## Assessment of the accuracy of MRI for prediction of disease-free circumferential resection margin in staging of rectal cancer

## Descriptor

Assessment of accuracy of MRI in prediction of disease-free circumferential resection margin in staging of rectal cancer based on Mercury study group’s prospective observational study of rectal cancers treated by colorectal multidisciplinary teams.

## Background

Accurate prediction of involvement of the circumferential resection margin (CRM) in rectal cancer staging is important in determining the treatment plan. An involved margin (primary tumour or involved mesorectal lymph node(s) 1mm or less from mesorectal fascia) generally requires intensive pre-operative chemo-radiotherapy to prevent local recurrence and improve survival. An uninvolved margin allows a patient to proceed directly to surgery or short-course pre-operative radiotherapy. Rectal MRI is an established method of assessing CRM involvement. The aim of this audit is to determine the accuracy of this method compared with the published standard [1,2].

## The Cycle

### The Standard

Magnetic resonance imaging should accurately predict clear margins in assessment of rectal carcinoma. Post-operative histopathology findings are used as a gold standard to assess the accuracy of the MRI reports.

### Target

>90% accurate prediction of clear resection margins

## Assess local practice

### Indicators

Whether there is involvement of the circumferential resection margin or not.

### Data items to be collected

• Pre-operation MRI report should be compared with post-operative histopathology findings in patients who have been treated as uninvolved CRM based on the MRI staging• Time between MRI and surgery should also be noted to identify any patients with significant delay which may have affected result

• If short course radiotherapy has been administered this should be noted.

### Suggested number

50 consecutive patients with reported uninvolved CRM on MRI

## Suggestions for change if target not met

Review the criteria for reporting of CRM involvement.

Consider the introduction of template reporting for MRI rectal cancer staging.

Audit MRI rectal cancer imaging quality to confirm sequences are being acquired perpendicular to the plane of the tumour (true axial is being performed).

## Resources

1. List of rectal cancer patients who have undergone surgery with no chemo-radiotherapy or radiotherapy in the intervening period since MRI examination

2. Post-operative histopathology reports of the above patients

3. Pre-operative MRI reports of the above patients

## References

1. MERCURY Study Group. Diagnostic accuracy of preoperative magnetic resonance imaging in predicting curative resection of rectal cancer: prospective observational study. BMJ 2006 Oct 14; 333(7572):779.  www.bmj.com/content/early/2005/12/31/bmj.38937.646400.55
2. Extramural Depth of Tumor Invasion at Thin-Section MR in Patients with Rectal Cancer: Results of the MERCURY Study Radiology February 28, 2007.   10.1148/ Radiol.2431051825. http://pubs.rsna.org/doi/abs/10.1148/radiol.2431051825?journalCode=radiology
3. Lafrate F, et al. Preoperative Staging of rectal cancer with MR Imaging: Correlation with Surgical and Histopathologic Findings. Radiographics 2006 May; 26:701-714.xray.ufl.edu/files/2010/02/Rectal-Cancer.pdf
4. R. Glynne-Jones et al. Rectal Cancer: ESMO Clinical Practice Guidelines. Ann Oncol (2017) 28 (suppl 4): iv22–iv40.

## Editors Comments

## Submitted by

Dr Alireza Vosough, Dr Steven Yule. Updated by J Illes, and J Parikh

## Co Authors

## Published Date

Thursday 31 December 2009

## Last Reviewed

12 October 2023