

Audit on Assessment of MRI Accuracy in Predicting Disease-free Circumferential Resection Margin in Rectal Cancer Staging

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Background

In rectal cancer staging, accurate prediction of the circumferential resection margin (CRM) involvement is essential as it carries significant implications for the patient in terms of treatment and prognosis. In particular, tumour involvement within 1 mm from the mesorectal fascia is an independent predictor of both local recurrence and poor survival. Rectal MRI represents the first-choice modality for rectal cancer staging and specifically, for evaluating CRM involvement.

Aim

Our audit looked to determine the accuracy of this method compared with the published standard.

- **Standard:**
MRI should accurately predict clear margins in assessment of rectal cancer. Post-operative histopathology findings are used as a gold standard to determine MRI report accuracy.
- **Target:**
>90% accurate prediction of clear resection margins.

Methodology

Between June & November 2019, pre-operative MRI reports of rectal cancer patients who had undergone surgery with no chemo-radiotherapy or radiotherapy in the intervening period since MRI examination were obtained and compared with subsequent post-operative histopathology reports, specifically looking at involvement of the circumferential resection margin.

Results

26 consecutive patients presenting with all stages of rectal cancer were identified. Of these, 24 patients underwent primary surgery. In comparison with subsequent post-operative histopathology reports, the accuracy for prediction of a clear margin was 21/24 (88%) with a specificity of 21/22 (96%) and a negative predictive value of 21/23 (91%) (**Table 1**).

MRI prediction at CRM	Status by Histopathology		
	Clear	Involved	Total
Clear	21	2	23
Involved	1	0	1
Total	22	2	24

Discussion

Our audit confirmed that MRI can predict CRM with high accuracy and consistency in rectal cancer staging, affirming its role as first-line technique as well as its importance in the decision making strategy.

Conclusion

High-resolution MRI plays a key role in facilitating accurate mesorectal fascia assessment which allows for appropriate treatment approaches with the aim of reducing local recurrence and improving survival.

Recommendation

Re-audit within an appropriate timescale with larger patient scale.

References

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