

Impact of a Standardized Reporting Format on the Quality of MRI Reports for Rectal Cancer Staging

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INTRODUCTION AND AIM OF STUDY

- MRI is the modality of choice for baseline and response assessment in rectal cancer, for deciding patient management ,for planning appropriate surgical approach, and patient prognostication.
- Based on multiple expert consensus recommendations and internal discussions, we created two structured MRI reporting templates for baseline and post-neoadjuvant therapy evaluation in August 2017 .
- We studied the impact of using a structured MRI reporting template for the evaluation of rectal cancer in terms of number of imaging parameters described in reports and satisfaction of the referring oncologists.

MATERIALS AND METHODS

Structured rectal MRI reporting template created in consensus with members of the colorectal tumor board (consists of colorectal surgeons, dedicated GI radiation and GI medical oncologists, along with subspecialty radiologists and pathologists)



A dedicated talk conducted for the radiology residents and faculty, following which the template was introduced from August 2017



All baseline and post-treatment rectal MRIs reported using the template, by both non-dedicated and dedicated GI attending radiologists



We retrospectively evaluated 50 consecutive free-text reports before the template was introduced, and 50 consecutive structured reports after its introduction



Each report checked for the presence or absence of inclusion of 14 essential imaging parameters; actual imaging not reviewed for accuracy of findings reported

RESULTS

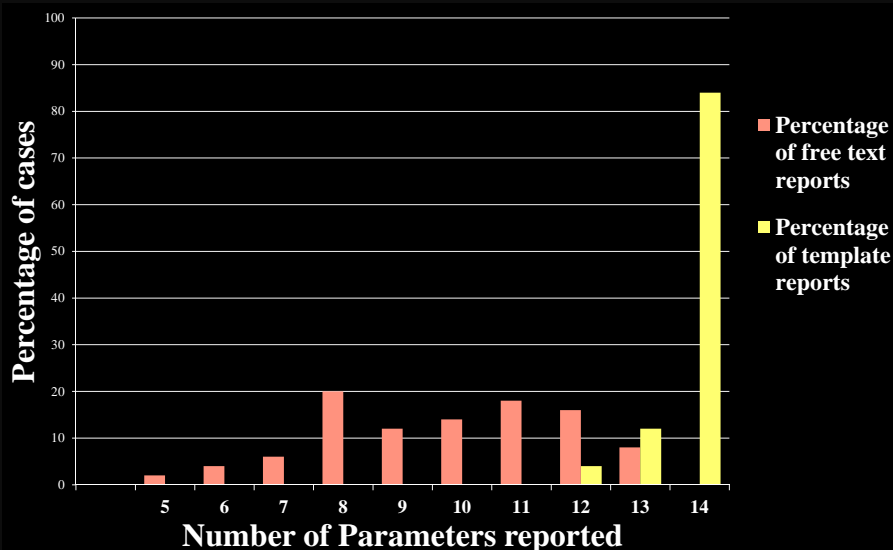
- 87 patients (79% males; mean age: 44 years) with 100 reports were included

	Free text reports	Template reports
Median parameters reported	10 out of 14	14 out of 14
Range	6 to 13	12 to 14
IQR	8 - 11	14-14

- 13 patients had both free text and template reports, serving as their own controls. The total parameters mentioned in their reports increased from a median of 9 (range 5-12) to 13 (range 12-14)

MRI parameters covered in the reports before and after implementation of the structured template

	Essential reporting parameters	Reported in percentage of cases (%)	
		Free text reports	Template reports
1	Location of tumor	100	94
2	Length of the tumor	86	100
3	Distance from anal verge	92	100
4	Tumoral T2 signal intensity	68	92
5	Restricted diffusion	22	100
6	Depth of extra-serosal extension/ Distance from mesorectal fascia	48	98
7	Circumferential resection margin status	90	100
8	Anterior peritoneal reflection involvement	30	100
9	Organ involvement	86	100
10	Anal sphincter complex	84	98
11	T stage	16	98
12	Extra mural vascular invasion	50	100
13	Mesorectal nodes	96	100
14	Extra mesorectal nodes	96	98



Number of quality parameters mentioned in the report before and after the implementation of the template

- Most common unreported parameters prior to template introduction:
 1. T staging (unreported in 42% cases)
 2. Presence of restricted diffusion (39%)
 3. Anterior peritoneal reflection (APR) involvement (35%)
 4. Extramural vascular invasion (EMVI) (25%)
- These improved to 98-100% reporting after template introduction
Maximum improvement was in T staging (16% to 98%), restricted diffusion on DWI (from 22% to 100%) and APR involvement (from 30 % to 100%)
- Most common unreported parameter after template introduction:
Tumoral T2 signal intensity (unreported in 4% cases)
- The number of parameters mentioned increased from a median value of 9 to a median value of 14 amongst general onco-radiologists, and from a median value of 10 to a median value of 14 amongst subspecialty onco-radiologists

Post introduction of the structured template, an anonymous online feedback survey was conducted for the members of the colorectal tumor board, including senior faculty and fellows (11 responses)

100% agreed that there was a decreased need to talk to the radiologist to clarify the report

82% said that the new template is easier to interpret

91% of the clinicians felt there was an improvement in the quality of reporting as compared to free style reports

DISCUSSION AND CONCLUSION

- Pertinent information on T staging, EMVI, and presence of restricted diffusion was missing in the initial free-text reports. This was incorporated into the structured reports, which would potentially have significant impact on appropriate patient management.
- Limitations of our study include the small sample size, the lack of evaluation of accuracy of reports, and the lack of objective assessment of the impact of the reports on patient management.
- In conclusion, the introduction of a structured template for rectal cancer significantly improved the quality of our reports, across both general and subspecialty reporting radiologists, as also the satisfaction of referring providers.

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