Magnetic resonance imaging of the knee: direct access for general practitioners

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General practitioners' direct access to radiological services is now well established for plain film radiography and contrast studies.¹ We have offered general practitioners direct access for magnetic resonance imaging of the knee since January 1993. We review our experience, compare the findings of magnetic resonance imaging investigations in patients referred by general practitioners with those referred by orthopaedic teams, and assess general practitioners' patient referral rates to the orthopaedic clinic after magnetic resonance imaging.

Patients, methods, and results

All direct access general practitioner referrals between January 1993 and May 1994 and orthopaedic outpatient referrals from January to December 1993 were reviewed. The service is offered for the investigation of suspected meniscal or ligamentous tears. Acute referrals from casualty and postoperative and repeat scans were excluded. The referring orthopaedic surgeons included consultants, senior registrars, and registrars. Reported tears of the menisci or cruciate ligaments were classified as significant abnormality. Other abnormal scans were also recorded and included degenerate menisci, loose bodies, Baker's cysts, osteoarthritis, effusions, chondromalacia patellae, partial ligament tears, bursitis, and osteochondritis dissecans. Questionnaires were sent to general practitioners regarding management and follow up of the patients scanned. Non-responders were contacted by telephone. Results are summarised in the table.

The numbers showing no abnormality, those with meniscal or cruciate tears, or those with "other" abnormalities did not differ significantly between general practitioners and orthopaedic referrals. General practitioners referred significantly more patients with meniscal or cruciate tears ($P < 0.001$)

and with "other" abnormalities ($P < 0.02$) than with normal results on scanning.

Comment

Magnetic resonance imaging is a relatively new and expensive imaging technique, and it is important to establish whether its use should be confined to hospital specialists or opened to general practitioners. The technique is accurate,^{2,3} non-invasive, does not involve x ray irradiation, and is 2.5 times less expensive than diagnostic arthroscopy in our hospital. We have found similar pick up rates for meniscal and ligamentous injury between patients referred by general practitioners and those from orthopaedic teams. Direct access magnetic resonance imaging can offer prompt diagnosis, and the availability of a result may enable the general practitioner to reassure the patient, manage appropriately, or refer for an expert opinion.

In our study, most patients with normal scans or only minor abnormality were not referred to the orthopaedic clinic, saving outpatient referrals and potentially reducing waiting lists. Our figures suggest that without general practitioners' direct access to magnetic resonance imaging most of these patients, if referred to the orthopaedic surgeons, would have undergone magnetic resonance imaging as the populations scanned seem similar. Other studies show that open access for general practitioners reduces the workload on hospital beds and outpatient departments and that general practitioners use radiology services as responsibly as their hospital counterparts.^{1,4,5}

Availability of a result for the hospital specialist allows for firmer management planning in referred cases.⁴ Patients with positive scans can be booked in advance for surgery, allowing for better planning of theatre lists. The success of such a service requires cooperation between general practitioners, orthopaedic teams, and radiologists. Further studies will determine whether formal guidelines are necessary to further improve patient selection for magnetic resonance imaging from both the orthopaedic surgeons and general practitioners.

In some centres the cost to the general practitioner fundholder of an orthopaedic outpatient appointment is the same whether or not the patient is scanned and is lower than that of direct referral by general practitioners for a scan. This is a problem of pricing and charging rather than a true reflection of cost and should be corrected when contracting becomes more sophisticated. Provided adequate facilities are available, general practitioners should have direct access to magnetic resonance imaging for the investigation of suspected internal derangement of the knee.

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General practitioner versus orthopaedic referrals for magnetic resonance imaging

Patients	General practitioner referral	Orthopaedic referral	P value
No referred	165	470	
No (%) males	115 (70)	331 (70)	NS
Mean (range) age (years)	37 (9-83)	32 (2-84)	< 0.001 (χ^2 test)
Mean wait for scan (days)	19	14	< 0.001 (Student's t test)
Findings (No (%) of patients):			
Cruciate/meniscal tears	73 (44)	213 (45)	NS
Followed up	65 (89)		
Referred to orthopaedic clinic	55 (75)		
Normal	43 (26)	134 (29)	NS
Followed up	37 (86)		
Referred to orthopaedic clinic	5 (12)		
"Other" abnormality	49 (30)	123 (26)	NS
Followed up	41 (84)		
Referred to orthopaedic clinic	16 (33)		

NS=not significant.

1 Mair WJ, Berkerley JS, Gillandres LA, Allen WMC. Use of radiological services by general practitioners. *BMJ* 1974;3:732-4.

2 Polly DW, Callaghan JJ, Sikes RA, McCabe JM, McMahon K, Savory G. The accuracy of selective magnetic resonance imaging compared with findings of arthroscopy of the knee. *J Bone Joint Surg* 1988;2:192-8.

3 Boeree NR, Ackroyd CE. Assessment of the menisci and cruciate ligaments: an audit of clinical practice. *Br J Acc Surg* 1991;22:291-4.

4 Wright JJ, Swinbourne K, Inch J. The general practitioner's use of diagnostic radiology. *J R Soc Med* 1979;72:88-94.

5 Smith GL. An evaluation of direct access radiology in general practice. *J R Coll Gen Pract* 1979;29:539-45.

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