



Title	Diagnostic Performance of Imaging Techniques Used for the Preoperative Locoregional Staging of Rectal Cancer: A Systematic Review
Agency	AETMIS, Agence d'évaluation des technologies et des modes d'intervention en santé 2021, avenue Union, bureau 10.083, Montréal, Québec H3A 2S9, Canada; Tel: +1 514 873 2563, Fax: +1 514 873 1369; aetmis@aetmis.gouv.qc.ca, www.aetmis.gouv.qc.ca
Reference	07-07. ISBN 978-2-550-50309-5. www.aetmis.gouv.qc.ca/site/en_publications_2007.phtml

Aim

To examine the current evidence on the diagnostic performance of endoscopic ultrasonography (EUS), magnetic resonance imaging (MRI), computed tomography (CT), and positron emission tomography/computed tomography (PET/CT) in determining invasion of the muscularis propria, perirectal tissue, adjacent organs, regional lymph nodes, or the circumferential resection margin in patients who have not received neoadjuvant therapy.

Conclusions and results

A search and examination of the relevant literature shows both its paucity and significant methodological weaknesses. Furthermore, comparative studies of the techniques in the same patients are rare. Methodological limitations of the studies point to the need for caution when interpreting the results of this report. It is unlikely that new, well-designed studies exclusively involving patients who have not received any preoperative therapy will be carried out, as this treatment modality has become the practice standard. Based on the available evidence, AETMIS concludes that: 1) EUS and MRI are both valid techniques, but provide complementary information for staging the disease; 2) if used as the only diagnostic test, MRI provides more useful information in choosing treatment than EUS alone, especially in cases requiring total mesorectal excision; 3) in rare cases where T-stage assessment is important for the choice of treatment, performing EUS in addition to MRI should be considered; 4) MRI is the only modality to offer some degree of certainty for evaluating regional lymph nodes and the circumferential resection margin, the two factors most likely to influence patient management, regardless of the T stage; 5) CT alone is not a good tool for staging rectal tumors, and although multidetector technology may improve its performance, evidence of this is insufficient; and 6) the role of PET/CT in staging rectal cancer will need to be monitored in the future, as there appear to be great hopes for this technology

(however, its contribution to diagnosing lymph node involvement still needs to be confirmed).

These conclusions, which stem from an evaluation of the diagnostic performance of imaging techniques, are intended to contribute to the development of clinical practice guidelines. This particular activity and subsequent actions will also have to be based on an examination of the associated organizational and economic issues, which is not within the scope of this assessment.

Methods

Systematic review of published primary studies published between January 1996 and September 2006 for EUS and CT, and between January 2000 and September 2006 for MRI and PET/CT.