

This is a presentation delivered by Mr. Sciberras at our October CPD Meeting.

Almost 12 years ago, I started the HAND CLINIC. Since then, thousands (literally) of hand problems have been managed. I sincerely hope that, because of this clinic, the management of these problems has improved though I acknowledge that it could be even better.

In this short presentation, I shall try to outline my philosophy when dealing with a hand problem. Obviously, like most philosophies, mine is not perfect and I should be most grateful if any of you in the audience could point out any flaws and help me to correct them.

To start with, the hand problem may be a reflection of what is happening elsewhere in the body e.g. nail pitting because of psoriasis, discoloured fingertips due to Raynaud's phenomenon, red palms due to liver disease.

The hand may also be the site of *Referred pain* e.g. paraesthesiae on the ulnar border of the hand due to a compression neuropathy of the ulnar nerve behind the medial epicondyle of the humerus, or from nerve compression in the neck.

Therefore, *the hand should not be examined in isolation*, excluding the rest of the body.

Let us now concentrate on local hand problems with particular emphasis on injuries which are by far the commonest hand problems. Proper management presupposes a sound knowledge of both the *anatomy and the functions of the hand*. Please do not squirm! I am not going to put you through a detailed description of the anatomy of the hand, but I would like to take you with me on a short description of its surface anatomy. I believe that surface anatomy is not given the importance it deserves both in the preclinical and in the clinical undergraduate curriculum.

Let's start by looking at the hand's dorsum. I am always amused when I see or hear the expression "knowing something or someone like the back of my hand" – meaning intimate knowledge. But have we really looked enough at the back of our hands to know them that intimately?

The skin is rather loose ... it can stretch by 40% when a strong fist is made. You can pick it up easily

when the fingers are extended but not so easily when the fingers are tightly flexed. This property of the dorsal skin helps in flexibility. It is specialised and not easily replaceable.

The veins coursing underneath the skin differ from one hand to another even in the same person. They are important for drainage especially when flaps are present. They are also a godsend to anaesthetists the world over for the safe administration of intravenous anaesthetics.

The extensor tendons can also be seen ... unless, that is, one is very well covered! The index and the little fingers have 2 tendons each, one the proprius and the other a slip from the Extensor digitorum. This fact is important when we have to transplant tendons e.g. after extensor pollicis longus rupture following a Colles' fracture.

The anatomical snuff box at the base of the thumb is bordered by the extensor pollicis longus and the abductor pollicis longus and extensor pollicis brevis tendons. The latter two tendons are enclosed in tight tendon sheaths in the 1st dorsal compartment. This is the site of the common de Quervain's tenosynovitis which seems to be getting more common, possibly related to increased use of computer keyboards.

We now turn to the palm. Here you see a completely different kind of skin ... tight, hairless, sweaty, and with a lot of creases criss crossing it. To a palmist, these lines reveal a lot about one's life past, present and future, but to me, they indicate the site of important anatomical structures e.g. the distal palmar crease indicates the origin of the tough flexor tendon sheath which many students and doctors still think starts at the crease at the base of the fingers. The thenar crease indicates the medial extent of the thenar muscles and the site of origin of the recurrent muscle branch of the median nerve, a nerve to avoid cutting while doing a carpal tunnel release.

Speaking about the Carpal Tunnel, please remember that this is wholly in the palm i.e. from the distal wrist crease to about 2-3 cm distally.

So much for surface anatomy.

I would like now to outline the various functions of the hand. The hand can be looked upon in 2 ways;

1. As a fixed, non-prehensile end on a mobile arm ... for pushing furniture and lifting.
2. As a prehensile organ at the end of a mobile arm ... for various other functions which can be reduced to 2 basic functions, none of them pure:
 - a. *Grip* ... i. *Precision* e.g. pushing a spray gun nozzle.
ii. *Power* e.g. gripping a hammer.
 - b. *Pinch* ... i. *Key* ... significant effort required.
ii. *Pulp* ... holding artist's brush.
iii. *Tip* ... picking up small objects.

Having looked at the basic functions of the hand, it will be clear that the management of hand problems must aim at restoring the FLEXIBILITY, the STABILITY, and the SENSITIVITY of the hand. I have not mentioned SHAPE, not because it's not important but because it's secondary to function.

FLEXIBILITY

The hand has got a lot of gliding surfaces. Injuries, infections etc. carry with them the risk of adhesions. These must not be allowed to interfere with the gliding surfaces by early intervention to treat infection, or by meticulous surgical technique in treating injuries.

STABILITY

The bony skeleton is the main stabiliser of the hand. However, ligaments, muscles, and tendons do play a very important part in this stability especially around the thumb and finger joints.

SENSITIVITY

This aspect of hand function was stressed a lot by Moberg (1971). It is extremely important. Almost one quarter of the touch corpuscles in the body are found in the hand. We all remember the brain homunculus with the very large area on the sensory cortex devoted to the hand. Truly the hand can be considered an additional eye of the body.

The management of a hand problem follows the same lines as all other medical problems.

History remains all important and usually gives you the diagnosis on a plate. The history must include the age, sex, occupation and hobbies, and hand dominance, apart from the aetiology of the problem ... how did it happen? Why? When? Where?

Was there a previous hand injury / deformity? (This is important in medicolegal practice). The Medical history can be important e.g. Diabetes in trigger fingers and Dupuytren's disease, psychosis in a suicidal attempt.

The clinical examination takes each tissue one at a time.

Skin Is the wound tidy or untidy?
Is the colour pink or dusky?
Has there been any skin loss?
Remember hand skin is irreplaceable.
Are there any contractures?

Tendons Can you see triggering?
Any abnormal position of the fingers, signifying tendon injuries?

Nerves Any paraesthesiae complained of?
Any loss of movement?
Any loss of sensation and sweating?

Bones and joints Any obvious deformity?
Old or new?
Open or closed fractures?

Blood vessels The hand is a very vascular structure.
Bleeding is stopped by localised pressure and elevation. Please do not poke with artery forceps ... you could do more harm.

Special investigations may include high quality X-Rays with, for example, stress films to investigate ligamentous injuries. One may have to carry out blood investigations.

After making a diagnosis, a treatment plan should be drawn up. But before any treatment is started, one should ask oneself 3 questions:

1. Am I competent enough to treat myself or should I refer to someone more experienced?
2. How should I treat?
3. Can the definitive management be safely postponed?

If surgery is carried out, it must be with a gentle, minimally traumatic technique. One must remember that what is possible may not always be what is required ... sometimes the BETTER IS THE ENEMY OF THE GOOD.

I always keep in mind something I read many years ago:

A GOOD surgeon knows HOW to operate.

A BETTER surgeon knows WHEN to operate.

The BEST surgeon knows WHEN NOT to operate and / or WHEN to QUIT.

These are the PRIORITIES when dealing with hand injuries:

1. SKIN ... A good skin cover
 - a. avoids infection and
 - b. Protects surgical procedures done underneath it, acutely or later.
2. BONES and JOINTS ... Stabilisation of the skeleton before vascular, nerve or tendon operations can be carried out.
3. VESSELS ... In the hand itself. They can be safely treated usually. Veins plantations are controversial.
4. NERVES ... especially important for the recovery of sensibility. Even digital nerves.
5. TENDONS ... repaired or transferred later to restore joint movement.

The management of a hand problem is incomplete unless the WHOLE person is considered. A "Physical" hand problem does not occur in a "Psychological" vacuum. Here are some of the *personality problems* that may be associated with a severe hand problem injury that may entail a long period of enforced idleness and possibly repeated surgical interventions.

1. Loss of confidence ... more shelter seeking.
2. Enforced change of job – usually something inferior.
3. Deterioration of body image with cosequent psychological symptoms such as anger, anxiety and depression.
4. Constitutionalities. A problem too large to be dealt with here.

As clinicians, we therefore must have a *2-pronged approach* to the management of hand problems ... or any other medical problems, for that matter.

We must have the "CURING" function – Surgical expertise, drugs, physical therapy and the "CARING" function i.e. attention, hope, support-all part of the art of COMMUNICATION. Patients who are satisfied with the communication they've established with their medical providers are more likely to comply with treatment.

Because we must remember that "People don't care how much you know until they know how much you care".

This is, in brief, my philosophy.

Thank you

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