

Preoperative staging of rectal cancer by MRI; results of a UK survey

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AIM: To determine current day-to-day practice of and access to preoperative MRI for patients with rectal cancer in the UK, with the aim of identifying constraining factors.

MATERIALS AND METHODS: A questionnaire asking for details of rectal cancer workload, multidisciplinary team (MDT) practice, preoperative MRI, the use of alternative imaging methods where appropriate, and an assessment of local access to MRI, was mailed to 283 UK departments of radiology. Replies were received from 142 departments (50.2% response rate). These were collated and response frequencies were determined.

RESULTS: According to their replies, 135 (95%) of respondents always discussed rectal cancer cases within the context of an MDT, usually including a radiologist. Only 49% of respondents attempted to offer preoperative MRI to all rectal cancer patients, and 35% of respondents used MRI in less than 25% of cases. Of the 142 respondents, 73 (51%) felt their practice was currently constrained by lack of MR resources. The most frequently cited constraint was an available but over-subscribed MRI scanner. Limited radiology manpower was the next most frequently cited constraint. A significant minority stated that no MRI scanner was available.

CONCLUSIONS: The MDT is a well established forum for the discussion of patients with rectal cancer, and a radiologist is usually involved. However, in the face of current guidelines, less than 50% of the units studied were able to offer preoperative MRI to all of their rectal cancer cases. Improved access to MRI and increased radiological manpower are necessary if current management guidelines are to be observed.

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Introduction

In 1999 there were 27,814 registrations of colorectal cancer in England, of which 9979 were rectal cancers.¹ Rectal tumours present particular management challenges because they are located deep in the pelvis and close to the anal sphincter.² Complete surgical excision offers the only realistic prospect of cure. Among factors influencing clinical

outcome, the local extent of disease is crucial: individuals with more advanced tumours have less chance of cure.³ This relates in part to the likelihood of metastatic disease being present at the time of diagnosis, and also to the incidence of incurable local tumour recurrence following primary surgical excision. Lower rates of local recurrence have been reported when total mesorectal excision is carried out.⁴ There is also evidence that adjuvant radiotherapy or chemoradiotherapy given before surgical excision can reduce the rate of local recurrence in cases of locally advanced disease. However, this approach has attendant risks of significant treatment-related morbidity. Accurate

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local staging of rectal cancer is therefore fundamental in distinguishing those patients who can be cured by surgery alone from those requiring preoperative therapy, and radiological staging has assumed this role in modern management strategies for rectal cancer. Individuals with potentially curable disease can be offered treatment combinations that are likely to offer the best prospect of cure or sustained local control of their cancer while over-treatment is avoided. Similarly, prompt recognition of incurable metastatic disease allows patients to receive appropriate palliative treatment while avoiding the morbidity associated with futile surgery.

Preoperative staging of a rectal tumour is not simple. Digital examination is unreliable,⁵ and the results of CT are variable, particularly for tumours at an early stage.⁶ Transrectal US (TRUS) is accurate in determining the depth of invasion of early-stage tumours, but has limited ability to demonstrate the mesorectal fascia or metastatic disease in regional lymph nodes. Furthermore, it is not widely available in the UK.⁷ However, there is increasing evidence that preoperative MRI effectively answers the relevant surgical questions,^{8,9} and also it is potentially widely available. Recently updated management guidelines published by the UK National Institute for Clinical Excellence (NICE) state the following.

Patients with invasive rectal cancers for whom surgery is being considered should have MRI scans before treatment begins, to determine the precise location and extent of the tumour and clarify who might benefit from adjuvant therapy and who is likely to be adequately treated by surgery alone.¹⁰

On the other hand, it is well recognized that demand for MRI outstrips capacity in the UK. An open discussion at the Royal College of Radiologists' Special Interest Group in Gastrointestinal and Abdominal Radiology (SIGGAR) meeting in 2003 revealed widespread scepticism as to whether these guidelines could be implemented with existing resources,¹¹ predominantly because of a perception that MRI services were constrained.

The aim of this survey was to determine current day-to-day practice of and access to preoperative MRI for patients with rectal cancer, and to identify any factors that might constrain wider application of the technique.

Methods

A questionnaire was designed asking for details of

local rectal cancer workload, MDT practice, the proportion of patients for whom preoperative MRI was performed, the rationale behind this decision, the use of alternative imaging methods where appropriate, and an assessment of local access to MRI for these patients (Fig. 1). The questionnaire was designed so that it could be completed rapidly and required little free text, and was vetted and approved by the committee of SIGGAR and the clinical audit committee of the Royal College of Radiologists (RCR) in advance of its administration. Access to the RCR database of clinical audit leads was granted, and the questionnaire was mailed to the clinical audit leads in all 283 UK departments of clinical radiology. The questionnaire was sent by post in November 2003 together with an addressed envelope for reply. If no reply was forthcoming, a second questionnaire was subsequently mailed to the department in question, this time addressed to a member of SIGGAR, if one was present locally. Members of SIGGAR were identified via the SIGGAR membership database. Where a reply was described as applying to several departments or hospitals within a single NHS Trust, the responses were multiplied by the number of departments indicated.

Replies were received from 142 departments, constituting a response rate of 50.2%, which was deemed adequate.¹² The responses were collated and their frequencies determined.

Results

The response rates and percentages for each of the questions asked are detailed in Table 1. Most departments (61%) staged between 25 and 75 rectal cancers each year, and the majority (68%) had agreed staging protocols in place. Evidently 95% of cases were always discussed by an MDT, with a radiologist regularly present at 89% of these. However, in 44% of responses preoperative MRI was performed in no more than 75% of rectal cancer cases, and 35% of respondents carried out preoperative MRI in less than 25% of rectal cancer cases. Only 49% of respondents attempted to offer MRI to all of their rectal cancer patients. As an alternative to MRI, 85% used CT to assess local tumour stage with or without other techniques such as rectal US, which was available to 49% of respondents either at their own hospital or elsewhere. The commonest indication for rectal US was assessment of early-stage tumours, whereas CT was used by the majority of respondents to look for hepatic metastases.

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