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# ENDOSCOPIC CARPAL TUNNEL RELEASE IN SELECTED RHEUMATOID PATIENTS

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**Twenty endoscopic carpal tunnel releases were performed in 15 patients with quiescent seropositive rheumatoid arthritis using the Agee technique. Patients were not considered for endoscopic carpal tunnel release if there was florid synovitis with crepitus or loss of active finger flexion, if there was evidence of flexor tendon rupture or if they had previously undergone surgery in the region. Access to the tunnel was significantly easier than normal and visualization of the flexor retinaculum was satisfactory in all cases. There were no complications. We conclude that endoscopic carpal tunnel release can be safely performed in selected patients with rheumatoid arthritis. The absence of a palmar scar can be a great advantage to these disabled patients.**

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Carpal tunnel syndrome is the most commonly diagnosed peripheral entrapment neuropathy (Nordstrom et al., 1998) and is frequently observed in people with rheumatoid arthritis (Chang and Paget, 1993; Massarotti, 1996). Recent electrophysiological studies have suggested a prevalence of 6% to 12.5% in rheumatoid populations (Lanzillo et al., 1998; Sivri and Güler-Uysal, 1998), although previous studies have suggested a much higher incidence (Chang and Paget, 1993).

The Agee single portal technique of endoscopic carpal tunnel release is associated with less postoperative tenderness, the avoidance of a palmar scar, and a more rapid return to work and normal activities compared with open carpal tunnel release (Agee et al., 1992; Palmer et al., 1993; Worsseg et al., 1996). Despite concerns about its safety, several reports have shown endoscopic carpal tunnel release has a low complication rate (Agee et al., 1995; Boeckstyns and Sørensen, 1999; Shinya et al., 1995). It has been suggested that patients with rheumatoid arthritis are unsuitable for endoscopic carpal tunnel release as it is assumed that florid synovitis will prevent adequate visualization and make the procedure unsafe. We present our experience of endoscopic carpal tunnel release in patients with rheumatoid arthritis.

## PATIENTS AND METHODS

The senior author has performed 680 endoscopic carpal tunnel releases in 453 patients since 1995 (Table 1). This series includes 20 endoscopic carpal tunnel releases performed in 15 patients with seropositive rheumatoid arthritis. Thirteen were women and their mean age was 61 (range, 46-88) years. Nine patients had their operation performed under a general anaesthetic, two had axillary blocks and four had local anaesthetic infiltration. Additional procedures were performed in three of the 15 patients and included one ipsilateral extensor tendon reconstruction, one contralateral

Darrach's procedure and one ipsilateral Darrach's procedure with extensor tendon reconstruction.

The senior author (HJCRB) performed all the endoscopic carpal tunnel releases using a modified Agee single portal technique. The modifications included a radially based "V" incision just ulnar to the palmaris longus tendon, in line with the fourth ray, and dilatation of the tunnel with urethral sounds (16 to 22 French gauge) (Smith and Belcher, 1999). A tourniquet was used in all cases and was inflated after skin marking and deflated before skin closure. Technical difficulties, and the severity of any synovitis were recorded in the operation notes.

Rheumatoid patients were not considered for endoscopic carpal tunnel release if there was florid synovitis with crepitus or loss of active finger flexion, if there was evidence of flexor tendon rupture or if they had previously undergone surgery in the region. During the same time period, 37 rheumatoid patients underwent an open carpal tunnel release combined with a flexor synovectomy. Additional procedures in this group included flexor tendon reconstruction, ulnar head excision, trigger finger release and fasciectomy.

## RESULTS

The median tourniquet time for patients with rheumatoid arthritis undergoing endoscopic carpal tunnel release alone was 6 (range, 4-16) minutes. Access to the tunnel was "easy" in all cases, with comfortable entry of the 20-gauge urethral dilator and the blade-assembly: none were converted to open carpal tunnel release. This is significantly different (Chi-square,  $P < 0.001$ ) to our experience in 100 patients without rheumatoid arthritis in whom access was rated "easy", "moderate" and "difficult" in 42, 33 and 21 wrists respectively and in whom four wrists were converted to open carpal tunnel release because access was deemed too tight (Schonauer and Belcher, 1999).

In two of the four endoscopic carpal tunnel releases that were performed under local anaesthetic, the field

**Table 1—Number of patients and carpal tunnel procedures performed between February 1995 and February 2000**

Group	Endoscopic (all patients)	Endoscopic (rheumatoid)	Open (rheumatoid)
Procedures	680	20	37
Patients	453	15	35

was noted to be very moist and fluid entered the blade assembly and obscured vision. This was overcome by the passage of cotton tipped buds into the carpal tunnel. The tourniquet times in these cases were 15 and 16 minutes.

No problems with wound healing were experienced and 12 of the 15 patients were discharged at the first follow-up appointment, 1 week after surgery, after removal of their sutures. The longest follow-up period of 1 year was in a patient who had a marked preoperative sensory loss. Her symptoms and finger pulp sensitivity to monofilament hairs improved following the operation. All the patients in this study attained good symptomatic relief from their symptoms and we are not aware of any complications.

## DISCUSSION

Previous studies on endoscopic carpal tunnel release have excluded all patients with inflammatory or rheumatoid tenosynovitis (Agee et al., 1994, Einhorn and Leddy, 1996, Kerr et al., 1994). Fischer and Hastings (1996) stated that "synovial hyperplasia such as occurs with rheumatoid arthritis may obscure the starting point or the view within the canal", and Mirza and King (1996) warned that "rheumatoid patients with stiff wrists and abundant tenosynovium should be managed with caution". However, it is our experience that endoscopic carpal tunnel release is straightforward in the rheumatoid patient with quiescent disease. Access to the tunnel is easier than normal, possibly because previous episodes of synovitis have expanded it. Furthermore visualization of the flexor retinaculum is no worse than in non-rheumatoid patients. The difficulties experienced with visualization in two patients were probably due to the use of local infiltrative anaesthesia. Wood and Logan (1999) have alluded to this and have described a technique of administration that may avoid this problem. With careful administration of local anaesthetic and preparation of the tunnel, satisfactory visualization can usually be achieved.

We would not advocate endoscopic carpal tunnel release in rheumatoid patients with florid tenosynovitis, particularly in the presence of tendon dysfunction. Not all rheumatoid patients with carpal tunnel syndrome require surgical synovectomy, particularly if their arthropathy is well controlled with drug therapy. Endoscopic carpal tunnel release is to be preferred in

selected patients and those who use sticks or frames to walk will particularly benefit from the absence of a palmar scar in the early weeks after surgery. Similarly, it is helpful to minimize palmar scarring in patients who are undergoing other more significant procedures, particularly if rehabilitation requires splinting.

There has always been some concern about wound healing when operating on patients with rheumatoid arthritis (Massarotti, 1996), but we did not experience any problems of this nature. Endoscopic carpal tunnel release is potentially advantageous in this respect because of the small incision.

We conclude that endoscopic carpal tunnel release can be safely performed in carefully selected patients with rheumatoid arthritis. The absence of a palmar scar can be a great advantage to those who need walking aids.

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