

2. Guidelines for Reporting Common Gastrointestinal Malignancies

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2.1 Introduction**2.1.1 Epidemiology**

In Sri Lanka, oesophageal carcinoma is the commonest gastrointestinal malignancy with 948 cases reported to the national cancer registry in 2000 with a higher male predominance (542/948). The overall incidence of this tumour was 4.9%. Carcinoma of the stomach accounted for 144 cases with 88 malignancies in males. The overall incidence was 0.9%. 497 colorectal carcinomas were reported with malignancies in males accounting for 259 cases the overall incidence being 2.6%. However it appears that there is a great deal of under reporting of these malignancies.

2.1.2 General comments on the use of these guidelines**Handling of fresh specimens**

The mode of transport of histopathological specimens are dealt with in a separate guideline and is relevant to specimens of gastrointestinal malignancies as well.

Though resection specimens for gastrointestinal malignancies are best received and handled fresh this is not practical in the local context as there are considerable delays in specimen transport. Hence handling of fresh specimens will not be discussed further.

Specimen photography

Similarly specimen photography which is widely practiced in other countries has not been included in these guidelines due to lack of photographic facilities in most laboratories around the country.

Microscopy and conclusions

It is left to the personal preference of the pathologist to use a descriptive microscopic report if necessary.

Pathological staging

The TNM classification endorsed by the American Joint Committee on Cancer (AJCC) and the International Union against Cancer (UICC) is recommended for pathological staging of gastrointestinal malignancies with the exception of colorectal carcinomas where the Dukes staging is used in addition to the above.

The subtle differences in the TNM staging with regard to the malignancies of these three sites should be noted. For instance the T staging of gastric carcinoma is different to those of oesophageal and colorectal carcinoma. pT3 being subserosal involvement in the latter but serosal involvement in the former.

The recommendation made in the 6th edition of the TNM system have been recommended especially with regard to lymph node spread.

The different pathological staging systems for early colorectal carcinomas (pT1 tumours) is not discussed in these guidelines as these tumours are rare in the local context.

Gastro oesophageal junction (GOJ) carcinoma

The classification of these tumours is not straightforward, but is important as the TNM system is different for the oesophagus and stomach (see above). A widely used classification system divides them into three groups: Those arising 1 – 5cm above the GOJ (Type 1), those at the junction (Type 2) and those 2 – 5cm below the GOJ (Type 3), the GOJ being defined as the proximal limit of the rugal folds. Therefore the TNM system for oesophageal carcinomas is used for Type 1 tumours whilst the TNM system for gastric carcinomas is used for Types 2 and 3.

However in the case of Type 2 tumors or those at the GOJ it is recommended that if more than 50% of the tumour involves the oesophagus the tumour is classified as oesophageal and less than 50% as gastric. If the tumour is exactly at the junction the classification is based on histology. Thus adenocarcinomas would be classified as gastric whilst squamous cell, small cell and undifferentiated carcinomas would included with oesophageal tumours.

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2.2 Oesophageal carcinoma

2.2.1 Macroscopic description (Grade X)

- **Type of specimen**

The type of specimen and therefore the extent of surgery depends on the location of the lesion. The type of specimen received should be stated in the report as

- part of the oesophagus
- oesophago-gastrectomy specimen
- most common type of specimen received.

- **Length of the specimen**

The length of specimen is measured fixed (see recommendations to surgeons).

- **Diameter of the proximal and distal end margins**

See recommendations to surgeons regarding marking of the margins in cases where the stomach is not included in the specimen.

- **External surface of the specimen**

Special mention of tumour perforation is important when describing the external surface or the serosal aspect of the specimen. Tumour perforation may be observed as puckering of the wall of the oesophagus at that point.

- **Tumour (dimensions, macroscopic appearance and site)**

The tumour should be measured from the luminal aspect after opening up of the specimen.

The macroscopic appearance of the tumour should be described as

- polypoid
- fungating
- flat
- ulcerated.

However the macroscopic tumour types have little contribution to the prognosis apart from polypoid tumours.

Note: The tumour is said to be oesophageal when more than half of the tumour lies above the gastro-oesophageal junction (GOJ). This is best determined on the mucosal aspect. Extensive Barrett's mucosa may make this difficult or impossible at times and hence the anatomical GOJ will then need to be used as a landmark. This is best recognised at the site of the "notch" or the peritoneal reflection at the junction of the oesophagus and greater curve (See also section of GOJ tumours in the introduction) .

The distance to the tumour from the closest end margin should also be recorded.

- **Non neoplastic mucosa**

The description of the non neoplastic mucosa should include

- the presence of recognisable mucosa distal to the tumour,

-presence of any recognisable Barrett's mucosa and the length of such segments if present

-whether the lumen of the mucosa proximal to the tumour is dilated.

-The presence of any other abnormalities such as achalasia, cysts, webs, rings, diverticula, strictures, or ulcers, should be described, measured, and sampled adequately

- **Lymph nodes**

The maximum number of lymph nodes should be retrieved from the specimen.

State the

-the number

-size of the largest lymph node

-gross involvement by tumour should be stated.

Though some pathologists separate the lymph nodes into three groups namely those adjacent to the tumour, proximal to the tumour and distal to the tumour this does not denote any additional information which is of prognostic or therapeutic significance. Hence such a grouping is not recommended in these guidelines.

2.2.2 Handling of the specimen (Grade X)

The specimen received fixed in formalin should be measured. The surgical margins should be painted with India ink. The specimen should be opened out longitudinally with scissors, on the side opposite the tumour. The bulk of the tumour needs to be sectioned transversely, to allow assessment of the circumferential

resection margin. Then the proximal and distal parts are sectioned longitudinally, to allow demonstration of the junction between tumour and adjacent non-neoplastic mucosa. Sections are laid flat and examined to assess the maximum depth of tumour infiltration. The peri-oesophageal fat should be dissected to identify lymph nodes.

Macroscopic description

Type of specimen

Length of specimen

Diameter of proximal and distal margins

External surface- perforations

Tumour

measurements / dimensions

macroscopic appearance

site

non neoplastic mucosa - oesophagus and the stomach

Lymph nodes

(Grade X)

2.2.3 Blocks

Tumour to include maximum depth of invasion (minimum of 2 blocks)
 Tumour with adjacent mucosa , gastric and oesophageal (2 blocks)
 area of perforation.
 Area resembling Barrett's oesophagus
 Any other lesions present
 Proximal and distal margins
 Lymph nodes
(Grade X)

2.2.4 Microscopy and conclusion **(Grade X)**

- **Specimen type and tumour size**
 should be included with the conclusion and are discussed under macroscopic description above.
- **Histological tumour type**
 Tumours should be classified according to the WHO classification (See Annexure 1.1)
 Whilst the histological tumour type has no prognostic significance it is known that in the case of T1 tumours adenocarcinomas have a better prognosis. Irrespective of the prognostic implications the typing of the tumour provides useful validation of the pre resection biopsy diagnosis which may be important in the case of adjuvant therapy decisions. Most tumours are squamous carcinomas or adenocarcinomas with very few adenosquamous and small cell subtypes.

- **Tumour grade □ histological differentiation**

This should be recorded according to the predominant tumour area as :

- well differentiated
- moderately differentiated
- poorly differentiated.

Opinion is divided as to the importance of differentiation as a prognostic factor in the oesophagus. It has been included since it is relatively easy assess and may prove to be of some importance.

- **Maximum depth of invasion**

The depth of invasion (mucosa/muscularis mucosae, submucosa, muscularis propria,adventitia/outer fibrofatty tissue, or adjacent structures) should be documented. The depth of invasion is assessed according to the TNM system and is one of the most important prognostic factors and is often the only important prognostic factor in multivariate analysis.

- **Circumferential, distal and proximal surgical margins**

Circumferential margin involvement is found to be a strong predictor of poor two-year survival. It is also a good indicator of the extent of tumour spread and extent of resection and provides data on comparing different surgical techniques.

The involvement of the **proximal resection margin** increases the likelihood of recurrence and this is less so with involvement of the distal margin. The proximal margin should therefore be sampled irrespective of the distance from the tumour because of the risk of discontinuous tumour foci in the proximal margin.

- **Non neoplastic mucosa & other features**

The presence of Barrett's oesophagus, oesophagitis (typed if possible), intestinal metaplasia and dysplasia need to be recorded.

Features that may be recorded but appear to be of little independent prognostic significance include:

- the pattern of advancing margin (pushing or infiltrating)
- Lymphocytic reaction
- intramural metastasis.

- **Lymph nodes**

These are among the most important, independent prognostic indicators. The site of lymph nodes involved by tumour (paraoesophageal, gastric lesser curve, gastric greater curve, and others if received separately and identified as to the site) may be useful to document, though there is evidence to suggest that this may not be of prognostic significance. It is however important to note the total number of lymph nodes retrieved and the number involved by metastases.

- **Pathological staging (pTNM)** See Annexure 1.2.

Microscopy and conclusion

Specimen type
 Specimen size
 Histological type
 Histological grade
 Maximum depth of invasion
 Surgical margins – distal proximal and circumferential margin
 Non neoplastic mucosa
 Lymph nodes – total number isolated and number involved
 Pathological stage-TNM staging
(Grade X)

2.2.5 Recommendations to the Surgeon

Measure the length of oesophagus in the fresh state as it contracts during fixation and is less than 1/3rd of its normal length after fixation.

If the stomach is not included the proximal and distal ends of the specimen should be marked.

(Grade X)

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2.2.7 Annexure

Annexure 1**WHO histological classification of oesophageal tumours****Epithelial tumours**

Squamous cell papilloma

Intraepithelial neoplasia

Squamous

Glandular (adenoma)

Carcinoma

Squamous cell carcinoma

Verrucous (squamous) carcinoma

Basaloid (squamous) carcinoma

Spindle cell (Squamous) carcinoma

Adenocarcinoma

Adenosquamous carcinoma

Mucoepidermoid carcinoma

Adenoid cystic carcinoma

Small cell carcinoma

Undifferentiated carcinoma

Others

Carcinoid tumours

Non epithelial tumours

Leiomyoma

Lipoma

Granular cell tumour

Gastrointestinal stromal tumour

Benign

Uncertain malignant potential

Malignant

Leiomyosarcoma

Rhabdomyosarcoma

Kaposi sarcoma

Malignant melanoma

Others

Secondary tumours**Annexure 2*****Pathologic Staging (pTNM) of oesophageal carcinoma***

Primary Tumor (pT)

pTX: Cannot be assessed

pT0: No evidence of primary tumor

pTis: Carcinoma in situ

pT1: Tumor invades lamina propria or submucosa

pT1a: Tumor invades lamina propria

pT1b: Tumor invades submucosa

pT2: Tumor invades muscularis propria

pT3: Tumor invades adventitia

pT4: Tumor invades adjacent structures

Regional Lymph Nodes (pN)

pNX: Cannot be assessed

pN0: No regional lymph node metastasis

pN1: Regional lymph node metastasis
 pN1a: 1 to 3 nodes involved
 pN1b: 4 to 7 nodes involved
 pN1c: More than 7 nodes involved

Distant Metastasis (pM)

pMX: Cannot be assessed
 pM1: Distant metastasis, cannot further subclassify
 pM1a: Lower thoracic esophagus: metastasis in celiac lymph nodes;
 Mid-thoracic esophagus: not applicable;
 Upper thoracic esophagus: metastasis in cervical nodes
 pM1b: Lower thoracic esophagus: other distant metastasis;
 Mid-thoracic esophagus: nonregional lymph nodes and/or other distant metastasis;
 Upper thoracic esophagus: other distant metastasis

2.3 Gastric carcinoma

2.3.1 Macroscopic description (Grade X)

- **Specimen type and measurements**

Gastrectomy for tumours could be

- Total gastrectomy, including cardia and pylorus
- Subtotal including the pylorus only
- Proximal or inverted subtotal including the cardia.

The specimen is measured along the greater and lesser curvatures.

The diameter of the cut ends should also be measured.

- **Tumour (dimensions, distance from resection margins, macroscopic configuration and site)**

The **dimensions** of the tumour should include

- axial (length) measurements,
- transverse (width) measurements
- maximum thickness of the tumour.

The **distance** of the tumour edge **from the two resection margins** should be recorded.

The **macroscopic description** of the tumour includes Borrmann Types I - IV which are

- Polypoid (Type I)
- Ulcerating (Type II),
- Ulcerating and infiltrating (Type III)
- Diffusely infiltrating (Type IV or linitis plastica).

Polypoid and ulcerating cancers (Types I and II) have a better prognosis than infiltrating cancer (Types III and IV). However, the prognostic value of tumor configuration is controversial.

The **site of the tumour** should be identified as

- Cardia (including gastroesophageal junction)
- Fundus
- Corpus
- Antrum
- Pylorus
- Greater curvature
- Lesser curvature
- Anterior wall
- Posterior wall.

(See previous chapter and introduction for defining Gastro oesophageal junction tumours).

- **Appearance of non neoplastic mucosa**

Apart from identifiable lesions the general appearance of the gastric mucosa should be commented on for example as atrophic or thickened, erythematous or haemorrhagic or occasionally there may be distinctive appearances such as haemorrhagic folds or a 'watermelon' appearance of GAVE or thickened rugal folds of Menetrier's disease.

- **Lymph nodes**

The precise location of the perigastric lymph nodes are not required However they may be recorded as lesser curvature and greater curvature , cardiac, pyloric, perisplenic and omental. It is important however to record the total number of lymph nodes that are retrieved.

2.3.2 Handling of the specimen **(Grade X)**

A fixed specimen is generally opened along the greater curvature. If the tumour is situated along the greater curvature the specimen is opened out making a wide arc around the tumour or if the tumour is very large along the lesser curvature.

The surgical margins are painted with India ink.

Macroscopic description

Specimen

Type - partial / total

Cut end diameter-Proximal and distal

Length of greater and lesser curvature

Tumour

- Measurements
- Site
- Macroscopic appearance
- Distance to resection margins
-

Appearance of non neoplastic mucosa

Lymph nodes – location, location total number and number involved.

(Grade X)

2.3.3 Blocks

- Tumour – to include adjacent mucosa, serosa and maximum depth of penetration
- Proximal resection margin
- Distal resection margin
- Non neoplastic mucosa (antrum and body)
- Lymph nodes-Number and location of each group.

(Grade X)

2.3.4 Microscopy / Conclusions **(Grade X)**

Specimen type, size of tumour, location and macroscopic appearance / gross configuration have already been mentioned above.

- **Histological type**

The histologic classification proposed by the World Health Organization (WHO) is recommended (See Annexure 2.1). However, this protocol does not preclude the use of other systems of classification or histologic types, such as the Laurén classification, which may be used in addition to the WHO system.

- ***Histologic grade***

For adenocarcinomas, a histologic grade is based on the extent of glandular differentiation.

Tubular adenocarcinomas are not typically graded but are low-grade and would correspond to grade 1 whilst signet-ring cell carcinomas are also not typically graded but are high-grade and would correspond

to grade 3 and small cell carcinomas and undifferentiated carcinomas would correspond to grade 4.

For all stage groupings, grading correlates with outcome.

- **Lymphovascular and perineural invasion**

Venous, lymphatic and perineural invasion have been shown to be adverse prognostic factors.

- **Non neoplastic mucosa**

The non neoplastic mucosa is assessed microscopically for the presence of

- glandular atrophy
- chronic gastritis
- intestinal metaplasia
- Helicobacter pylori

- **Surgical margins**

The proximal and distal resection margins need to be assessed very carefully in the case of infiltrative type of tumours or signet ring cell carcinomas. In such cases extensive sampling of the surgical margins are recommended.

- **Pathological stage (TNM stage)**

See Annexure 2.2 below.

Microscopy **Conclusions**

- Specimen type-Partial or total gastrectomy
- Tumour location/ site Tumour size
- Tumour type
- Macroscopic appearance
- Grade (Laurens classification – optional)
- Depth of penetration
- Lymphovascular invasion
- Perineural invasion
- Non neoplastic mucosa -atrophy, gastritis, Intestinal metaplasia
- Surgical margins
- LN- number, no. involved, Location of lymph nodes

(Grade X)**2.3.5 Recommendations to surgeons**

Identify the site of tumour by the aid of a diagram or in the request form as cardia, fundus, body, antrum, pylorus and greater or lesser curvature and posterior or anterior.

Lymph nodes should be sent in separate containers labelled according to their location whenever possible.

(Grade X)**2.3.6 References**

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2.3.7 Annexures

Annexure 1

WHO Histological classification of gastric tumours

Epithelial tumours

Intraepithelial neoplasia - Adenoma

Carcinoma

Adenocarcinoma

Intestinal type

Diffuse type

Papillary adenocarcinoma

Tubular adenocarcinoma

Mucinous adenocarcinoma

Signet ring cell carcinoma

Adenosquamous carcinoma

Squamous carcinoma

Small cell carcinoma

Undifferentiated carcinoma

Others

Carcinoma (well differentiated endocrine neoplasm)

Non – epithelial tumours

Leiomyoma

Schwannoma

Granular cell tumour

Glomus tumour

Leiomyosarcoma

GI stromal tumour

- Benign
- Uncertain malignant potential
- Malignant
- Kaposi sarcoma
- Others
- Malignant lymphomas
 - Marginal zone B cell lymphoma of MALT type
 - Mantle cell lymphoma
 - Diffuse large B cell lymphoma
 - Others

Secondary tumours

Annexure 2

Pathological staging of gastric carcinoma (pTNM)

Primary Tumor (T)

- TX Primary tumor cannot be assessed
- T0 No evidence of primary tumor
- Tis Carcinoma in situ: intraepithelial tumor without invasion of the lamina propria
- T1 Tumor invades lamina propria or submucosa
 - T1a Tumor invades lamina propria*
 - T1b Tumor invades submucosa*
- T2 Tumor invades muscularis propria or subserosa
 - T2a Tumor invades muscularis propria
 - T2b Tumor invades subserosa
- T3 Tumor penetrates serosa (visceral peritoneum) without invasion of adjacent structures
- T4 Tumor directly invades adjacent structures

* An optional expansion of T1 is proposed by the UICC based on the observed difference in frequency of lymph node metastasis. In addition, the substratifications may be important as indicators for treatment by limited procedures.

** Separation of T2 into T2a and T2b is justified because postsurgical survival following resection for cure has been shown to be significantly different for T2a and T2b.

Regional Lymph Nodes (N)

- NX Regional lymph nodes cannot be assessed
 - N0 No regional lymph node metastasis
 - N1 Metastasis in 1 to 6 perigastric lymph nodes
 - N2 Metastasis in 7 to 15 perigastric lymph nodes
 - N3 Metastasis in more than 15 lymph nodes
- Discussion of identifying isolated tumour cells is given under recent advances.

Distant metastases (M)

- MX Presence of distant metastasis cannot be assessed
- M0 No distant metastasis
- M1 Distant metastasis

2.4 Colorectal carcinoma

2.4.1 Macroscopic description (Grade X)

- **Type of specimen**

The major types of large bowel resection are

- Total colectomy
- Right hemicolectomy, (which is the part of the colon up to the hepatic flexure including the caecum, ileocaecal valve, appendix, portion of the terminal ileum and corresponding mesentery)
- Transverse colectomy (from hepatic flexure to splenic flexure), left hemicolectomy (from splenic flexure to sigmoid colon)
- Low anterior resection (rectosigmoid)
- Abdomino-perineal resection (sigmoid colon, rectum and anus).

- **Site of the tumour**

This will usually be stated on the request form. However if examination of the specimen suggests that the stated site is incorrect this should be queried and corrected if necessary. A tumour located at the border between two sites should be registered as a tumour of the subsite which is more extensively involved. If however two sites are involved to the same extent then the tumour should be considered an overlapping lesion.

In the case of rectal tumours the relationship to the peritoneal reflection should be specified. The peritoneal reflection is identified from the exterior surface of the *anterior* aspect of the specimen). Rectal tumours are thus described as below, above or at the peritoneal reflection. Tumours below the peritoneal reflection have the highest rates of local recurrence

- **Length of the bowel**

This will be measured in the fixed state.

- **Attachment of mesocolon**

The attached mesocolon should be measured.

- **Tumour perforation**

If the tumour has perforated into the peritoneal cavity this should be recorded. Such cases are always regarded as pT4 in the TNM staging system. Tumour involvement of the serosal margin should be also suspected when the serosal margin shows induration, puckering and lack of the normal lustre.

- **Diameters of the end resection margins**

- **Distance from the tumour to closest end margin**

This is measured from the nearest cut end of the specimen. The examination of end resection margins are recommended in these guidelines irrespective of the distance of the tumour from the end margins.

In the case of rectal carcinoma – the distance of the tumour from the anorectal margin (dentate line) is recorded.

- **Doughnuts**

If doughnuts are received the entire specimen needs to be examined.

- **Size of the tumour**

This is measured from the luminal aspect of the bowel. The thickness of the tumour is ignored for this measurement.

- **Gross appearance of the tumour**

This is recorded as

- polypoid
- fungating
- ulcerating
- infiltrating
- obstructing
- mixed patterns.

- **Non-neoplastic mucosa**

The presence of dilatation or narrowing of the bowel and presence of polyps and satellite nodules away from the tumour should be recorded. The non-neoplastic mucosa adjacent to the tumour should be examined carefully for any associated bowel pathology. If other polyps or satellite nodules are present these should be measured.

Macroscopic description

- Specimen type
- Length of bowel
- Attached mesocolon
- Tumour surface perforation present
- Diameters of - cut ends (optional)
- Tumour size, tumour configuration, distance from closest margin. (Rectal carcinoma – distance from dentate line)
- In rectal tumour – whether tumour above below or at the peritoneal reflection
- Depth of penetration, distance to closest resection margin
- Polyps and satellite nodules - at site of & away from tumour
- Lymph nodes – Size of largest lymph node total number isolated
- Non-neoplastic mucosa
(Grade X)

2.4.2 Handling of the specimen **(Grade X)**

The segment of bowel that is generally received fixed in formalin (see recommendations to surgeons) should be measured. The non-peritonealised margin – including the posterior surface of the caecum, transverse colon, sigmoid mesocolon and especially the mesorectum in the case of colorectal carcinomas, are inked. The apical node is identified as the nodes closest to the main vascular tie (high tie). This is not defined by any measure of distance, but is simply the first node

identified by slicing the mesentery serially and distally from the vascular tie. The bowel is opened along the anti mesenteric border up to the tumour from above and below it. The tumour is sausage sliced at 5mm intervals and laid out to identify the point of deepest invasion.

The lymph nodes in the rest of the mesocolon are identified by slicing the fat as finely as possible and no fat clearance methods are recommended for routine use. The entire lymph node is blocked if 3mm or less in thickness; If larger, half the node or a slice is blocked. As many lymph nodes as possible should be sampled.

2.4.3 Blocks (Grade X)

- tumour to demonstrate the maximum depth of invasion.
- tumour with adjacent mucosa
- proximal and distal margins (see notes above)
- non-peritonealised circumferential margin in the case of rectal carcinoma (at the point of deepest tumour invasion)
- polyps and other pathology evident macroscopically
- normal mucosa.
- high tie node
- lymph nodes

2.4.4 Microscopic Description / Conclusion (Grade X)

- **Histological Type**

Virtually all colorectal cancers are adenocarcinomas. Other rare forms include

- Adenosquamous carcinomas
- True squamous carcinomas (not including upwardly spreading anal tumours)
- Adenocarcinoid (composite carcinoma/carcinoid) tumours
- Small cell carcinomas
- Totally undifferentiated carcinomas.

Mucinous carcinomas and signet ring carcinomas are recorded as adenocarcinomas.

- **Tumor grade**

Tumour grading is carried out using the differentiation of the predominant area. Poorly differentiated carcinomas should be separated from other types, but only if this forms the predominant area of the tumour. Small foci of apparent poor differentiation are not uncommon at the advancing edge of tumours, but these are insufficient to classify the tumour as poorly differentiated.

- **Depth of invasion**

This parameter is recorded as invasion of the submucosa, muscularis propria (Dukes A, pT1 and pT2) subserosa or involvement of pericolic fat (Dukes B, pT3) and serosal or peritoneal surface involvement

(Dukes B, pT4). For further substratification of the T stages see Annexure 3.2.

- **Other lesions and non neoplastic mucosa**

The presence of a synchronous tumour should be separately recorded and all the above parameters of colorectal malignancy should be reported on. The presence or absence of adenoma(s), ulcerative colitis, Crohn's disease and polyposis syndromes should be described and recorded.

- **Lymph node spread**

A tumour nodule with a smooth outline in perirectal and pericolic adipose tissue even without histological evidence of a residual lymph node is classified as a regional lymph node metastasis. If the outline is irregular it is classified as discontinuous extension of the tumour ie:pT3. This is in keeping with the recommendations of the 6th edition of the TNM classification system. The previous recommendations were based on the size of the tumour deposit.

- **Other features (optional)**

- Tumour borders whether 'pushing/rounded or infiltrative in type
- Host lymphoplasmacytoid response
- Vascular lymphatic and perineural invasion within the tumour

- **Pathological staging – TNM staging**

See Annexure 2.4.7

- **Macroscopic features that should be included in the conclusion**

Specimen type and tumour size and distance to the closest end resection margin.

Microscopy and conclusion

- Specimen type
 - Tumour type
 - Tumour size
 - Tumour grade
 - Distance to closest margin
 - Extratumoral venous invasion
 - Depth of invasion.
 - Non-peritonealized circumference –where relevant.
 - Lymph nodes – mention number, number involved, presence/involvement of high tie
 - Optional features perineural invasion, tumour border configuration, Lymphoplasmacytic response at host –tumour interface
 - Pathological staging – Dukes and TNM
- (Grade X)**

2.4.5 Recommendation to surgeons

A large container preferably a bucket should be used in transporting the specimen and adequate formalin should be added to submerge the specimen.

A suture should be placed at the level of the vascular tie.

Proximal and distal margins should be indicated where landmarks for the orientation of the specimen is poor.

The bowel may be opened out in the theatre to facilitate fixation but the surgeons are advised not to cut through the tumour.

2.4.6 References

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2.4.7 Annexures**Annexure 1****WHO histological classification of tumours of the colon and rectum****Epithelial tumours**

Adenoma – Tubular, Villous Tubulovillous, Serrated
Intraepithelial neoplasia (dysplasia)

Associated with chronic inflammatory bowel disease
(low grade and high grade)

- Carcinoma - Adenocarcinoma
 Mucinous carcinoma
 Signet-ring cell carcinoma
 Small cell carcinoma
 Squamous carcinoma
 Adenosquamous carcinoma
 Medullary carcinoma
 Undifferentiated carcinoma
 Carcinoid (well differentiated endocrine neoplasia)
 EC-cell serotonin producing neoplasm
 L-cell glucagons-like peptide and PP/PTY producing neoplasm
 Others
 Mixed carcinoid adenocarcinoma
 Others

Non epithelial tumours

- Lipoma
 Leiomyoma
 Gastrointestinal stromal tumour
 Leiomyosarcoma
 Angiosarcoma
 Kaposi sarcoma
 Malignant melanoma
 Others
 Malignant lymphoma
 Marginal zone B-cell lymphoma of
 MALT type
 Mantle cell lymphoma
 Diffuse large B-cell lymphoma
 Burkitt lymphoma
 Burkitt-like / atypical Burkitt lymphoma
 Others

Secondary tumours

Annexure 2

Pathological staging of colorectal carcinoma (pTNM)

Primary Tumor (pT)

- pTX: Cannot be assessed
 pT0: No evidence of primary tumor

- pTis: Carcinoma in situ, intraepithelial (no invasion)
 pTis: Carcinoma in situ, invasion of lamina propria
 pT1: Tumor invades submucosa
 pT2: Tumor invades muscularis propria
 pT3: Tumor invades through the muscularis propria into the subserosa or the nonperitonealized pericolic or perirectal soft tissues
pT3 is subclassified based on the depth of invasion of the tumour through the muscularis propria into the subserosa, non peritonealized pericolic or perirectal soft tissue. The measurement is made from the outer border of the muscularis propria.
 pT3a - Tumor invades **not more than 1mm** beyond the muscularis propria
 pT3b - Tumor invades **more than 1mm but not more than 5mm** the muscularis propria.
 pT3c - Tumor invades **more than 5mm but not more than 15mm** beyond the muscularis propria.
 pT3d - Tumor invades **more than 15mm beyond** the muscularis propria.

- pT4: Tumor directly invades other organs or structures or has breached the peritoneal surface
pT4a : Tumor directly invades other organs or structures
pT4b: Tumor penetrates the visceral peritoneum

Regional Lymph Nodes (pN)

- pNX: Cannot be assessed
pN0: No regional lymph node metastasis

pN1: Metastasis in 1 to 3 regional lymph nodes
pN2: Metastasis in 4 or more regional lymph nodes

Distant Metastasis (pM)

- pMX: Cannot be assessed
pM0: No distant metastases
pM1: Distant metastasis

Note : The Dukes staging is not described as pathologists are familiar with this staging system.