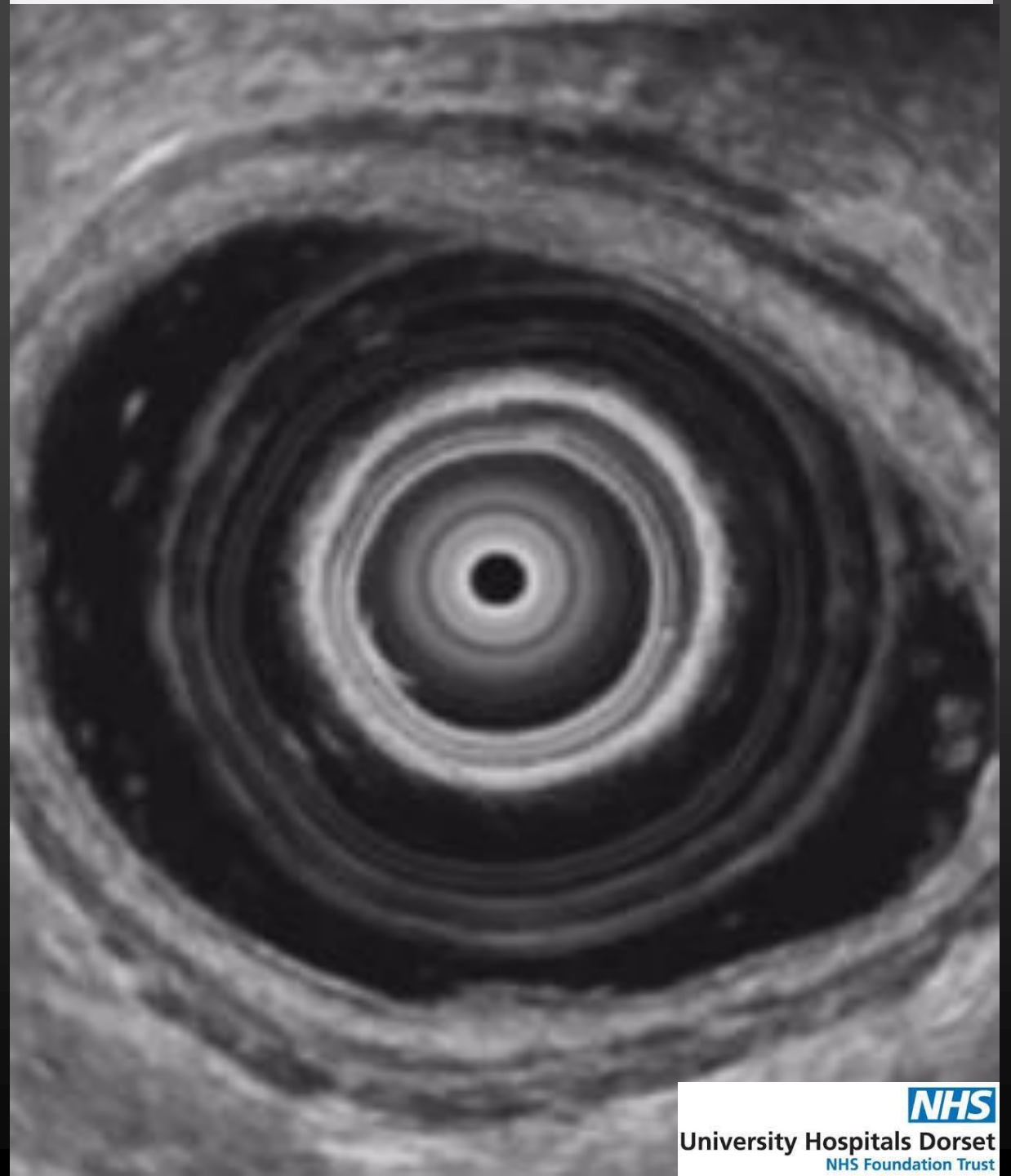


Evaluation of the ERUS accuracy for pre-operative staging of rectal cancers

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Background

- Endorectal ultrasound (ERUS) is used together with magnetic resonance imaging (MRI) and computed tomography (CT) for preoperative staging of early rectal cancers, particularly in the patients being considered for local excision such as transanal endoscopic microsurgery (TEM).

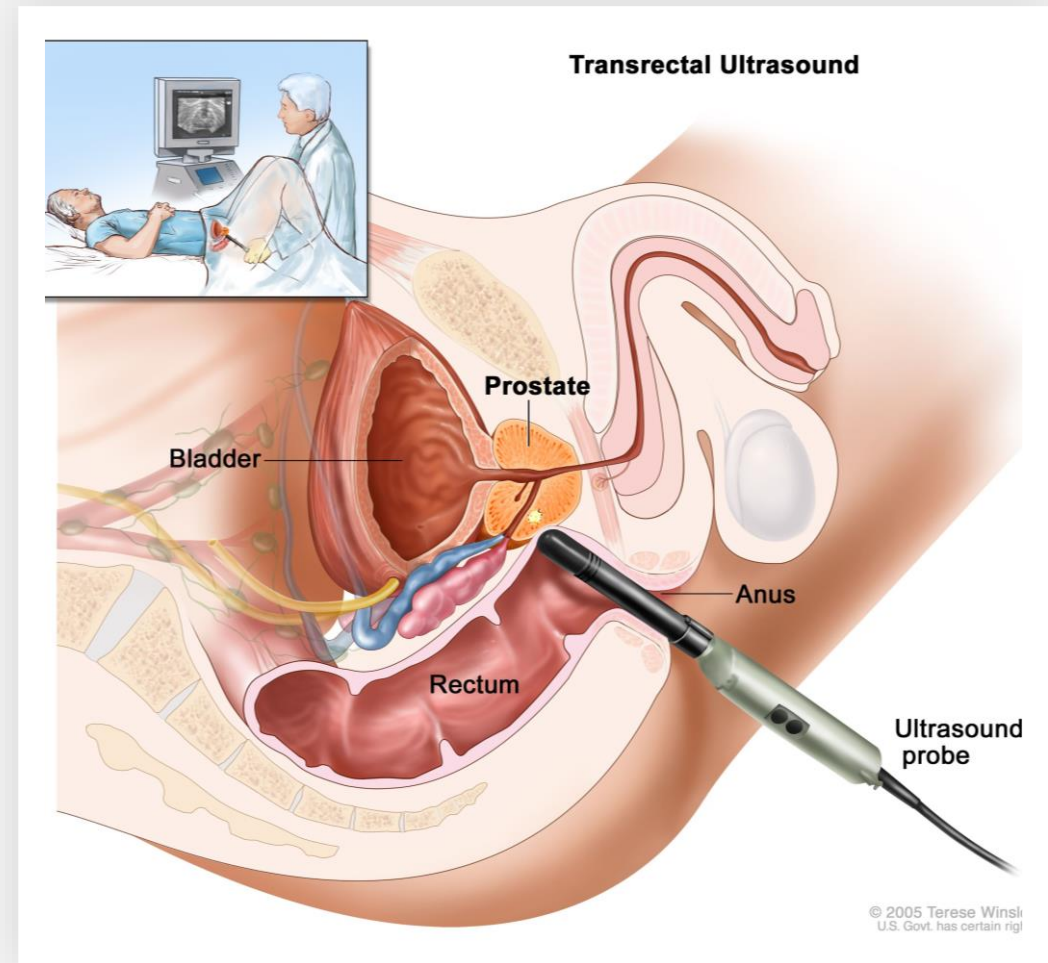


Image courtesy National Cancer Institute NIH



Background

- ERUS is the only technique that is able to differentiate the layers of the rectal wall and hence be able to assess the depth of tumour invasion within the wall.
- This allows ERUS to discriminate between T1 tumours, which are limited to the submucosa, and T2 tumours, which invade the muscularis propria.
- The accuracy of ERUS variably report as 69-97% in the literature.

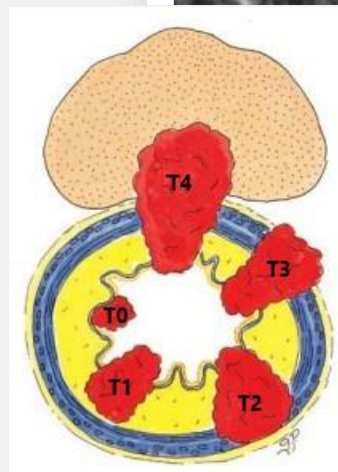
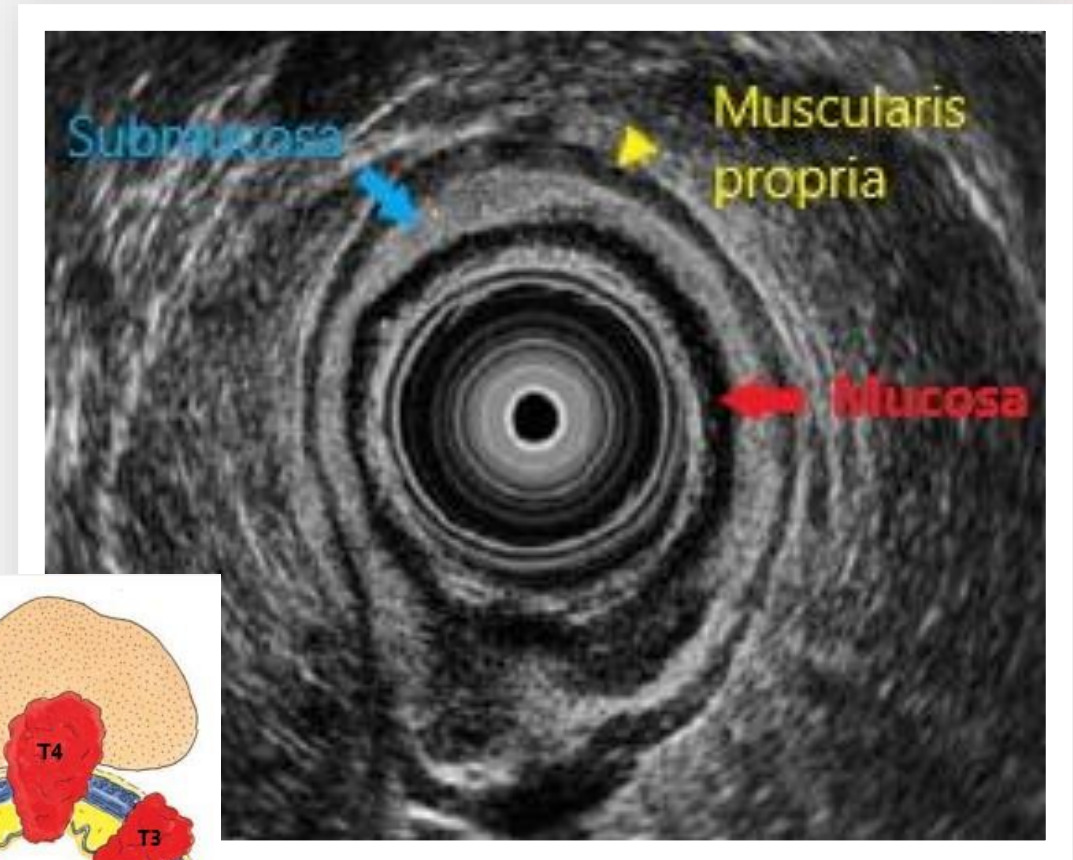


Image courtesy radiologykey.com
Berton F et al. AJR 2008; 190:1495-1504



Aim

- To evaluate the accuracy of ERUS in pre-operative staging of rectal neoplasia in our unit.



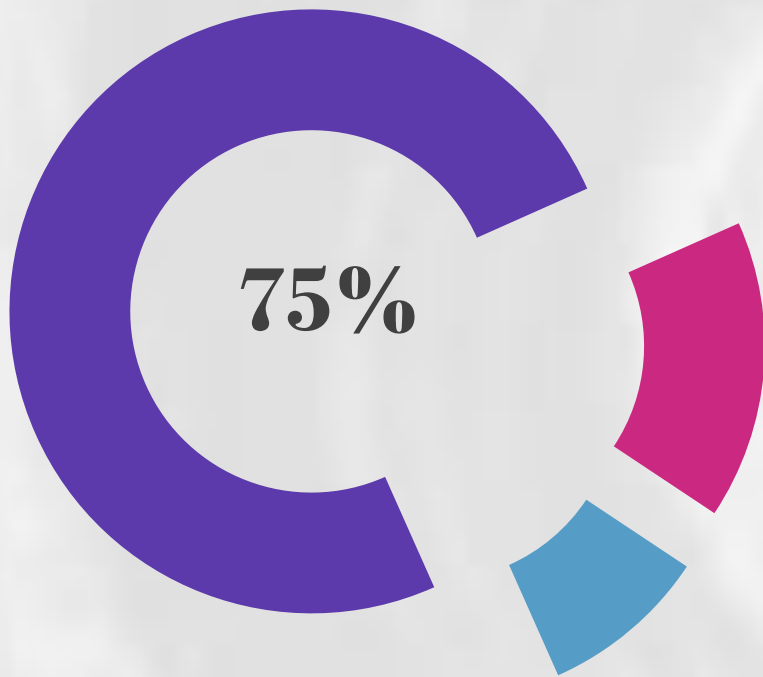
Methods

- Retrospective data was collected for the endorectal ultrasounds (ERUS) performed from 2019-2022 at our centre where T staging was provided (n=32). Patients with ERUS performed for reasons other than local staging were excluded.
- Overall accuracy of ERUS was evaluated by comparing the pre-operative T-stage with the final pathological staging following surgery.
- The diagnostic performance of ERUS for distinguishing patients with T2 or T3 tumours from tumours less than or equal to T1 was calculated.



Results - Overall T-stage Accuracy

■ Correctly staged ■ Overstaged ■ Understaged



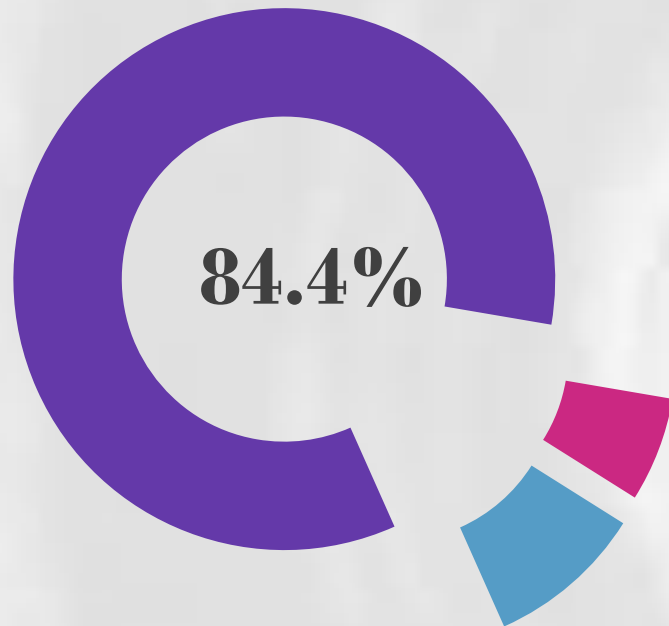
Overall T-stage Accuracy

	Histological staging		
ERUS staging	T0/I	T2	T3
T0/I	20	2	1
T2	2	3	
T3		3	1



Results - Accuracy of ERUS T0/1 vs T2/3

■ Correctly staged ■ Overstaged ■ Understaged

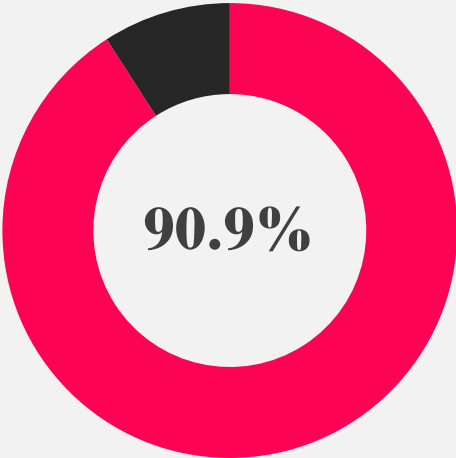


Accuracy of ERUS for distinguishing T0/I and T2/3

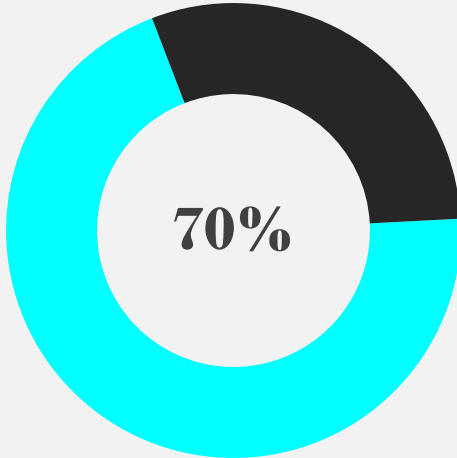
	Histological staging	
ERUS staging	T0/I	T2/3
T0/I	20	3
T2/3	2	7



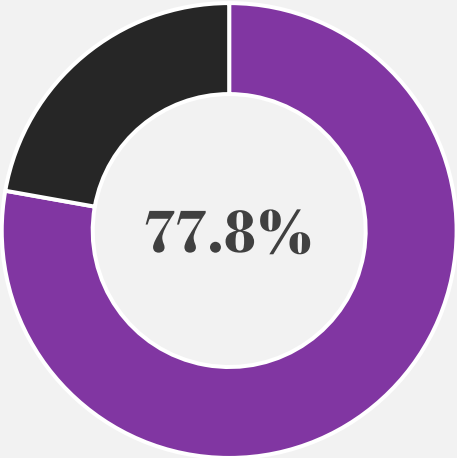
Results - Accuracy of ERUS T0/1 vs T2/3



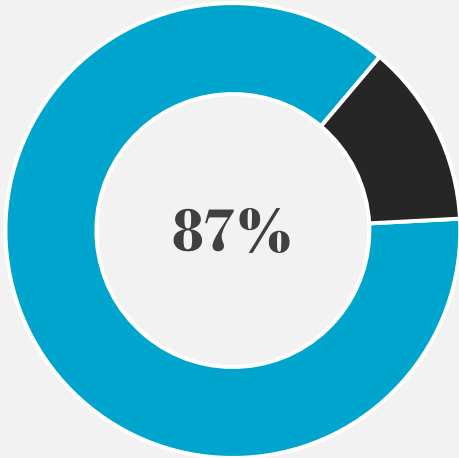
Sensitivity



Specificity



**Positive
Predictive
value**

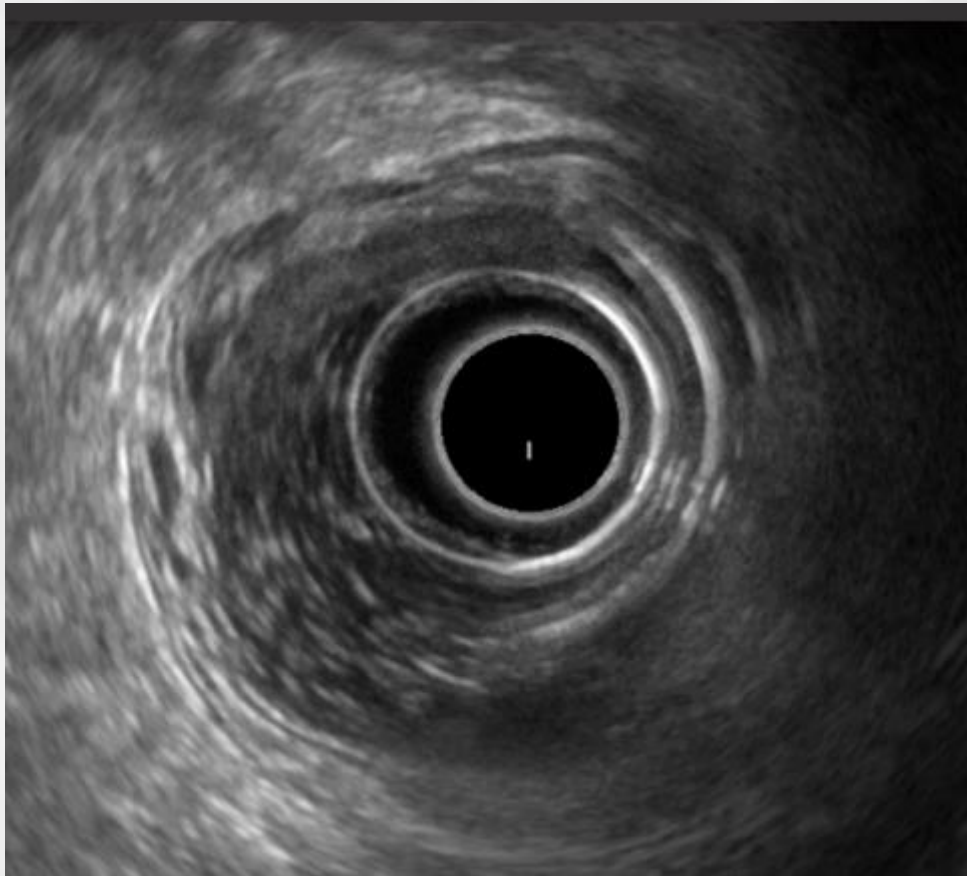


**Negative
predictive
value**

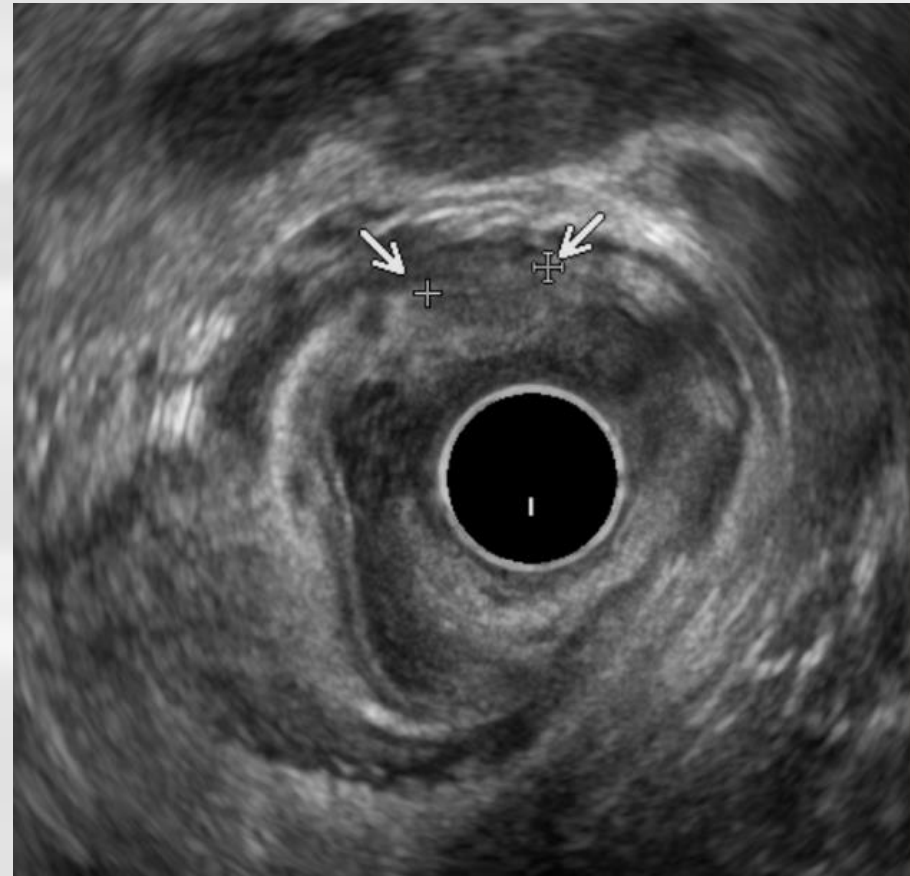


Examples

Understaged on ERUS as T1



Overstaged on ERUS as T2



Conclusion

- ERUS appears to have good diagnostic performance for local T-staging of suspected early rectal cancer and may be a useful adjunct to support-decision making in this setting.
- It is possible to overstage early rectal cancer by ERUS, which might preclude patients from local resection. Treatment decisions should be based on combined clinicoradiological staging, and take into account treatment options, fitness for surgery, and patient preferences.

