

# A Diagnostic Dilemma for Upper Limb Surgeons- An Inflammatory Posterior Interosseus Nerve Palsy

Erden Ali, Patrick Gillespie, Bernie Colaco

## Background

Psoriasis is a common, chronic, relapsing, inflammatory skin disorder with a strong genetic basis. There are several distinctive clinical variants of psoriasis, the plaque type is the most common. Up to 10-20% of patients with plaque psoriasis also experience psoriatic arthritis (PsA). Five patterns of PsA have been identified: asymmetrical oligoarticular arthritis, symmetrical polyarthritis, distal interphalangeal arthropathy, arthritis mutilans and spondylitis with or without sacroiliitis [1].

The posterior interosseous nerve (PIN) is the deep motor branch of the radial nerve and supplies all the extrinsic wrist extensors except extensor carpi radialis longus [2]. Clinically a palsy of the PIN presents with weakness or paralysis of the wrist and digital extensors. The commonest cause of a PIN palsy is entrapment. Other possible aetiologies include synovitis in rheumatoid arthritis [3,4], trauma eg. Monteggia fractures, tumours and iatrogenic injuries.



Figure 1.



Figure 2.



Figure 3.

## Case Report

We report the case of a 56 year old man who was diagnosed with mild skin psoriasis and psoriatic arthropathy 20 years ago. He had tried several disease modifying anti-rheumatic drugs and was found to be intolerant of azathioprine, sulfasalazine and methotrexate. He was being maintained on leflunomide 10mg once daily but was still restricted with neck stiffness and persistent synovitis at metacarpophalangeal joints, proximal interphalangeal joints and both elbows.

In April 2008 he gradually became unable to extend his right wrist (figures 1-3). Electromyography (EMG) confirmed a posterior interosseous nerve palsy. Magnetic resonance imaging (MRI) ruled out any nerve compression.

We commenced Infliximab (anti tumour necrosis factor (TNF) therapy) in June 2008 and there was a gradual improvement in the wrist extension.

Figure 1, 2 and 3.  
Right PIN palsy – the patient is unable to fully extend the right wrist.

## References

1. Emedicine
2. Wheelless' Textbook of Orthopaedics Online
3. Chan JK, Kennett R, Smith G. Posterior interosseous nerve palsy in rheumatoid arthritis: case report and literature review. J Plast Reconstr Aesthet Surg. 2008 Nov 29. [Epub ahead of print] PubMed PMID: 19046665.
4. Muramatsu K, Tanaka H, Taguchi T. Peripheral neuropathies of the forearm and hand in rheumatoid arthritis: diagnosis and options for treatment. Rheumatol Int. 2008 Aug;28(10):951-7. Epub 2008 Jun 6. Review. PubMed PMID: 18528693.

## Conclusions

The commonest cause of a PIN palsy is compression and this was ruled out by MRI. The gradual recovery of extensor function during the treatment with anti-TNF therapy suggest that the palsy may have been inflammatory in origin.

Rheumatoid arthritis can cause a PIN palsy because of synovitis of the extensor tendon sheath [3]. However there are no reports in the literature of an inflammatory psoriatic nerve palsy.

We report the case of a probable inflammatory PIN palsy in a patient with known psoriatic arthropathy. The symptoms improved with immunosuppressive therapy. This case highlights that psoriatic arthropathy may rarely be associated with other extra-articular manifestations.