Patrick J Phillips
MBBS, MA(Oxon), FRACP, MRACMA, GradDipHealth Econ(UNE), is Senior Director, Department of Endocrinology, The Queen Elizabeth Hospital, South Australia. patrick.phillips@nwahs.sa.gov.au

Simon Burnet
MBBS, FRACP, is Staff Consultant Rheumatologist, Department of Rheumatology, The Queen Elizabeth Hospital, South Australia.

Cally's carpal complaint

Case study

Cally, 44 years of age, is a mother of three children. She is annoyed about the 'pins and needles' in her thumb and first three fingers of her right hand. Over the past 4 months she has needed to shake her hand when she gets up in the morning to 'get it going'. The pins and needles used to go away after shaking, but now persist into mid morning. Cally is also finding it more difficult to use her hands in every day activities such as gardening. In the past fortnight, a similar problem has started in her left hand.

Cally is generally healthy and is not taking any regular medication. Over the past year her weight has increased from 63 to 68 kg (body mass index: 27.2 kg/m^2) and she feels she has less energy than previously.

Question 1

What is the diagnosis?

Question 2

What causes the problem?

Question 3

What are the characteristic clinical features?

Question 4

What investigations should be performed?

Question 5

How can you help Cally?

Answer 1

The most likely cause of nocturnal pins and needles in a woman of Cally's age is median nerve compression at the wrist. Other compressive neuropathies should be considered: ulnar neuropathy at the elbow or cervical nerve or root compression in the cervical spine. Rarely, a vasculitic illness may present as mononeuritis of the median, ulnar or both nerves.

Answer 2

Most cases are idiopathic; occur more frequently in the overweight, in women than in men, and in the middle aged and elderly.

Diabetes is the most common association (5–16% of cases)[1] but a range of common conditions can also be associated (*Table 1*).

In a working man (or woman), repetitive trauma can damage the wrist and cause compression. In a young woman, pregnancy causes oedema in the carpal tunnel. In a middle aged woman such as Cally, diabetes or hypothyroidism are likely contributors. In an older woman, a Colles' fracture may cause deformity and compression. Alternatively, this may be the initial presentation of an inflammatory arthropathy, particularly if bilateral.

Answer 3

Carpal tunnel syndrome is characterised by paraesthesia over the median nerve distribution (the radial 3.5 digits, *Figure 1*) and is often worse at night and in the morning. Diagnosis is by worsening the compression. The Phalen manoeuvre involves full flexion of the wrist for 60 seconds, which causes pain or paraesthesia in the median nerve distribution. The Tinel sign is the response to lightly tapping over the midpoint of the palmar surface of the wrist (where the median nerve runs), which causes paraesthesia. Unfortunately, both tests are neither specific nor sensitive.

As the median nerve compression progresses there may be wasting of the thenar eminence and weakness of thumb abduction. Cally might find activities such as opening jars more difficult.

Answer 4

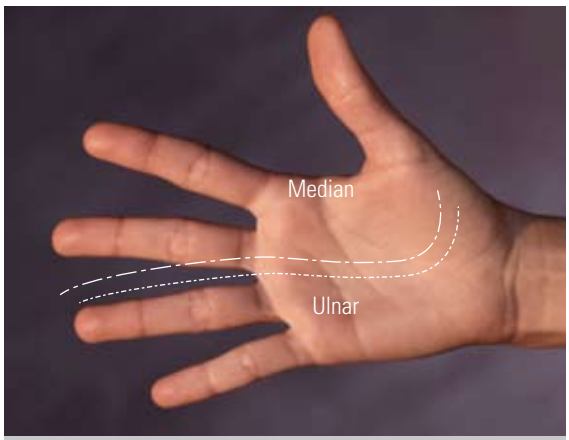
Investigations should target the common conditions that cause carpal tunnel syndrome (*Table 1*). In Cally's case, for checking hypothyroidism and diabetes would be indicated (thyroid stimulating hormone and fasting glucose respectively). If she had symptoms consistent with arthritis, rheumatoid factor, erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) would be appropriate.

Usually the diagnosis is made on clinical grounds but nerve conduction studies can confirm the clinical diagnosis and should show slowed nerve conduction velocity of the median nerve at the wrist. These are also useful to provide a baseline for postoperative evaluation of the beneficial or ill effects of surgical intervention for medicolegal purposes.

Answer 5

Treatment targets the underlying cause, symptomatic relief and decompression. In Cally's case, her symptoms of hypothyroidism and

Figure 1. Carpal tunnel syndrome



Distribution of symptoms of median and ulnar nerve compression

Tinel sign: tapping to the ulnar side of the palmaris longus tendon evokes dysaesthesia in the thumb and first two fingers

Table 1. Associations with carpal tunnel syndrome

Endocrine	• Diabetes, hypothyroidism, agromegaly
Skeletal	• Colles fracture, occupational trauma, osteoarthritis
Inflammatory	• Rheumatoid arthritis, gout
Oedema	• Premenstrual, pregnancy, cardiac failure

carpal tunnel syndrome should respond to adequate thyroxine replacement. Should she have type 2 diabetes, blood glucose control provides some relief and slow progression of the neuropathy.

Symptomatic relief can often be obtained by a night time cock-up splint which extends the wrist during sleep and prevents the wrist flexion that commonly occurs as people adopt the characteristic curled up, fetal position when they sleep. If inflammation is involved, nonsteroidal anti-inflammatory agents and corticosteroid injections at the mid point of the wrist (at the same point as for Tinel sign) may be effective, more so in mild cases. Unfortunately injections have a high rate of relapse over the ensuing 18 months.

Decompression surgery is highly effective but is usually reserved for patients who have continuing distressing symptoms despite conservative treatment.

Conflict of interest: none declared.

Reference

1. Bland JH, Frymoyer JW, Neuberg AH. Rheumatic syndromes in endocrine disease. Sem Arth Rheum 1969;9:23–65.

AFP CORRESPONDENCE afp@racgp.org.au