

**Parm Johal**

MBBS, MD, FRCSEd, is Orthopaedic Fellow, Sportsmed-SA, Adelaide, South Australia. p.johal@ic.ac.uk

**David Martin**

BMedSc, MBMS, FAOrthA, is Senior Orthopaedic Surgeon, Sportsmed-SA, Adelaide, South Australia.

**Norman Broadhurst**

MBBS, PhD, DRACOG, FRACGP, is Associate Professor, Department of Orthopaedics, Flinders University, Adelaide, South Australia.

# Managing shoulder pain in general practice

## Assessment, imaging and referral

### Background

A case review was carried out on 112 cases of shoulder pain, referred for specialist attention. The general practitioner referral letter offered a diagnosis in 40% (45/112) of cases with 89% (40/45) of these concurring with the diagnosis made by the orthopaedic surgeon. Shoulder ultrasound had been ordered for 95/112 (85%) patients with 71/112 (63%) being combined with plain radiology.

### Objective

This article presents findings of a case review examining the management of shoulder pain in general practice.

### Discussion

The assessment of shoulder presentation suggests a lack of confidence by the referring practitioner due to the reliance on diagnostic ultrasound. Such practice can be unnecessarily expensive and would benefit from the establishment of guidelines for what imaging best suits the presenting complaint.

■ **Approximately 10% of consultations with general practitioners are for musculoskeletal problems.<sup>1</sup> Shoulder pain represents the third most common reason for presentation, following back and neck complaints. Each year, 1% of adults will seek advice from their GP for a shoulder problem.<sup>2,3</sup> With appropriate advice and management, one would anticipate 50–60% of acute shoulder pain to resolve in 8–10 weeks. Nevertheless, patients may present to their GP with an expectation of being given a specific diagnosis. This may pressure the GP in to ordering imaging to be done early,<sup>4</sup> or to referring the patient to a specialist without a specific diagnosis.**

The aims of this study were to:

- examine the information provided in the GP's referral letter to the orthopaedic surgeon
- identify the type of radiology that had been requested for shoulder pain
- correlate the diagnosis made by the referring doctor with that of the orthopaedic surgeon.

### Methods

The case notes of patients seen for shoulder pain by three orthopaedic surgeons were examined over a 4 month period (1 January to 30 April 2005). This resulted in a review of 115 patients seen by the three surgeons with a special interest in shoulder pathology based at a multidisciplinary urban sports medicine clinic.

The name of the referring GP, the gender and age of the patient, the initial diagnosis made by the GP, together with pre-referral radiological investigations, and the diagnosis made by the surgeon were all noted.

## Results

A total of 115 patients with shoulder pain were identified as presenting over the study period. The 115 case records were reviewed. Three patients were excluded from further assessment as the initial GP letter could not be located. Of the remaining 112 cases, there were 59 males (mean age 49 years, standard deviation [SD] 17 years) and 53 females (mean age 59 years, SD 11 years). The referrals were made by 105 GPs; 98 of who referred one patient only, with seven GPs referring two patients.

According to the shoulder surgeons' notes, 22 patients were referred for traumatic conditions of the shoulder. In this group, the GPs' referral letters made a diagnosis in 14/22 (64%) cases, whereas in 8/22 (36%) cases a referral was made without a specific diagnosis. The traumatic patients were often in the younger age group (15–40 years) and the diagnosis was usually clear cut, eg. humeral fractures or recurrent glenohumeral instability.

The other 90 cases were referrals for nontraumatic presentations with 59 (66%) referral letters not offering a specific diagnosis – the reason for referral being cited as 'shoulder pain' or 'shoulder problem'. In 31/90 (34%) of cases, the diagnosis was some form of subacromial pathology.

In the 45 (40%) cases where the GP had made a diagnosis, this concurred with the definitive diagnosis made by the surgeon in 40 (89%) cases.

Only two patients had no pre-radiological investigations. The type of radiology ordered in the other cases is listed in *Table 1*. In the two cases referred for magnetic resonance imaging (MRI), one had labral pathology and the other showed a rotator cuff tear. In another case, both X-ray and computerised tomography (CT) scan had been ordered with the pre-referral and final diagnosis being 'right arm pain of uncertain aetiology'. In the last case, ultrasound and bone scan had been requested and the definitive diagnosis was one of myofascial pain with no obvious mechanical abnormality.

## Discussion

Broadhurst et al<sup>4</sup> reviewed the medical records from 15 GPs in nine South Australian practices. They found that, in a group of 183 patients, physical examination of the shoulder in two or more planes was recorded in 75% of cases. In 69% of these patients investigations were ordered at the first visit, most frequently

ultrasound alone (60%). A further 32% underwent ultrasound in conjunction with plain radiology requested at a subsequent visit.

In that study, 84/183 (46%) patients were referred for a specialist opinion, but 10/84 (12%) of these did not have any physical examination recorded by the referring GP. No documentation addressed limited range of movement as the reason for imaging. In 25% of cases, imaging reports were normal, suggesting a lack of confidence in assessing a patient presenting with shoulder pain.

In our case note review of 112 patients referred for specialist orthopaedic opinion, the 22 (20%) cases with presumed traumatic aetiology had a diagnosis recorded, while in the 90 nontraumatic cases a diagnosis was recorded in 31%. Where the GP had made a diagnosis, it corresponded with the final diagnosis made by the specialist in 89% of cases.

The history and examination are crucial in determining the need for any radiology. Often no imaging is necessary, although plain radiology may be useful in cases of instability as bone pathology – either a bony Bankart lesion or Hill-Sachs lesion – can be seen. No formal analysis of the ultrasound results was undertaken in this study. However, a previous South Australian study of 329 requests for shoulder ultrasounds revealed pathology in the subacromial space in 75% of cases, with other pathology reported as biceps tendon pathology, acromioclavicular joint disruption, adhesive capsulitis and avulsion fractures.<sup>5</sup> Nevertheless, it would be prudent always to recognise that pathology shown on imaging may not correlate with the patient's symptoms.

In the two cases where a MRI was available at the initial specialist consultation, both cases demonstrated pathology and the indications for the request appeared appropriate. In the remaining two patients that underwent other investigations (CT and X-ray; ultrasound and bone scan), no obvious clinical diagnosis was derived and, again, it would appear that the tests had been appropriately ordered.

The relative paucity of information on request forms provided by GPs to radiologists (34% providing no contributory clinical information<sup>5</sup>) is a cause for concern. Also, the heavy reliance on ultrasound as an initial investigation at the time of the first visit (69%<sup>5</sup>), and before specialist review (85%, this study) is unwarranted. Moreover, there has been a considerable increase in the use of ultrasound scanning for shoulder problems at a significant cost to the Commonwealth Health Insurance Commission. We are not aware of any studies that specifically report the rate of requests for diagnostic ultrasound made by specialists for similar presentations.

Academic detailing consisting of specific training in obtaining a relevant history and examination with imaging and management guidelines specific to shoulder pain, has been demonstrated to be valuable in improving the confidence and knowledge of GPs in managing shoulder problems. In addition, such guidance has resulted in a decrease in the number of requests for ultrasound.<sup>6,7</sup>

Table 1. Type of radiology ordered (n=112)

Type of radiology	Number
No radiology	2
Plain X-ray	11
Ultrasound	25
Plain X-ray and ultrasound	70
MRI	2
CT and plain X-ray	1
Ultrasound and bone scan	1

An enhanced ability to assess such clinical scenarios should also result in an increased confidence in making a diagnosis and in providing an explanation to the patient, thereby decreasing the patient's expectation of a scan.

## Recommendation

It can be argued that better training for GPs in the examination of the shoulder and treatment of common shoulder pathology would improve the management of this frequently presenting complaint, as well as reducing unnecessary reliance on ultrasound imaging to arrive at a primary diagnosis.

Conflict of interest: none declared.

## References

1. Van der Waal JM, Bot SDM, Terwee CB, van der Windt DAVM, Bouter LM, Dekker J. Determinants of the clinical course of musculoskeletal complaints in general practice: design of cohort study. *BMC Musculoskelet Disord* 2003;24:3.
2. Mitchell C, Adebajo A, Carr A. Shoulder pain: diagnosis and management in general practice. *BMJ* 2005;331:1124–8.
3. Van der Heijden GJ, van der Windt DA, Kleijnen J, Koes BW, Bouter LM. Steroid injections for shoulder disorders: a systematic review of randomised controlled trials. *Br J Gen Pract* 1996;46:309–16.
4. Broadhurst NA, Gialamas A, McElroy HJ, Beilby JJ. How do Australian GPs manage shoulder dysfunction? *Aust Fam Physician* 2005;10:861–2.
5. Broadhurst N, Baghurst T, MacLaren S. Ultrasound imaging for shoulder pain in general practice. *Aust Fam Physician* 2004;33:668–9.
6. Broadhurst NA, Barton CA, Yelland LN, Martin DK, Beilby JJ. Managing shoulder pain in general practice. The value of academic detailing. *Aust Fam Physician* 2006;33:751–2.
7. Broadhurst NA, Barton CA, Rowett D, et al. A before and after study of the impact of academic detailing on the use of diagnostic imaging for shoulder complaints in general practice. *BMC Fam Pract* 2007;8:12.