

Clinical assessment of the elbow

David Copas
J Charlie Talbot

Abstract

An understanding of the anatomy, biomechanics and pathology affecting the elbow is crucial for proper clinical assessment of the joint, and a clear appreciation of what is normal compared to abnormal is essential.

A systematic approach to the clinical history and examination will provide the diagnosis in the majority of patients. Supplementary imaging usually confirms the pathology and/or assists in surgical planning and ongoing management of the patient.

This article provides a logical sequence of clinical history and examination to assist the reader in the diagnosis and management of elbow pathology.

Keywords clinical assessment; clinical examination; elbow; joint

Introduction

An understanding of the anatomy, biomechanics and pathology affecting the elbow is crucial for proper clinical assessment of the joint. In children, an understanding of the growth and development, and changes of anatomy over time, is similarly important. Additionally, an appreciation of the distinction between normal and the pathological is essential in diagnosing elbow pathology.

Throughout training, surgeons are indoctrinated in the importance of a thorough clinical history and examination and this should only be reinforced when it comes to clinical assessment of the elbow joint. With experience, extraction of pertinent information from patients becomes a skill. Clinical examination of the joint can then be tailored to fit the clinical history, though a sequential structured approach will reduce the risk of pathology being overlooked. The combination of the history and examination will guide the examiner towards a diagnosis, and imaging will often only serve to confirm the initial suspicions and assist in the on-going management plan.

Clinical history

The clinical history should focus on a profile of the patient, as well as specifics relating to the elbow itself. When building a profile of the patient, whilst developing an early rapport, enquire about age, hand dominance, occupation and hobbies. This should help develop an understanding of the patient's level of

activity, expectations and how the condition is affecting the individual, as well as providing a guide to further management.

Pain is the most common presentation of elbow pathology and a full description of the symptoms will aid in diagnosis. The site of pain can be vague and persuading patients to point with one finger to the most painful point can be useful. Medial elbow pain may relate to golfers elbow (medial epicondylitis), arthritis of the ulno-humeral articulation or ulna nerve irritation. Lateral pain over the common extensor origin or more proximally is often related to tennis elbow (lateral epicondylitis), while lateral pain over the radio-capitellar joint (RCJ) can be associated with RCJ pathology (osteochondritis dissecans, arthritis, instability or fracture). Lateral pain felt 2–3 cm distal to the epicondyle might represent radial tunnel syndrome (an uncommon but often overlooked diagnosis). Posterior pain may be due to a symptomatic olecranon bursa, triceps tendonitis or rupture, olecranon spur or tender, mal-positioned surgical scar. Anterior pain is most commonly related to the distal biceps tendon, but ruling the biceps out as a cause of anterior pain is also useful.

The timing and onset of pain may be acute and traumatic or insidious and chronic. A history of injury, fall or sudden resisted movement (eccentric loading) should be identified and the mechanism of injury established and documented. Identification of the slower onset of symptoms, that maybe activity or work related, is just as important in establishing aetiology for the pain.

The character of pain, along with exacerbating and alleviating factors, is equally as important, particularly if previous treatments (injections, physiotherapy, surgery) have been attempted, and whether these were successful or not. The interference of daytime or work activities, and/or night pain helps not only diagnosis but also provokes thought into management options.

Patients may present with elbow stiffness. This may be progressive and may or may not be associated with pain. The degree of stiffness, its progression with time and the impact it has on daily living should be determined. Stiffness may be related to soft tissue contracture or due to underlying joint incongruency due to arthrosis, fracture malunion or extra articular bone formation (heterotopic ossification). Often the two co-exist, but intervention should be offered based on the effects of the loss of motion.

Relatively infrequently, especially compared with shoulders, patients complain of instability. A history of the initial dislocation/instability episode should be identified, along with the frequency of recurrent episodes and the impact on the individual is required. Some patients may report clicking or locking, whilst throwing athletes may experience medial sided pain if there is medial ulna collateral insufficiency. In contrast, a history or inability to push up from an armchair may alert the examiner to the possibility of posterolateral instability, with insufficiency of the lateral ulna collateral ligament.

Locking of the joint may result from intra-articular bodies catching between the joint surfaces. The age of the patient may assist the examiner in cases of locking, as more elderly patients may have arthrosis while younger patients may have developed a loose body from osteochondritis dissecans: imaging will assist the examiner in diagnosis.

Acute, painful stiffness of the elbow with significant loss of movement due to the pain, particularly in the presence of other signs suggestive of infection, should alert the surgeon to the possibility of septic arthritis, though acute inflammatory

David Copas *BMedSci BMBS FRCS (Tr&Orth) Consultant Shoulder and Elbow Surgeon, Harrogate and District NHS Foundation Trust, Harrogate, UK.*

J Charlie Talbot *MBChB MSc(Eng) FRCS (Tr&Orth) Consultant Shoulder and Elbow Surgeon, Harrogate and District NHS Foundation Trust, Harrogate, UK.*

arthropathy may present in a similar fashion. In chronic infection a history of previous surgery, including the presence of metalwork, and any skin breaches are key. Additionally, a general assessment of the patient's health, including their pre-morbid state and any possibility of immunocompromise, is necessary.

Neurological conditions affecting the hand may result from pathology around the elbow, most commonly ulna neuropathy secondary to cubital tunnel syndrome.

It is therefore important to ask about sensory changes, paraesthesia and any weakness affecting the hand (including a history of dropping objects). Symptoms may not be experienced around the elbow itself, such as in cubital tunnel or pronator syndrome, however clinical examination should reveal the more proximal site of nerve entrapment at the elbow. It is also worth noting that new onset of ulna nerve symptoms may be the initial presentation of an arthritic elbow and X-rays should therefore be obtained in the over 60s presenting this way.

Clinical examination

'Look, Feel, Move' or 'Inspection, Palpation, Motion' is the accepted standard for clinical examination of a joint, followed by any special tests, examination of the joint above and below and a thorough neurological assessment. It is, however, often easier to include active range of motion in the inspection part of examination of the elbow.

Look & move

Adequate exposure of both elbows, ideally revealing the shoulders, is essential for inspection of the upper limbs. The patient should stand (or sit if appropriate) with the arms in the anatomical position.

Initial inspection facilitates assessment of the carrying angle or the angle between to long axis of the forearm (or ulna) in relation to the long axis of the humerus (Figure 1). The angulation results from the configuration of the articular surfaces of the ulno-humeral articulation, which produce a normal valgus angulation of the forearm in relation to the humerus. The variation of the valgus angle is reported to be between 5 and 15°, with greater angles seen in women compared to men. This is thought to relate to women having narrower shoulders and wider pelvises than men, however there is some disagreement within the literature^{1,2} with some authors reporting similar carrying angles for both sexes. Comparison to the contralateral elbow is most useful and changes of the angle – either with increased valgus or into varus – may indicate previous physal disorders or sequelae of trauma.

Closer inspection will allow assessment of muscle bulk, skin assessment including pigmentation changes (previous sites of steroid injections, Figure 2), lumps or swelling (bursae, lipomata etc. Figure 3) and the presence or absence of scars of previous surgery or trauma. Asking the patient to flex the elbows and elevate their shoulders in front of them (Figure 4) can identify the posterior aspect of the elbow and olecranon. This also exposes the postero-medial area of the joint to identify any scars relating to ulna nerve surgery (Figure 5).

The patient should then demonstrate active elbow range of motion by abducting the shoulder to 90° with the forearms fully

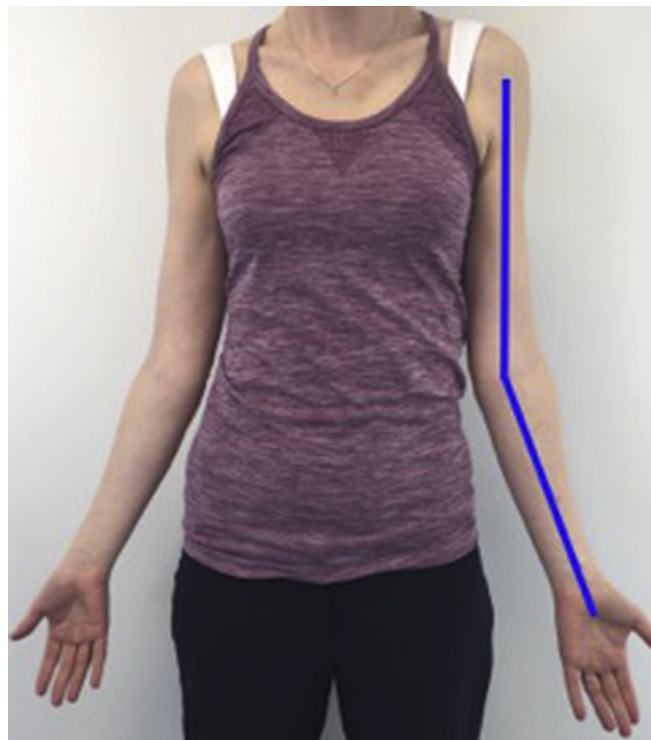


Figure 1 Carrying angle of the elbow.

supinated. Easy assessment of extension and flexion can be made and compared with the contralateral side (Figures 6 and 7). In patients with loss of range, the examiner can further assess for any additional passive range of the joint at this point. Any loss of motion should be measured with a goniometer, to allow meaningful repeat assessments.

Assessment of forearm rotation, or pronosupination, is assessed with the elbows flexed to 90° and held against the body. The patient is asked to rotate the forearms so the palms of the hand face the floor then the ceiling, to assess pronation and supination respectively (Figures 8 and 9). The patient can be asked



Figure 2 Fat atrophy following injection for medial epicondylitis.

Download English Version:

<https://daneshyari.com/en/article/4080035>

Download Persian Version:

<https://daneshyari.com/article/4080035>

[Daneshyari.com](https://daneshyari.com)