Int. j. pathol 2015; 13(4): 154-158

Original Article

Audit of Colorectal Cancer Histopathology Reports

Humaira Nasir, Naima Tariq, Bisma Nazir, Rabia Anees, Asifa Bibi
Histopathology department, Shifa International Hospitals, Islamabad

Abstract

Objective: This audit was carried out principally to assess adherence of histopathological reporting of colorectal cancer cases at Shifa International Hospital (SIH), Islamabad to the College of American Pathologists (CAP) Protocol.

Materials and Methods: The audit sample includes 100 cases of colorectal cancer identified via large biopsies. The cases were retrospectively collected from 30-11- 2014 to 04-06-2012 using Oracle software. Re-audit was done from 01-06-2015 to 30-09-2015 and included 09 cases of colorectal cancer.

Results: Out of a total of 9 macroscopic features specimen type was mentioned in 100% of reports. 3 parameters (procedure, specimen length and tumor site) were mentioned in more than 90% reports. Macroscopic tumor perforation was mentioned in 84% reports and tumor size in 62% reports. Macroscopic intactness of mesorectum was mentioned in 87% of cases.

Out of a total of 24 microscopic features histological tumor type was mentioned in 100% reports. Tumor grade, pathological stage and lymph node involvement was mentioned in more than 90% of reports. Status of proximal and distal margin was given in 99% of reports; however status of radial margin was mentioned in only 92% of reports. Features suggestive of microsatellite instability were mentioned in less than 20% of cases. Reaudit was carried out after an interval of 06 months which showed marked improvement.

Conclusion: Audits play an important part in improving the quality of histopathological reporting. Continuous medical education and frequent audits should be imparted so that we as pathologists can learn from our mistakes and play proactive part in better patient management.

Keywords: Audit, colorectal cancer, histopathological reports.

Introduction

Gross and microscopic examination of the excised tissue specimens must be as meaningful and as informative as possible to help the management team to render most optimal treatment to the patients. In this regard College of American Pathologist (CAP) has established guiding protocols. This paper presents a regional audit of colorectal cancer of colonic and rectal specimens from 2012 to 2015 at Shifa International Hospital (SIH), Islamabad in terms of adherence to the College of American Pathologists (CAP) Protocol. Gross and microscopic examination of the excised tissue specimens must be as meaningful and as informative as possible to help the management team to render most optimal treatment to the patients.

In this regard College of American Pathologist (CAP) has established guiding protocols. This paper presents a regional audit of colorectal cancer of colonic and rectal specimens from 2012 to 2015 at Shifa International Hospital (SIH), Islamabad in terms of adherence to the College of American Pathologists (CAP) Protocol.

Contribution of Authors:

Correspondence: Dr. Humaira Nasir, Consultant Histopathologist
Shifa International Hospital, H8/4, Islamabad
Email: huma_isb@hotmail.com

Article Received: 12.11.2014
Accepted: 20.08.15

Background/rationale

This audit was carried out principally to assess adherence of histopathological reporting of colorectal cancer cases at SIH to established guidelines and to evaluate our standards with reference to international levels. The essential aim was to improve the management and prognosis of patients at our center. Particular emphasis has been given whether guidelines of College of American Pathologists (CAP) (2011) have been adequately outlined in our reports. The objective was to ensure that under-reporting does not adversely impact patient management and prognosis and also to ensure adherence to accepted levels of international standards.

STANDARDS:

The standards used are those of College of American Pathologists (CAP) dataset for histopathological reporting.

SAMPLE OF STUDY:

The audit sample includes 100 cases of colorectal cancer identified via large biopsies. The cases were retrospectively collected from 30-11- 2014 to 04-06-2012. Re-audit was done from 01-06-2015 to 30-09-2015 and included 09 cases of colorectal cancer.

Methodology

Data was collected from computer records using Oracle software. Records were analyzed retrospectively and validated by double review from data collector and random selection of 15 items from two residents of histopathology not associated with the audit team. Distant metastasis was assessed using radiological and clinical information provided in patient's record files.

Results

In this audit a total of 100 cases of colorectal cancer were reviewed for both macroscopic and microscopic findings according to College of American Pathologists (CAP) Protocol.

Out of a total of 9 macroscopic features specimen type was mentioned in 100% of reports.3 parameters (procedure, specimen length and tumor site) were mentioned in more than 90% reports. Macroscopic tumor perforation was mentioned in 84% reports and tumor size in 62% reports. Greatest dimension was mentioned in 34% cases and additional dimensions in 33% reports. Macroscopic intactness of mesorectum was mentioned in 87% of cases.

Out of a total of 24 microscopic features histological tumor type was mentioned in 100% reports. Tumor grade, pathological stage and lymph node involvement was mentioned in more than 90% of reports. Status of proximal and distal margin was given in 99% of reports, however status of radial margin was mentioned in only 92% of reports. Features suggestive of microsatellite instability were mentioned in less than 20% of cases. Table 1:

This audit was presented on 18-05-2015 in an intradepartmental conference. Re-audit was done 6months after the audit presentation. All new reports of colorectal cancer (n=9) during this time period were reviewed and results compared to those done previously. Significant improvement was observed. Fourteen parameters (histologic type, histologic grade, pathological stage, proximal, distal and circumferential margin status, treatment effect, lymphvascular invasion, tumour deposits, type of polyp and lymph node involvement were mentioned in ALL reports.

Perineural invasion, distant metastasis and additional pathological findings were not mentioned in 01 of the reports.

Distance from closest margin was missing only in 2 reports.

Features suggestive of microsatellite instability were mentioned only in 02 reports.

:

Table 1 Adherence to College of American Pathologists (CAP) Protocol in reporting of macroscopic and microscopic examination n=100

Category	Number of parameters mentioned	Number of parameters not mentioned
MACROSCOPIC		
Specimen	100	0
Procedure	99	1
Specimen length(cm)	93	7
Tumor site	96	4
Tumor size	62	38
Greatest dimension	34	66
Additional dimensions	33	67
Macroscopic tumor perforation	84	16
Macroscopic intactness of mesorectum	33	67
MICROSCOPIC		
Histologic Type	100	0
Histologic Grade	98	2
Histologic Features Suggestive Of Microsatellite instability		
Intratumoral lymphocytic response	16	84
Peritumoral lymphocytic response	14	86

Tumor subtype and differentiation	13	87
Microscopic tumor extension	93	7
Margins		
Proximal	99	1
Distal	99	1
Circumferential /Radial	92	8
Closest	19	81
Treatment effect	35	65
Lymph vascular invasion	97	3
Perinueral invasion	91	9
Tumor deposits	78	22
Type of polyp in invasive carcinoma	31	69
Pathologic Staging		
Primary tumor (pT)	97	3
Regional lymph nodes (pN)	97	3
Lymph nodes examined	98	2
Lymp nodes involved	98	2
Distant metastasis (pM)	59	41
Additional pathological findings	41	59

Table 2 Re-audit after 6 months of new cases. Adherence to College of American Pathologists (CAP) Protocol in reporting of macroscopic and microscopic examination n=9

Category	Number of parameters mentioned	Number of parameters not mentioned
MACROSCOPIC		
Specimen	9	0
Procedure	9	0
Specimen Length(cm)	9	0
Tumor Site	9	0
Tumor Size	9	0
Greatest Dimension	9	0
Additional Dimensions	9	0
Macroscopic Tumor Perforation	9	0
Macroscopic Intactness of Mesorectum	9	0
MICROSCOPIC		
Hitological Type	9	0
Histological Grade	9	0
Histologic Features Suggestive Of Microsatellite instability		
Intratumoral lyumphocytic response	2	7
Peritumor Lymphocytic Response	2	7
Tumor Subtype and Differentiation	1	8
Microscopic Tumor Extension	7	2
Margins		
Proximal	9	0
Distal	9	0
Circumferential /Radial	9	0
Closest	7	2
Treatment effect	9	0
Lymph Vascular Invasion	9	0
Perinueral Invasion	8	1
Tumor Deposits	9	0
Type of polyp in invasive carcinoma	9	0
Pathologic Staging		
Primay tumor (pT)	9	0
Regional lymph nodes (pN)	9	0
Lymph nodes examined	9	0
Lymph nodes involved	9	0

Distant metastasis Pm	8	1
Additional pathological findings	8	1

Discussion

This audit was carried out to assess the completeness of histopathological reports in our department. The grossing technique and sampling adequacy for microscopic examination were not considered.

Among the core macroscopic features the major deficiency which was seen was that of lack of information regarding intactness of mesorectum in majority of the reports. According to CAP protocol[1] this is mentioned as either complete, near complete or incomplete. This parameter is quite significant in reporting of rectal tumors since studies have documented that a high quality total mesorectal excision significantly reduces the risk of local recurrence and increases 5 year survival rates.[2,3] Previous studies in other parts of the world have also shown a lack of consistency in reporting of this parameter, a study done in British Columbia showed that intactness of mesorectal fascia was mentioned in only 9% of the reports in 1996 which improved to 12% in 2000.[4] This is clinically important since assessment of mesorectal intactness is a means to provide immediate feedback to the consultant surgeon about the quality of surgery performed.

Another important parameter that was inconsistently reported was that of macroscopic tumor perforation. Tumor perforation is defined as a macroscopically visible defect through the tumor, such that the bowel lumen is in communication with the external surface of the intact resection specimen.[5] Presence of tumor perforation is an adverse prognostic factor that significantly increases morbidity and mortality. It upstages the tumor to pT4b and requires aggressive treatment.[6] In our audit this parameter was reported in 84% of the cases, in another study carried out in Peshawar this parameter was mentioned in only 48.27% of the reports.[7]

Among the microscopic features histological tumor grade and histological type were mentioned in almost 100% of the cases. They are both important prognostic factors and have been categorized as prognostic factor category IIa and IIb according to consensus statement given by college of American pathologists.[8] Strict adherence to the Cap protocol was also seen regarding lymphovascular and perineural invasion which were mentioned in majority of our reports. This is important since it allows for better selection of patients requiring chemotherapy.[9,10]

A major deficiency was seen regarding reporting of histopathological features suggestive of microsatellite instability (MSI). This parameter is important since identification of MSI related tumors is an important factor for assessing prognosis, response to chemotherapy and identification of a subset of patients with Lynch syndrome.[11,12]

The distance of closest margin from the tumor is also seen to be inconsistently reported at our center similar to some other centers located world wide.[13,14,15.] Recording of this distance is the most important factor in determining the risk for local recurrence.[1]

After the presentation of this audit, a re-audit was carried out over a duration of three months. This audit showed a significant improvement regarding reporting of all macroscopic and microscopic parameters. However histological features suggestive of microsatellite instability were still poorly represented and 78% (n=7) of the reports failed to mention this parameter.

Conclusion

Audits play an important part in improving the quality of histopathological reporting. A significant improvement was seen in our department regarding quality of our reports and their adherence to international guidelines after the presentation of our audit. Continuous medical education and frequent audits should be imparted so that we as pathologists can learn from our mistakes and play proactive part in better patient management.

References

1. College of American Pathologists. Protocol for the examination of specimens from patientswith primary carcinoma of the colon and rectum. www.cap.org/cancerprotocols. College of American Pathologists, 2013 (accessed 15 July 2014).
2. Arbman G, Nilsson E, Hallbook O, Sjodahl R. Local recurrence following total mesorectal excision for rectal cancer. Br J Surg.1996;83:375-79.
3. Wibe A, Eriksen MT, Syse A, Myrvold HE, Søreide O; Norwegian Rectal Cancer Group.Total mesorectal excision for rectal cancer-what can be achieved by a national audit?. Colorectal Dis. 2003;5:471-7.
4. Phang PT,Law J, Toy E, Speers C, Paltiel C, Coldman AJ. Pathology audit of 1996 and 2000 reporting for rectal cancer in BC. BC Med J. 2013;45:319-23.
5. The Royal College of Pathologists. Standards and minimum datasets for reporting cancers; minimum dataset for colorectal cancer histopathology reports. London: Royal College of Pathologists; 2000. Available from: http://www.rcpath.org/index.php .
6. Washington MK, Berlin J, Branton P, Burgart LJ, Carter DK, Fitzgibbons PL, et al. Protocol for the examination

of specimens from patients with primary carcinoma of the colon and rectum. Arch Pathol Lab Med. 2009;133:1539-51.
7. Shah SAA, Syed MA. An audit of colorectal cancer histopathology reports in a tertiary care hospital. J Med Sci. 2013; 21:128-30.
8. Compton CC, Fielding P, Burgart LJ, Conley B, Cooper HS, Hamilton SR, et al. Prognostic factors in colorectal cancer. College of American Pathologists Consensus Statement 1999. Arch Pathol Lab Med. 2000;124:979-94.
9. Meguerditchian AN, Bairati I, Lagace R, Harel F and Kibrite A. Prognostic significance of Lymphovascularinvasion in surgically cured rectal carcinoma. Am J Surg 2005; 189 (6):707-713.
10. Slevin ML. Adjuvant treatment for colorectal cancer: No more room for nihilism. BMJ 1996;312:392-3.
11. Compton CC. Key Issues in Reporting Common Cancer Specimens: Problems in Pathologic Staging of Colon Cancer. Arch Pathol Lab Med. 2006 Mar;130(3):318-24.
12. Bessa X, Balleste B, Andreu M, et al. A prospective, multicenter population-based study of BRAF mutational analysis for Lynch syndrome screening. Clin Gastroenterol Hepatol 2008;6:206–14.
13. Bull AD, Biffin AHB, Mella J, Radcliff AG, Stamatakis JD, Steele RJC, et al. Colorectal cancer pathology reporting: a regional audit. J Clin Pathol. 1997;50:138-42.
14. Lanza G, Messerini L, Gafa R, Risio M. Colorectal tumors: the histology report. Dig Liver Dis. 2011; 43 Suppl 4:S344–S55.
15. Nambiar A, Vivek N, Bindu MR, Sudheer OV, Bai L. Completeness of low anterior resection pathology report: a hospital-based audit with recommendations on improving reporting. Indian J Cancer. 2010 Apr-Jun;47(2):156-9

Contribution of Authors:

Humaira Nasir: conception , synthesis and planning of research , active participation in methodology , interpretation analysis and discussion

Naima Tariq: synthesis and planning of research , active participation in methodology , interpretation analysis and discussion

Bisma Nazir: active participation in methodology, interpretation analysis and discussion

Rabia Anees: active participation in methodology, interpretation analysis and discussion

Asifa Bibi: active participation in methodology, interpretation analysis and discussion

.