Treatment
- Worth attempting aspiration with a 16G needle despite high recurrence rate (90%) 
- Surgery indicated for symptomatic ganglions.

Osteoarthrosis of the thumb
Pathology
- Part of primary generalised osteoarthritis (OA) with Heberden's nodes of DIP joints
- First carpometacarpal (CMC) joint is involved with loss of cartilage
- Results in bone-on-bone deformity
- Very common problem
- Affects 1 in 4 postmenopausal women.

Summary
- Five conditions comprise the bulk of primary hand disorders.
- Carpal tunnel syndrome has a very typical presenting picture and special tests are usually not necessary.
- Conservative measures are usually unsuccessful and surgery is eventually required (90%).
- De Quervain's tenosynovitis is a cause of severe pain on the dorso-radial aspect of the distal forearm.
- Surprisingly there is very little to find except for a positive Finkelstein test.
- Cortisone is highly effective.
- Triggering of the digits responds well to cortisone injections.
- Ganglions are fluid-filled sacs associated with joints or tendon sheath.
- Arthritis at the base of the thumb is the most common site for primary osteoarthrosis.
- One in four postmenopausal women will be afflicted, but less than one-third of these will be symptomatic.

Current concepts in rotator cuff management

BASIL C VRETTOS, MB ChB, FRCS (Eng), FCS (SA) Orth, MMed (Orth)
Honorary Consultant, Shoulder and Elbow Unit, Department of Orthopaedic Surgery, University of Cape Town

STEPHEN JL ROCHE, MB ChB, LMCC, FCS (SA) Orth
Head, Shoulder and Elbow Unit, Princess Alice Orthopaedic Unit, Groote Schuur Hospital, Orthopaedic Trauma Consultant, Groote Schuur Hospital and Senior Lecturer, Department of Orthopaedics, University of Cape Town

Correspondence to: Stephen Roche (sroche@iafrica.com)

This article will look at two aspects of the current management of the rotator cuff tear. The first will be the most recent evidence-based approach and the second will be the experimental biological approach.

The risks, outcomes and the ability to undertake treatment by either the conservative or the surgical route need to be understood by the patient and treating physician.

Conservative treatment comes with the concern that we may miss the boat in terms of tendon healing. Several studies have shown that the longer the tear has been present the more likely it is that there will be irreversible changes. These changes include rotator cuff muscle atrophy and fatty changes (Figs 1 and 2), as well as changes in collagen fibre composition, which do not reverse with successful repair. The tear may progress with time and larger tears have been shown to have higher failure rates with surgery. Therefore it is preferable to intervene prior to these changes occurring.

The concern in the surgical group is the morbidity of the surgery and the long rehabilitation required for tendon healing. This requires 6 weeks in a shoulder immobiliser followed by another 6 weeks to regain range of motion before starting the strengthening programme that allows them to return to full function at 6 months after surgery. For the elderly or those at anaesthetic risk, the questions that need to be asked are whether the surgery is necessary and whether the patients can safely be treated conservatively.

Evidence-based medicine
The American Academy of Orthopaedic Surgeons' review of the best evidence-based
The biological approach
As genetic influences on the development of tears have been recognised, research is now directed to using this as an intervention. The approach to preventing failed rotator cuff surgery is now being directed to biological strategies at the cellular and molecular level. The reason for this is that despite the mechanical approach of surgery with improved sutures, anchors, surgical technique and grafts there still remains failure of tendon healing of 11 - 94%.4

Professor Andrew Carr’s group from Oxford has shown that in patients with a painful rotator cuff tear, 62% of their siblings had a tear when compared with 22.1% in the control group. They also showed the rate of progression of the tear was 16.1% in the sibling group, compared with 1.5% in the control group.3 Does this mean that patients who have a family history should have earlier surgery to prevent progression?

Lawrence started their research by using mesenchymal cells in a rat model, but found no difference in healing rates. These rates improved once these cells were genetically modified (transduced with adenoviral mediated scleraxis) by a transcription factor that is believed to direct tendon development during embryogenesis.6

At the molecular level, Millar and his group have shown in a rodent model of tendinopathy that there is upregulation of pro-inflammatory cytokines and apoptotic genes. They also showed significantly increased levels of cytokine and apoptotic genes in human supraspinatus and subscapularis tendon harvested from patients with rotator cuff tears. This allows research to be directed at neutralising the cytokines by using antibodies, etc.7

Kovacevic and colleagues carried out a review in which they looked at their own results using bone morphogenic proteins (BMPs) and at other investigators’ use of biological interventions, confirming improved healing and strength in the tendons of rats and sheep.8 These are now being applied in clinical studies with a Level 1 study looking at platelet-rich plasma (PRP), which showed reduced pain in the first postoperative month and improved healing in grade 1 and 2 tears.4

As one can see from the above, we are possibly reaching a ceiling with respect to mechanical treatment of rotator cuff tears and that the future belongs to a biological solution to guarantee a successful repair.

References available at www.cmej.org.za