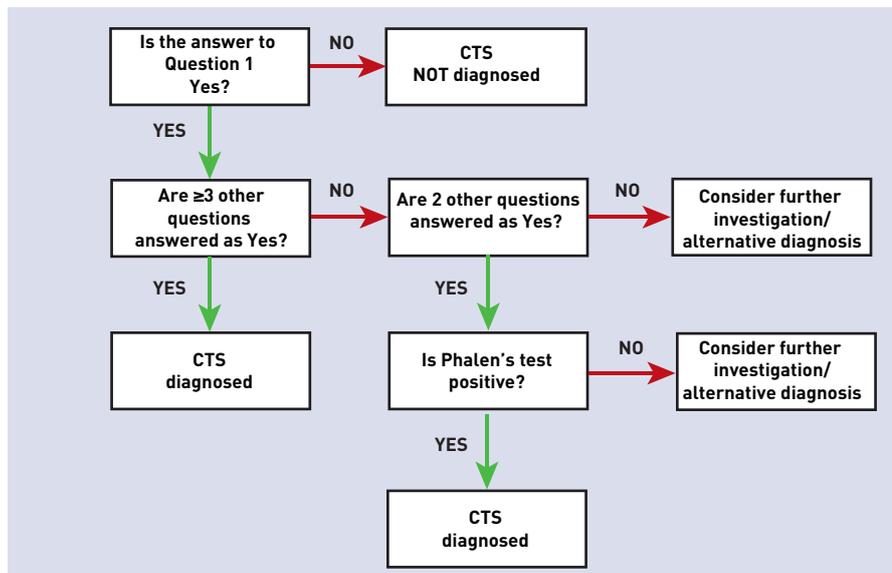


Figure 1. Decision tree to be used in conjunction with the questions in Box 1. © Keele University.



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Figure 2. Suggested method for injection of the carpal tunnel

- Equipment: chlorhexidine wipe; 1 ml syringe, 23 gauge (blue) or 25 gauge (orange) needle for injection; corticosteroid without lidocaine; simple dressing.
- Explain and consent the patient for the treatment. Ensure there are no contraindications to a local steroid injection.
- Use a sterile 'no-touch' technique.
- The patient places hand palm up in a neutral or slightly extended wrist position (patient sitting).
- Clean skin following standard local practice.
- Insert needle at proximal skin crease at wrist, avoiding median nerve which lies under palmaris longus.
- Aspirate back into the syringe to avoid intravascular injection.
- Inject. Do not inject against resistance or if severe pain: if this occurs, reposition the needle and inject again.
- Ensure haemostasis and apply dressing.
- Provide patient with leaflet regarding the carpal tunnel steroid injection.
- The patient should be advised to wait in the surgery for 30 minutes following injection or alternatively ensure that they are accompanied by a responsible adult for that time.

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### Competing interests

The authors have declared no competing interests

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progressive, or there is no improvement within 3 months of conservative treatment.<sup>6</sup>

The use of non-steroidal anti-inflammatory drugs or diuretics should not be routinely recommended. Patients should be advised to minimise activities that exacerbate symptoms but it should be explained that evidence for work place modifications is lacking.<sup>6</sup>

Night splinting holds the wrist in a near neutral position preventing wrist flexion and limiting extension. Splints are inexpensive with no reported serious adverse effects<sup>7</sup> and, although there is limited evidence as to their effectiveness,<sup>9</sup> are recommended as a treatment option in primary care with the proviso that benefits should be apparent within 8 weeks.<sup>6</sup>

Corticosteroid injections are considered a safe and effective treatment option in the management of CTS and are believed to act by decreasing the symptomatic swelling of the flexor synovialis.

Cochrane review evidence exists for the short-term improvement of symptoms following an injection, while longer-term effects beyond 3 months are uncertain.<sup>10</sup> An accepted method for injection is shown in Figure 2; appropriate training is necessary.

### CONCLUSION

CTS is a common, disabling, and distressing condition. Wrist splinting and corticosteroid injections are non-surgical treatment options that can be considered in primary care for the management of mild-to-moderate disease.

Patients with severe symptoms or who fail to respond to non-surgical management should be referred for surgical consideration.