Pathology (June 2016) **48(4)**, pp. 349–352

ANATOMICAL PATHOLOGY

Structured pathology reporting improves the macroscopic assessment of rectal tumour resection specimens

Simon King[1], Margaret Dimech[2] and Susan Johnstone[1]

[1]*Department of Anatomical Pathology, Pathology North, John Hunter Hospital, Newcastle, and* [2]*Senior Project Manager, Royal College of Pathologists of Australasia, Surry Hills, Sydney, NSW, Australia*

Summary

We examined whether introduction of a structured macroscopic reporting template for rectal tumour resection specimens improved the completeness and efficiency in collecting key macroscopic data elements.

Fifty free text (narrative) macroscopic reports retrieved from 2012 to 2014 were compared with 50 structured macroscopic reports from 2013 to 2015, all of which were generated at John Hunter Hospital, Newcastle, NSW.

The six standard macroscopic data elements examined in this study were reported in all 50 anatomical pathology reports using a structured macroscopic reporting dictation template. Free text reports demonstrated significantly impaired data collection when recording intactness of mesorectum ($p < 0.001$), relationship to anterior peritoneal reflection ($p = 0.028$) and distance of tumour to the non-peritonealised circumferential margin ($p < 0.001$). The number of words used was also significantly ($p < 0.001$) reduced using pre-formatted structured reports compared to free text reports.

The introduction of a structured reporting dictation template improves data collection and may reduce the subsequent administrative burden when macroscopically evaluating rectal resections.

Key words: Rectal cancer; rectal resection; synoptic report; structured macroscopic report; macroscopic description; dictation template; key data elements; RCPA Macroscopic Cut-up Manual.

Received 23 January, revised 3 March, accepted 9 March 2016
Available online 21 April 2016

INTRODUCTION

Structured reporting of anatomical pathology specimens using minimum datasets has become standard in anatomical pathology laboratories throughout Australia, the United Kingdom and North America.[1–3]

Structured pathology reporting was introduced to improve accuracy, completeness and uniformity of anatomical pathology reports in addition to deconstructing the previously complex and often verbose narrative macroscopic report into a concise and digestible format, facilitating data collection.

Since the introduction of structured synoptic reporting several studies across a range of tumour types have demonstrated the value of a structured reporting format with improved data collection in microscopic pathology reports.[4–8]

Until recently, the emphasis of structured pathology reporting has concentrated on the microscopic component of the pathology report. However, studies comparing efficiency and accuracy of data collection between structured and narrative macroscopic reporting formats are lacking.

In 2012 the Royal College of Pathologists of Australasia (RCPA) commissioned a project to develop an online macroscopic cut-up manual for anatomical pathology laboratories.[9] It was undertaken to standardise macroscopic dissection and provide a standardised framework for macroscopic dissection and reporting of anatomical pathology specimens across Australasia. Macroscopic reporting dictation templates were developed as a result of this initiative and will hopefully mirror the success and benefits attained by structured microscopic reporting.

A structured macroscopic reporting template for rectal tumours similar to the dictation template in the macroscopic cut-up manual was one of the first structured macroscopic templates to be introduced into the anatomical pathology laboratory of Pathology North, John Hunter Hospital in 2013.

The purpose of this study is to compare the collection of key macroscopic data between reports using structured and free text (narrative) macroscopic reporting formats for rectal tumour resection specimens in a single tertiary referral centre.

METHOD

Ethical approval was granted by the Hunter New England Human Research Ethics Committee to assess the deficiencies in data collection and administrative efficiency between free text and structured reporting formats. This was undertaken by introducing a standardised structured macroscopic reporting template for rectal tumours into the Pathology North Anatomical Pathology laboratory in the John Hunter Hospital, Newcastle.

The structured template contains a list of macroscopic data elements required to characterise anterior and abdominoperineal rectal resection specimens set as outlined in the RCPA Structured Reporting Protocol for colorectal cancer.[10] Each data element in the template is classified as a 'Standard' or a 'Guideline' depending on whether it is regarded as mandatory or optional, respectively. An example of the structured macroscopic reporting dictation template used for rectal tumour resections in our study is outlined in Fig. 1.

In this study only data elements considered as standard in rectal resections by the RCPA colorectal cancer protocol were collected for analysis.

Print ISSN 0031-3025/Online ISSN 1465-3931
DOI: http://dx.doi.org/10.1016/j.pathol.2016.03.003

Data element	Response					
Fresh tissue received	No	Yes	*If yes, describe any additional tests/ frozen sections/biobanking performed*			
Procedure	Text		*As stated by the clinician*			
Specimen length	__mm					
Anatomical components included and size	Text	*E.g. Terminal ileum __ mm, colon __mm, appendix __x__ mm*				
Tumour perforation	Absent		Present	*If present describe relationship to tumour*		
For each tumour: (if >1 designate accordingly)						
Maximum tumour diameter	__mm					
Tumour site	Caecum Ascending colon Hepatic flexure		Splenic flexure Transverse colon Descending colon		Sigmoid colon Rectosigmoid junction Rectum	
Peritoneum	Tumour invades peritoneal surface		Tumour has formed nodule(s) discrete from the tumour mass along the serosal surface			
Distance of tumour to nearer proximal or distal "cut end " margin	__mm		*Specify which margin if possible; proximal/distal.*			
Distance of tumour to the non-peritonealised (right colon/rectum) circumferential margin	__mm		*This is the measurement to the non-peritonealised (i.e. the circumferential or radial) margin. See SRP protocol for more detail.*			
Rectal tumours only –also describe						
Intactness of mesorectum	Incomplete (grade 1)			Near complete (grade 2)		Complete (grade 3)
Tumour relationship to anterior peritoneal reflection	Entirely above			Astride		Entirely below
If AP resection						
Distance from dentate line	__mm					
Polyps	Text		*If present, provide a polyp summary (record number, range of diameters and gross appearance)*			
Lymph nodes	Not received		Received	*Record number per cassette and designate apical node.*		
Other relevant macroscopic information	Text		*E.g. any additional orientation; specimen integrity (if disrupted); relationship of tumour to other structures included in "anatomical components"*			
Describe nature and site of blocks	Text					

Fig. 1 Structured reporting dictation template for colorectal tumours.

The template was introduced into the Anatomical Pathology department in October 2013 and all registrars within the department agreed to use this template for rectal resection specimens from this date.

Anatomical pathology reports from 100 rectal resection specimens examined at Pathology North, John Hunter hospital, Newcastle were reviewed. Fifty pathology reports with a narrative macroscopic description were selected consecutively from 2012 to 2014 and 50 reports using the structured reporting template were consecutively selected from 2013 to 2015. The overlap seen between the date ranges is due to a period of approximately 6 months where five rectal resections were dictated using a free text reporting format. Each of the five specimens was dictated by a different registrar and this overlap is not thought to have any effect on the outcomes of this study.

During this period the only intervention was the introduction of a dictation template. No additional training beyond that normally given to registrars was undertaken by the department.

Specimens with metastatic tumours, multiple tumours, non-neoplastic specimens and specimens without a mesorectum were excluded.

Six of the nine standard data elements from the RCPA colorectal cancer protocol[10] were evaluated. These included specimen length, maximum tumour diameter, distance from the nearer proximal/distal end, distance of tumour to circumferential margin, relationship to anterior peritoneal reflection, and intactness of the mesorectum.

Tumour site, tumour perforation and block key were not evaluated in this study. Tumour site is inferred from recording the relationship to the anterior peritoneal reflection and if this data element is not stated in the report it was recorded as absent. Tumour perforation was excluded because this data element is not usually mentioned in free text reports unless it is positively identified.

The macroscopic description from both free-text and structured anatomical pathology reports were evaluated for presence or absence of the six standard data elements. In each case the macroscopic report was reviewed by SK or SJ and the data elements were recorded as collected or not reported.

In some cases the standard data elements were not explicitly stated but could be inferred from the free text report. In these cases the data was recorded as 'collected' rather than 'not reported'. For example if the mesorectal sleeve was adequately described so that a grade could be inferred from the description then it was regarded as 'collected'.

Information gathered from the individual data elements from free text reports was then compared to that from structured reports using 2 × 2 contingency tables. p values for the difference in data recorded between the two groups were generated using chi-squared and Fisher exact test methods.

At the time of review a word count was also generated using the Microsoft Word (Microsoft, USA) word count function. This value was used as a surrogate for the potential administrative burden created by typing the macroscopic dictation.

The block key, patient identifiers, clinical history and specimen identification/designation were omitted from the word count. Two sets of word counts for structured reports were calculated. One count was inclusive of the formatted headings of data elements, the other set excluded these headings and may reflect a more accurate count given that templates containing the preformatted data headings are often used by administrative staff and therefore should not require typing.

The mean word counts for free text and structured reports were calculated and compared using a two sided t-test for two independent means.

RESULTS

The six standard macroscopic data elements examined in this study were reported in all 50 pathology reports using a structured dictation template for the macroscopic description of a rectal resection specimen. In contrast, the 50 free text reports studied demonstrated impaired data collection in four of the six standard data elements studied.

Table 1 summarises the findings of a direct comparison between structured and free text reports for the six data elements considered standard when macroscopically assessing a rectal resection specimen.

Word counts were performed on macroscopic reports of free text and structured groups to assess the possible administrative impact of structured macroscopic reporting. The mean word count for free text reporting group was 138.4 compared to a mean of 149.9 words for structured macroscopic reports. The difference between the two means was