

ORIGINAL ARTICLES

Use of Radiology by General Practitioners Making Orthopaedic Referrals: a Cross-Sectional Study

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Contributors

DFF conceived the study, NCDM and HR collected data and drafted paper. All authors were involved in the development of the manuscript.

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Abstract

Background

In orthopaedic clinics, patients can be x-rayed during their visit to the surgeon. Could radiographs carried out in primary care be more efficiently carried out when the patient meets the surgeon?

Aims

To quantify and describe use of radiological investigations by general practitioners (GPs), when referring to orthopaedics.

Methods

We made a retrospective examination of 294 referral letters for detail regarding x-ray investigation of the condition prompting the letter. We used referral letters assessed by the recipient as 'routine'. We excluded those addressed to a particular surgeon because of sub-specialty interest or prior care.

Results

Twenty one percent (62) of referrals described an investigation that did not contribute to management prior to the patient's clinic appointment.

Conclusions

A significant number of patients travelled specifically for an x-ray. In some of these cases the radiographs could be delayed until the clinic visit without compromising care.

Discussion

We suggest that GPs seeing patients with musculoskeletal problems should consider referral to an orthopaedic surgeon prior to requesting x-rays. X-ray investigation in the orthopaedic clinic may be more convenient for the patient and surgeon.

Introduction

In orthopaedic clinics, patients can be seen by the surgeon, x-rayed, and seen again with the result, all in one visit. Investigations can be interpreted and discussed with the patient during the first clinic appointment and treatment instituted. The patient will gain a firm diagnosis and management decisions in a single visit at the cost of a longer appointment.

This one-stop approach to investigating patients has recently been popularised in many hospital services,^{1,2} but has been practised in orthopaedics for many years. A journey to hospital is always inconvenient and costly to some degree. Orthopaedic patients often have mobility difficulty and NHS Highland is a geographically large trust so performing radiographs in one-stop clinics is important to quality of service.³

Some referrals describe recently organised radiology, but the results of investigation have not been linked to decisions or treatment. It may be perceived by general practitioners (GPs) that having the investigation ready for the clinic appointment is helpful, but in most instances radiographs are more efficiently carried out when the patient sees the orthopaedic surgeon.

Radiographic investigation in primary care can be useful to exclude serious pathology, and so justify conservative management. If clinical findings are such that orthopaedic surgery is considered, then specialist referral is necessary, regardless of x-ray results. (Table I)

Methods

In Raigmore Hospital, the Department of Orthopaedic and Trauma Surgery has nine consultants who receive referrals from a larger geographical area than any other unit in the United Kingdom. GP referrals were audited, examining how frequently x-rays were done before referral, and whether they were used to make decisions. Two hundred and ninety four referral letters were examined. Letters were sampled from the general queue of referrals that had been prioritised as routine by the recipient. Named letters directed to a particular surgeon were not included. (Figure 1)

Table I: Potential Disadvantages of X-ray Before Clinic

- 1 Extra trip to an x-ray facility
- 2 May not affect need to refer
- 3 Referral may be delayed awaiting result
- 4 Special views may be required
- 5 Films may not be available in clinic (especially in a trust with many x-ray facilities)
- 6 Initial interpretations may be misconstrued

Figure 1: The Area Served by NHS Highland, Showing Centres Performing X-rays.



The number of letters mentioning recent x-ray investigation was counted. Clinical information in the letters regarding course of illness and investigation was assessed. Four categories were identified:

- 1 Referral for specialist opinion without x-ray
- 2 Referral for specialist opinion quoting an x-ray report that had influenced referral.
- 3 Referral for specialist opinion with x-ray ordered but not done (ie x-ray did not influence decision to refer)
- 4 Referral for specialist opinion quoting a recent x-ray report where its utility was not clear.

Limitations

Reading referral letters does not give full understanding of prior care. Insight is limited by the necessary brevity of the letters. Further investigation of the referrals (from a variety of times and GPs) was not undertaken. Thus, cases from category two may have been incorrectly classified into category four, underestimating the role of x-rays before referral.

Results

Of 294 letters examined, 73 referred to an x-ray report. (See Table II).

Table II: Results

Category		Number of Letters
1	No X-ray	213
2	Relevant X-ray	19
3	X-ray ordered	8
4	Irrelevant X-ray performed	54

In only 19 of these was the investigation relevant to the decision to refer and in the remaining 54 it had no apparent relevance. Eight letters mentioned that x-rays were ordered at the time of writing, thereby implying that the result could not be relevant to the decision to refer.

Twenty one per cent of the cases examined (62 patients in categories three and four) were sent, prior to their clinic appointment, for radiological investigation which subsequently did not instruct management or referral.

At least 20% of radiographs were performed distant to the orthopaedic unit, (see Figure 1) (in many cases the site of investigation was not specified) and in all cases the patient had two trips to hospital, for the X-ray and then the specialist appointment.

Discussion

Extrapolation of this sample to annual referrals in NHS Highland (7486) suggests the number potentially affected every year is 1570. (There may be some error due to the selection of the letters, as was discussed above). This represents a significant burden of patient transport for investigation. Much of this investigation, whilst not inappropriate, may be delayed until the patient's attendance at the clinic without compromising care. This would save patients a trip to hospital, and avoid some other potential problems, as discussed below.

Waiting for x-ray results may delay referral and definitive management. Radiographs without specialist instruction may need to be repeated. The surgeon may require extended or unusual views. Other body parts may need to be imaged to consider referral for neck, back or hip pain.

Within NHS Highland there are a number of peripheral centres organising and performing radiographs (see Figure 1). A previous audit by one of us (HR) observed that only 71% of relevant peripheral film bags were on-hand for the central appointment. A radiology report is not adequate for most orthopaedic considerations and in pre-operative planning a film is essential. Repeat x-ray exposure may thus be required. The recent introduction of digital radiology systems helps the problem of missing films, but relies heavily on technology.

Summary

Radiological investigation of patients at or before the time of referral to orthopaedic surgeons is common. In most cases however, the decision to refer for specialist assessment can be made clinically. Leaving necessary x-ray investigation until the orthopaedic clinic saves the patient an unnecessary hospital visit and also ensures that the radiographs available are those required by the specialist.

General practitioners seeing patients with musculoskeletal problems should consider referral to an orthopaedic surgeon prior to requesting x-rays. If a referral is to be made, x-ray investigation in the orthopaedic clinic is considerably more convenient for the patient and permits the surgeon to request the most useful images.

References

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