CARPAL TUNNEL SURGERY

The advice and tips here, for practitioners considering setting up a carpal tunnel service are for guidance only and do not represent a training document. Please feel free to suggest amendments or additions via e-mail.

Basics.

1. Need to be fully acquainted with the clinical condition. Typical presentation, causes, associated conditions, differential diagnoses.

2. Understand atypical presentations

3. Have a good working knowledge of the normal anatomy of the median nerve, forearm, wrist and hand. Be aware of the possible variations in the median nerve and the vascular system of the hand

4. Be able to confidently examine the arm and interpret the findings.

5. Know when to request investigations and understand their limitations

6. Be aware of the possible risks, benefits and options for treatment. Always discuss this with the patient. Know when not to offer surgery or when to refer to secondary care.

7. Work to a protocol.

8. Give patient advice leaflets, including how to get help if have concerns.

9. Be clear about your post-op management and follow-up arrangements.

Infrastructure.

Treatment area should be adequate for the purpose. Operating table must be adjustable and fully tilting.
Good operating light essential.
Good diathermy must be available.
Full resuscitation equipment must be available.
Sterile equipment must be traceable or use disposables.
Operations book must be available for inspection.
Staff and assistant should have resuscitation training.

Governance.

Agree action plan, clinical pathway and protocols with PCT / locality groups.
Discuss management of emergencies with local secondary care providers.
Open dialogue with secondary care colleagues on management of difficult cases and complications.
Results should be audited to a standard protocol, including outcomes, complications and patient satisfaction.
A significant event and untoward incident log should be maintained.

Surgical procedure.

Good vision and exposure are essential. Lighting must be efficient and properly focussed. Use loupes if necessary. An assistant to perform traction on the wound edges helps exposure but self retaining retractors can be used.

Inject LA subcutaneously along the incision line and then down to the transverse carpal ligament. Use 1% lidocaine with epinephrine or bupivicaine 0.5% with epinephrine.
Ensure that the patient does not have any active infection including leg ulcers.
Prep the arm as far as the elbow with Hydrex or Betadine Drape the arm to leave the wrist and hand exposed.

The incision should be about 3cm. try to avoid the course of the palmer branches of the median and ulnar nerves,
Retract the skin edges and divide the subcutaneous fat and the palmer aponeurosis. Catch or diathermy any bleeders before proceeding. Blunt dissection with forceps and gauze aids exposure. Gently divide any muscle fibres lying on top of the ligament. Careful observation in case of unusual course of motor branch which sometimes pierces the ligament. Firm retraction and use of swab aids vision.
Be aware that thick hands especially in men are more difficult to expose.
Identify the ligament by its shiny white appearance, rough texture and horizontal fibres. Having exposed a strip of the ligament 2-4mm wide, pause to ensure good haemostasis before opening the ligament. Begin in the middle and proceed distally under **direct** vision. Be careful at this point not to damage the median nerve or its branches. Watch out for aberrant vessels from the ulnar artery or superficial palmer arch. The ligament should be divided as far as its distal edge; a small pad of fat will be visible here. DO NOT go further as this contains the palmer arch. Now divide the rest of the ligament proximally as far as you can under direct vision. Pass the elevator under the residual ligament, on top of the median nerve, to protect it, under direct vision. Push the scalpel along the elevator with the blade uppermost, to divide the residual ligament. Take care not to deviate as this risks damaging the nerve. Also be careful not to apply upwards pressure as this will damage the overlying skin. Check the freedom of the nerve by rotating the elevator.
Check haemostasis, being very careful if you use diathermy, not to damage the nerve.
Close the skin without tension using interrupted sutures.

Apply dressing and padded bandage. Ensure sterile technique and that not too tight. Elevate arm in sling. Advise post-op care and finger exercises.

Potential pitfalls

Diagnostic

Consider other causes of symptoms e.g. Generalised neuropathy, ulnar nerve entrapment, thoracic outlet syndrome, pressure on the median nerve or its roots in the axilla or neck. Median nerve tumour etc.

Think about associated disorders. Don't miss undiagnosed myxoedema, diabetes, acromegaly.

Consider if treatment for other wrist or hand problems will be necessary.

If in doubt consider investigation or second opinion.

Therapeutic.

Consider trial of Depomedrone injection but be careful not to inject into the nerve.

Surgical.

If in doubt, pause before proceeding. Do not cut unless you are sure about where you are.
Control bleeding before proceeding.
Handle the tissues gently.
If the median nerve or one of its branches is inadvertently divided, it should be repaired by an experienced person, promptly.