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Session 1 - Should we be setting the standards for colorectal cancer care globally?

The evolution and development of the MDT approach USA, European and UK experiences - what can we do better?

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Abstract

The process of determining the best treatments that should be offered to patients with newly diagnosed colon and rectal cancer remain highly variable around the world. The aim of this expert review was to agree the key elements of good quality preoperative treatment decision making.

Background

The current state of rectal cancer care in the USA

At present MDT working for cancer care in the USA is behind Europe, but things are changing. The USA has highly variable delivery of rectal cancer care; the vast majority of surgery for rectal cancer is performed by non-specialists in low-volume hospitals[1], rates for permanent colostomy are variable and excessive, there is suboptimal adherence to evidenced-based guidelines and variable oncological outcomes.

Recent county level data showed that in almost half of the USA half of rectal cancer resections were APE and that 20% of counties had a colostomy rate less than 40%[2]. Therefore rather than permanent colostomy rates just being determined by the height of the tumour, where and by whom a patient with rectal cancer in the USA is operated on influences their chance of getting a permanent colostomy. Another study looking at 7519 proctectomies performed by 2588 surgeons (almost half of surgeons in the USA) in 11 states found 1003 (38.8%) surgeons performed only nonrestorative APE procedures for rectal cancer. These surgeons also conferred on their patients a higher mortality rate and longer length of stay. The patients who are

more apt to undergo a restorative resection did so because they are operated on by surgeons who were doing more pelvic procedures such as J-pouches[3].

Other recent data suggests that the mortality following rectal cancer surgery in the USA is variable, and where and by whom the surgery is conducted is independent risk factor for death. In a study by Baek mortality was compared with operator volume[1], table 1.

Insert Table 1

Although high volume was defined as 11-24 cases per annum, compared to 6-10 and 1-5 cases per annum for medium and low volume centres respectively, which may not be regarded as high volume, mortality was 0.9% in high volume centres compared to 2.4% in low volume and 1.1% in medium volume centres ($p<0.002$)[1]. This study also found statistically significant reduced rates of sphincter preservation (51% vs 55% and 64%, $p<0.001$) and length of stay (9.7 vs 9.2 and 8.8 days, $p<0.001$) in low versus medium and high volume centres[1]. Another study reviewed the treatment of 30,994 patients in the USA and again found that most patients are treated in low (1-10 cases/year) and intermediate (10-30 cases/year) volume centres (23808 vs 6466 patients in high volume centres (>30 cases per year). There was significant variation in adherence to evidence-based guidelines and the highest adherence to evidenced based protocols is in high volume centres (78% vs 69%, $p<0.001$), with geographical variation[4].

OSTRiCh consortium

Because of all these problems, in 2011 the OSTRiCh (Optimizing the Surgical Treatment of Rectal Cancer) consortium was developed to try to optimise surgical treatment for rectal cancer. This ad hoc group deliberately included people from all facets of USA healthcare delivery; different types of hospitals, geographic locations, practice sizes all of whom also had leadership roles in other societies, including the College of American Pathology and the American College of Radiology. The mission of the OSTRiCh was to try to improve the quality of care by developing a program through the American College of Surgeons (ACS) Commission on Cancer (CoC) as had already been done in Europe.

The consortium published several call to action articles each of which addressed parameters which have been proven to affect oncological outcomes: local recurrence, disease free survival and overall survival.

These variables included the volume and specialisation of the surgical team, dedicated imaging service (MRI vs EUS), TME (grade), systematic pathological assessment of CRM/margins/nodes retrieval, neoadjuvant and adjuvant treatment, MDT management[5-7]. .

Multi-disciplinary team working

One of these studies demonstrated the USA was far behind Europe in terms of evidence- based cancer care[4]. The European systems have shown that the MDT model of care improves patient outcomes, including reduced pathological CRM involvement

rates [8]. In the USA we saw a lack of adherence to protocols and variation in the use of neoadjuvant therapy by a variety of factors including cancer centre type, geographical location, hospital volume, patient age, sex, race, primary payer, urban/rural, comorbidity, stage[4].

More recently another paper reviewed the National Cancer Database between 2010-11 for stage 1-2 rectal cancer and reviewed the rate of a positive CRM by location, patient age, tumour characteristics etc.[9]. Overall there was 17% CRM positivity in the USA, with geographic variation and independent associations of tumour stage, lymphovascular invasion, neural invasion etc. The frequency of MDT discussion also varied; all cases were discussed at only 20% of centres, the majority of centres discuss <50%[9]. There was little use of the synoptic report, MRI was valued in only a quarter of centres and standardised reports for MRI in <50%. This demonstrated the need to standardise care in the USA.

Standardisation of rectal cancer care in the USA

The OSTRICH consortium proposed a system in the USA which is based on already-successful international models with central review and audit. Thankfully the OSTRiCh successfully completed it's mission and the American College of Surgeons (ACS) Commission on Cancer (CoC) National Accreditation Program for Rectal Cancer (NAPRC).[10-11] There are standards pertaining to programme structure (Structure Standards) and the process of patient care (Patient Standards). The NAPRC mandates CoC accreditation at baseline dependant on achievement of, and adherence to, standards. The system will encompass:

1. multidisciplinary team management of rectal cancer: with at least one radiology , radiation oncology , surgeon , medical oncology and pathology

specialists present at each MDT.

2. verify MDTs at interested/motivated hospitals
3. follow defined protocols of patient care and process
4. prospective data collection to track process compliance and outcomes
5.

The individuals components are created by the relevant society:

- surgery: American Society of Colon and Rectal Surgeons (ASCRS) Total Mesorectal Excision (TME) course (completed)
- pathology: College of American Pathologists course for standard pathology specimen evaluation and reporting (in development)
- radiology: American College of Radiology rectal cancer MRI protocol MRI and standard reporting (completed)

In due course there will be quality indicators including:

1. Abdominoperineal resection rate relative to tumour height & stage
2. Anastomotic leak rate
3. Reoperation rate
4. 30 day mortality rate after surgery
5. CRM (in mm)
6. Distal to resection margin (in mm)
7. Mesorectal grade
8. Lymph node yield ≥12
9. Local recurrence rate
10. 3 year disease free survival

11. Use of alternative approaches (possible: watch and wait, trans-anal approach and new minimally invasive approach).

Our goal is to transform the delivery of rectal cancer care in the USA to a process driven, evidenced-based programme, for accountability and accreditation for rectal cancer. Through the ACS CoC NAPRC we are optimistic that we can do so.

Discussion

Concept 1: Multi-disciplinary working

Prof S. Laurberg: Why do we have MDT? Is it a waste of time? Should it be mandatory for all patients?

Dr E. Kennedy: Do all rectal cancer patients need to be represented at MDT? (Consensus question).

Prof D Sebag-Montefiore: Yes, all colorectal cancer patients should be discussed at diagnosis at an MDT. I think you can debate the level of discussion that we need and I don't think you necessarily triage the level of discussion - some cases are very routine but we need to know about all [of the patients] and make sure the practice adheres to guidelines. The MDT is a very clear and robust method of establishing that. We sometimes lack information, without seeing the patient you can't make all the decisions but I think absolutely we need the MDT to be looking at all cases. We need to triage the level of discussion that is

need. But ultimately we need the feedback loop in terms of outcome.

Prof A. Rockall: I agree that some patients can be managed very routinely, the imaging is critical to the treatment triage. One thing I would caution about MDTs is whether patients can actually be delayed by needing discussion in the MDT, I wonder whether some patients do get bounced from one MDT to the other and [do] not actually get the care they need in a timely manner.

Dr H. Yano: I 100% agree with what the [has been said]. MDT is essential - not only the level of discussion but which [specialties] participate in the MDT is another issue. Particularly for me in peritoneal malignancies where we need input from gynaecologists or orthopaedic surgeons. When you look at early colorectal cancers we need input from a good endoscopist who does EST and EMR etc.

Prof J. Straßburg: I took part in one of the first [Pelican Cancer Foundation] workshops in Basingstoke. Prof Gina Brown is a radiologist who is able to look with the eyes of the surgeon. Where is the CRM, is the tumour edge at Denonvilliers' fascia, below or behind the seminal vesicles - without this you will not get proper information in advance of the surgery. So 100% I agree with the importance

of MRI and there is no time lost when you spend it together in the MDT.

Prof S. Laurberg: Do you think that all colonic cancers should also be seen on the MDT?

Others: Yes

Prof S. Laurberg: Should somebody in the [MDT] have seen the patients before this intellectual discussion happens? Should this be mandatory? I'm not talking about the very special cases, but in general.

Prof J. Straßburg: It's quite a good question. Attendance in the radiological department goes [on] apart from the patient. We see the patients with [our radiologist] and look at which [quadrant] the tumour is in.

Prof S. Laurberg: I am also [thinking] more about the large proportion of our patients who are older, but many of our patients are active 95 years old, or younger but drink heavily. Should we see the patients before we start to discuss how we should manage them?

Dr E. Kennedy: Should we set any specific standards for MDT? Should [the meetings] be held once weekly, twice weekly so patients are [not] delayed? Should there be a mandatory group of people who participate? What should the level of reporting and [should it be standardised] across centres?

Prof S. Wexner: This is exactly what I wanted to address. We created these NAPRC standards as an interdisciplinary effort. We felt that groups probably would self select to participate, or not, as every case has to be discussed real-time and because of time limits to prevent delay to treatment. If you can't met that rapid timeline you're probably not going to invest the resources to do it because you're not going to be able to get accredited. Centers with smaller case volumes may not want to invest the necessary resources.

The patient has to be seen , presented with the MRI and pathology , ideally with endoscopic photos, to discuss these findings with the named members of the team ; radiation oncology, medical oncology, MRI imaging, pathology, and colorectal surgery . Additional specialists may be included as needed such as HPB surgery or gynecology.

The MDT must meet at a minimum of every other week although it can be within a broadher tumor board. .

Success requires communication. Describing to the referring physicians and the patient - what was discussed at the tumour board and what treatment is recommended based upon that tumour board discussion. [The tumour board discussion should happen] twice; at the time of initial diagnosis prior to treatment and again after surgical treatment. This second presentation must include discussion of quality of TME, margins and CRM with review of specimen photographs. .

Prof G. Chang: I just want to follow up on a comment that Prof A. Rockall made and to play devil's advocate. The concept of MDT sometimes is predicated on the fact that one provider has seen the patient and perhaps other providers have not. If you have a real time MDT clinic (in the same visit the patient is seen by a medical oncologist, radiation oncologist and by a surgeon) then there is a potential delay because the evaluation has potentially been completed but you must wait for this MDT discussion before the patient can be operated on.

If patients are travelling to come that is a week they are spending in town, in the US patients may be travelling 2000 miles to get their treatment done. There is obviously an opportunity for imaging review [to] happen in that [MDT clinic] setting, although it may not happen together with everybody in the same room. My question for discussion is - what exactly are the components that are important in the MDT? As some routine cases are going to be triaged, where there isn't going to be much of a discussion, but if they've [already] seen everybody what is the additional gain of the group discussion?

Prof D. Tait: I think [there is an] educational role of MDTs for all of us at any stage of our careers, but particularly for our trainees [it] is fabulous. The other thing is it [MDT] is a vehicle for collecting consistent data and information for audit and research - therefore MDT has other huge roles.

Prof S. Laurberg: I certainly agree and at our site it is always our colorectal fellows who prepare all the cases for the MDT and present them because it is fabulous teaching.

Prof H, Rutten: I think we should consider which kind of hospital is doing which kind of MDT with what kind of purpose.

If you are a low volume hospital and you need to have quality assurance you should certainly discuss all the cases, but if you are a high volume centre which is being consulted by other hospitals you probably should work to a multi-hospital MDT, and then you have a different objective which is not only educational for your own people but you are also trying to help other hospitals.

I think there is an issue of volume of patients to be discussed especially in those expert centres where there is also a multidisciplinary outpatient clinic where they all have been seen by a multidisciplinary group. So I would say we should have a MDT fitting to the hospital where the patient is treated, and the objective of course would be to have the best treatment for the patient, and not only education, because education is something you may provide in another way than using your MDT on all patients which come to your clinic.

Prof D Sebag-Montefiore: I think most of us will agree about the regular MDT and the need for it to happen on a regular basis. The decision making will be influenced by all sorts of international factors in terms of guidelines and personal opinion. I think one of the key things we need to strive for is outcome reporting because we collect a huge amount of data on process and we see wide variations in the use of radiotherapy in rectal cancer, we have

the debates about the quality of surgery in colon cancer, and the question is what is the performance in terms of cancer outcomes both in terms of locoregional failure and disease related failure elsewhere. We have to strive to have, I think, mandatory outcome reporting for our patients because we can spend hours discussing how we manage a patient, but if we don't measure the outcome and we don't have that on [a] population based level we don't know how well we are serving our patients.

Prof S. Laurberg: We need to feedback to improve.

Dr E. Kennedy: In summary it seems that the group agree that probably all rectal cancer patients should be presented at MDT and probably that some kind of quality indicators and outcome measures for MDT are important, although [this is] likely to be more specific to institutions and regions.

Concept 2: MRI scans

Prof S. Laurberg: Now we switch to the MR scans and discussing quality of MR scans. To me one of the great concerns is that when you see what Prof Gina Brown can do you think that that is life everywhere. But how do we manage to have high quality MR scans at all hospitals?

Prof A Rockall: I think there are two issues:

1. technical quality of the scan
2. quality and completeness of the report

Both of these are important for managing patients.

There is a big drive through the Royal College of Radiologists (RCR) and, for example in London, the London Cancer Alliance to have a minimum dataset protocol for the acquisition of the scan. We can [continue] publish those protocols, but making sure that that quality is delivered on the ground is more challenging I think and I'm not quite sure how to overcome that entirely.

Then the second point is that the quality of the report, which is something that we can actually strive much more to address. The Royal College of Radiologists (RCR) have a group which is trying to work with industry, because now we dictate our reports. We want standardised cancer reporting, but until this comes in with an automated dictation process this will not be delivered widely as we are under enormous pressure [in] Radiology to get through a high volume of reports, and these detailed reports slow everybody down. People like Prof Gina Brown and myself who are very keen on this can do this, but across the country this is not going to happen until we engage with industry to have protocolised digital dictation - I think this is where we need to go.

Prof S. Laurberg: Part of it is trying to standardise the report, [and ensure the quality of the report]. How do you think you will manage that?

Dr S. McGee (Consultant Radiologist, UK): I work with the National Cancer Intelligence Network (NCIN) in the UK. This subject is receiving attention at [the] Public Health England and NHS England level.

Some work that was originated by Prof Gina Brown with the NCIN a few years ago was the CASPAR (CAncer Staging using ProformA Reporting) trial of proforma reporting across a range of cancers and this was successfully implemented by many radiologists in the UK, particularly in the field of colorectal cancer, and received widespread support from the surgical community who found it was easier to extract from proforma reports the information that was pertinent to oncological decision making and in terms of populating the fields of the national bowel cancer audit.

It has been quite difficult for the RCR, despite the successful trial, to really mandate the use of proformas throughout the UK, and work is ongoing within the NCIN around providing the evidence in data terms for the differences that this makes in outcomes.

There are some practical issues around having the proforma integrated with our radiology information systems to allow data harvesting to occur seamlessly, but the likely direction of travel here is that the key reporting elements will be extracted on a national level as data items, and that this information will be fed to commissioners of cancer services in the UK, to include in their specifications for cancer services when awarding contracts

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Prof A. Rockall: [I may be wrong but I believe] Prof Gina Brown will report onto a paper proforma which is then transferred onto the digital report - at least initially. It is difficult to sort out these things but it needs to be done.

Dr E. Kennedy: We have implemented a synoptic MRI report across Ontario (Canada) and we have found that the completeness of our reports have improved significantly. Before we had a synoptic report there was ~ 40% reporting of distance to the CRM, this has now increased to 70%, and we have had a 40% uptake. Our synoptic reports have gone from 0% to 43% over 2 years. We have allowed people to use the template in the way that works best in their local institutions without lots of set rules, to implement it in a way that works for them whether it is software recognition or dictation. This has been an important element.

Mrs E. Scurr: The most important thing is to get the best possible imaging, it doesn't matter if you have proforma reporting - your imaging has to be the best that it can possibly be. I am a radiographer - you need to train your radiographers, you need to make sure they know and have read Prof Gina Brown's papers on prognostic indicators - they need to know all of that and they need to do it right otherwise there is no point.

Prof S. Laurberg: In our small country I am quite sure that the reporting is about 100% - we have these proformas, we fill them out, you can see it in our national registry. What I am concerned about is the [quality]. We have money, we are going to train our radiologists based on gold standards - where we have a world expert telling them. All the individual radiologists are going to be trained on that and we are going to work out an individual training programme, because a surgeons best friend is a perfect radiologist and surgeons worst enemy is [poor quality].

Dr E. Kennedy: [This] also highlights the importance of MDT and the discussion between the radiologist and the surgeon.

Mr B. Moran: The experience we had when we ran the Low Rectal Cancer programme was that almost always over reporting/overstaging. Is there any way in the future we can have electronic system reporting. Do we really need individual people reporting?

Dr R. Adams: I think we should take a leaf out of the pathologist's book. They have a programme called UK NEQAS (National External Quality Assessment Service) where you quality assure pathology, send around standardised samples to pathologists to be reported in individual institutions. Why can't we do that in radiology? It should be a standard that people should pass in their institution and not something where we should be reliant upon a form that is not quality assured. In our MDT situation we have our radiology reported by an individual radiologist, but the MDT radiologist will re-report on the key parameters (not the proforma) that are important, so we get a duality there.

Dr R. Glynne-Jones: I would just like to make a point that you can have the best images, with synoptic reporting, good training - but unless you engage the pathologists to produce the proper feedback loop the radiologist is never going to learn anything.

Prof S. Wexner: The NAPRC mandates using the synoptic report from the College of American Pathology (or equivalent), mandates using the synoptic MRI report from Toronto and now we have the electronic medical system the surgical synoptic report is soon to follow with the new ICD-10. The audit then ensures that people are not producing [poor quality reports] and was thought to be a T3N0 lesion was actually a tumor a T3 tumor. The beauty of the digital system is it can be done in a

cost-effective manner including data transfer to the National Cancer Data Base. Moreover, images can be shared with expert pathologists and radiologists, including confirmation of the quality of the TME as documented by photographs.

We have tried to take all of these things into account and the programme will mandate compliance with synoptic reporting, and counters Prof Chang's [point] as it is the importance of that feedback that occurs amongst the specialities at the MDT and not necessarily in the hallway.

Prof D Sebag-Montefiore: 3 T's: technique, training and trials - because trials like MERCURY 1/2 have been standardised.

Dr M. Morgan: As a pathologist I am sitting here feeling a little bit smug as we have been a bit more advanced in terms of proforma reporting and have been doing it for a while. The advantages, as you have said, is once everyone is producing the same kind of report you can audit the [poor quality] and you know where it is. So we [are] now not [just] doing proforma reporting but we are auditing our own numbers; are we achieving levels of EMVI etc. Also we can hopefully provide better feedback to radiologists i.e. here's a picture of what you assess to the TRG, and here's how we

assess it. It enables the feedback to be here and a much tighter process.

Prof S. Laurberg: Pathologists are also the surgeons' best friend, particularly when you look at standardising the quality of the surgical specimens. There is a lot of work to the be done on the quality control of the specimens; training and having a systematic way of doing it.

Dr C. George: This is a more generic comment. Everything we have talked about in terms of quality, evolution of our care, MDT, training, reporting in a standardised fashion - there is a cost implication which we have not addressed. In America you are introducing MDTs, you are in a position to cost this from the beginning which we failed to do dramatically in the UK when we introduced it. Could I ask you how in the USA and other countries who are introducing MDTs, quality assurance, levels of assurance, levels of audit, how are you going to cost that at a policy level at the very front end?

Prof S. Wexner: The cost is going to vary by system. The problem with the USA is we will capture the data (everything is electronic) but we have smaller hospitals [and] larger hospitals. We may have a small hospital which is high volume for rectal cancer treatment or a huge hospital at not much rectal cancer surgery is done - the cost may be different. We may have a system like the Veterans Affairs System - and

the costs will be different. We will be able to capture them through Charge Master but we're not going to know an answer to that for a while.

Dr C. George: But will the insurance companies fund that and can you persuade them to fund the extra costs of these extremely more prolonged operations (with more exotic dissections)? And can you cost into that and get them to pay for the MDT cost. An MDT with every speciality represented, often two surgeons/ radiologists/ pathologists, which lasts two hours is a very expensive affair.

Prof S. Wexner: Which is why we think that initially the centres that have applied for NAPRC accreditation have a devoted interest and already have those mechanisms in place so if desired can very easily make that investment. It's going to be either a local decision on the part of the administration that yes we want to do this programme or we do . Eventually payers may appreciate the difference in outcomes leading to differences in remuneration and/or patient referral. .

Summary of the key points

- MDT discussion can be triaged for the level of detail and discussion required, we need to ensure all cases are discussed to ensure that even the most straight forward case adheres to guidelines. And we also need a feedback loop in terms of outcomes from MDTs.
- Mechanisms should exist to protect the patient from delays in treatment by going from one MDT to the next when the diagnosis is not clear.
- Appropriate specialties need to participate in the MDTs, for example endoscopists should attend the early cancer MDT.
- For the surgeon the MDT also serves to help roadmap the planes of surgery
- All colon cancers should be discussed in a MDT
- Someone should have seen and met the patient before any intellectual discussion happens.
- Standards for the MDT should be set and measured, there are UK standards and developing standards in USA secondary to the NAPRC .
- If the MDT process is to serve as a tool then outcomes and proof of discussion and adherence to standards should be documented.
- MDTs have a role in education and research
- MDTs must be quality assured, this includes volume of procedures

- MRIs must be of high technical quality and must have high quality, complete reports. Engagement with radiographers including education regarding the prognostic indicators in rectal cancer is required to get the best possible imaging.

Editor's note: The validated protocol for high resolution rectal MRI studies has been published following the MERCURY study[12]. The studies should be performed using a pelvic phased array coil and with Hyoscine. The sequences to be performed are shown in table 2.

Insert Table 2

- Protocol reporting can assist in the standardisation of reports but will require input from industry to ensure protocolised digital dictation
- Protocol reporting increases the completeness of reports but in order to mandate protocol reporting data demonstrating a difference in outcomes with protocol reporting is required. The NAPRC standards of reporting in the USA.
- Training is crucial for all members of the MDT
- We could consider introducing quality assurance programme for Radiology reporting similar to the UK NEQAS programme for the quality assurance of pathology specimens
- A complete feedback loop between pathologists and radiologists is required for continued learning and improvement.
- The cost implications of complete rectal cancer care, including MDT, training, quality assurance and proforma reporting has not been assessed. Attempts will be made to cost rectal cancer care as part of the NAPRC.

Audience voting

Question: There should be measured standards for MDT to cover structure as well as process.

Strongly agree 65%

Agree 25%

Neutral 8%

Disagree: 1%

Strongly disagree: 1%

Question: There should be better documentation of cancer outcomes from MDTs?

Strongly agree 85%

Agree 11%

Neutral 3%

Disagree: 0%

Strongly disagree: 1%

Question: There should be quality assurance for radiology, both of quality of scans and content of reports?

Strongly agree 85%

Agree 13%

Neutral 2%

Disagree: 0%

Strongly disagree: 0%

Question: Training of radiographers and radiologists for specialist cancer reporting is essential?

Strongly agree 93%

Agree 5%

Neutral 2%

Disagree: 0%

Strongly disagree: 0%

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Tables and figures, including legends

Outcome	Hospital volume			p value
	Low	Medium	High	
Year case volume (average)	1-5	6-10	11-24	
Number of hospitals	232	65	24	
Number of patients	2364	2686	2137	
Mortality (%)	2.1	1.1	0.9	<0.001
Complications (%)	22	24	20	0.709
Sphincter preservation (%)	51	55	64	<0.001
Length of stay (mean number of days)	9.7	9.2	8.8	<0.001

Table 1: Hospital Volume and Rectal Cancer Surgery Outcomes[1]

	Fast (Turbo) Spin Echo, T2 Weighted		
Parameter	**Sagittal (LFOV)**	**Axial (LFOV)**	**Oblique-Axial and Oblique-Coronal High Resolution (and Sagittal High Resolution for Low Rectal Tumours)**
Repetition time (TR), ms	3961	4018	5362
Echo time (TE), ms	125	80	100
TSE factor	23	20	16
Field of view / rectangular field of view	250/100%	300/100%	160/90%
Thickness/gap, mm	3/0.4	5/1	3/0.3
No. slices	24	32	24
No. acquisitions (NSA)	4	2	6
Matrix	512 x 320	512 x 256	256 x 256
Saturation bands	Anterior & superior	No	No
Acquisition time, min	6.0	3.28	7.35
Purpose of the scan	Localize tumour Scans enable height of tumour above anal verge and length of tumour to be assessed	Scans enable pelvic disease outside the mesorectum to be assessed.	High-resolution scans should be undertaken to assess the primary tumour and tumour spread within mesorectum i.e. high-resolution coverage to the L5/S1 level. Scans perpendicular to the long axis to assess the intersphincteric and levator planes.

Table 2: MRI parameters[13]