Greater Manchester &
Cheshire Cancer Network

Greater Manchester & Cheshire Guidelines for Pathology Reporting for Oesophageal and Gastric Malignancy

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1. General Comments

1.1 Cancer reporting: Biopsies and resection specimens are reported according to departmental protocols and may include provision for double reporting of malignant biopsies or some form of subspecialist review. Reporting protocols should comply with guidance from the Royal college of Pathologists and Cancer Peer review requirements. Guidance on referral for second opinion is agreed through the GM&C cancer network histopathology cross cutting group (CCG).

Dissection and block selection of resection specimens should be based on good pathology practice and local operating procedures. Guidance may be obtained from RCPath cancer dataset documents and other publications.

Resection specimens for cancer should be reporting according to the Royal College of Pathologists cancer datasets for cancer reporting.

Within the network, proforma reporting using cancer dataset items is encouraged.

All reports should carry a SNOMED code to allow data collection within the network.

1.2 Input to MDT meetings: Each department will provide pathology support to local and sector MDT meetings as agreed.

1.3 Cancer staging: All cancer reporting should be staged according to the UICC TNM staging. The current scheme is based on 7th edition which introduces significant changes to the staging of oesophageal, junctional and gastric cancers. Each MDT should agree which edition of TNM staging should be used and this should be documented in the operational policy. The Royal College of pathologists recommends the use of TNM 7th edition. The TNM stage used should be stated in the report.

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Oesophageal Carcinoma

2.1 Squamous Carcinoma

2.1.1 Diagnosis: Squamous carcinoma arises in the squamous lined oesophagus and is most common in the middle and upper third. Biopsies will confirm carcinoma if invasion is identified but may be superficial and difficult to assess for invasion due to the angle of approach of the biopsy forceps.

2.1.2 Grading: Squamous carcinoma is graded as well, moderate or poorly differentiated based on the worst grade in the tumour.

2.1.3 Precursor Lesions: Squamous epithelial dysplasia is the only recognisable precursor lesion for carcinoma. Dysplasia should be graded as High or Low grade. High grade dysplasia should be reported using departmental protocols for double reporting or review and should be discussed at an appropriate MDT meeting.

2.1.4 Staging: Staging should follow standard TNM staging (7th edition)

2.2 Adenocarcinoma

2.2.1 Diagnosis: Adenocarcinoma accounts for the majority of malignant lesions of the oesophagus. Most tumours arise in the lower oesophagus, often in a background of Barrett's change/columnar lined oesophagus, but can be seen at any level, arising from submucosal glands.

2.2.3 Grading: Standard grading is used, reporting as well, moderately or poorly differentiated based on the worst grade in the tumour.

2.2.4 Precursor lesions

2.2.4.1 Barrett's change: Barrett's change is widely recognised as a metaplastic change occurring in the lower oesophagus resulting in a columnar cell lining above the gastro-oesophageal junction. Barrett's change is usually identified when the squamo-columnar junction lies more than 3cm above the gastro-oesophageal junction, but shorter segments can be present. Barrett's change is characterised by three epithelial types:

- Gastric cardia type epithelium
- Gastric body type epithelium
- Specialised intestinal columnar epithelium (intestinal metaplasia)

The presence of intestinal metaplasia is often taken as the histological marker of Barrett's change but may not be present in individual biopsies. Multiple biopsies from a Barrett's segment will usually identify focal intestinal metaplasia. Intestinal metaplasia is the only one of the three which has a recognised premalignant potential

but is not clinically useful in predicting risk in an individual patient with Barrett's change.

2.2.4.2 Dysplasia: Epithelial dysplasia is the only useful morphological indicator of malignant risk. Biopsies should be reported according to the Vienna system:

- Negative for dysplasia
- Indeterminate for dysplasia
- Low grade dysplasia
- High grade dysplasia
- Invasive malignancy

Biopsies reported as dysplasia (any grade) should be discussed within the reporting department according to local protocols. This may involve double reporting or specialist review.

Indeterminate for dysplasia includes cases of reactive atypia associated with inflammation which may regress to normal if inflammation is treated. The natural history of low grade dysplasia is difficult to define. There is evidence that it may regress after treatment of inflammation and acid reflux but may progress to high grade dysplasia and should therefore be followed carefully.

There is strong evidence that high grade dysplasia has a high malignant potential and may progress to adenocarcinoma within a period of a few years or may be associated with adenocarcinoma in adjacent unsampled tissue. Current practice is that a diagnosis of high grade dysplasia should be confirmed by a second pathologist and should be discussed at an MDT meeting. Further biopsies should be taken within a short period and a confirmed second diagnosis of high grade dysplasia may be an indication for ablative therapy or oesophagectomy.

It should be noted that criteria for diagnosis of low or high grade dysplasia are relatively ill defined and subjective. Intra and inter observer variation is particularly seen in low grade dysplasia with much better agreement in high grade dysplasia. There should be collaboration between pathologists within the network to ensure consistency of reporting.

2.2.4.3 Other markers of malignant risk: A number of markers have been investigated as markers of increased malignant risk. None have been identified as reliable markers in the individual patient for routine use. Some pathologists use p53 as an indicator of risk in cases identified as indeterminate for dysplasia but this is not universally accepted. The network may facilitate research into improved identification of malignant risk in the future.

2.2.5 Gastro-oesophageal junction lesions: Adenocarcinoma may arise around the level of the gastro-oesophageal junction in the presence or absence of

Barrett's change, in gastric cardia or from fundus/body. These tumours should be classified according to the Siewert system:

- Type 1 centre of tumour >1cm above GOJ
- Type 2 centre of tumour between 1cm above and 2cm below GOJ
- Type 3 centre of tumour between 2cm and 5cm below GOJ

The importance of this classification is in planning resections and lymphatic drainage. Siewert type is included as a data item in the RCPath minimum data set (2nd edition).

2.2.6 Staging: All cancer reporting should be staged according to the UICC TNM staging. The current scheme is based on 7th edition which introduces significant changes to the staging of oesophageal, junctional and gastric cancers. Each MDT should agree which edition of TNM staging should be used and this should be documented in the operational policy. The Royal College of pathologists recommends the use of TNM 7th edition. The TNM stage used should be stated in the report.

Difficulty arises in staging adenocarcinomas of the gastro-oesophageal junction. TNM 7th edition states a tumour with the epicentre of which is within 5cm of the oesophagogastric junction and extends into the oesophagus is classified according to the oesophageal scheme. All other tumours with an epicentre in the stomach greater than 5cm from the oesophagogastric junction or those within 5cm of the oesophagogastric junction without extension into the oesophagus are staged using the gastric carcinoma scheme. As a practical measure the pathologist may also liaise with the surgeon to agree staging appropriate to the operation performed.

Oesophageal TNM 7th Edition Staging:

PT Primary tumour

- pTX Primary tumour cannot be assessed.
- pT0 No evidence of primary tumour.
- pTis Carcinoma in situ
- pT1 Tumour invades lamina propria or submucosa
    - pT1a lamina propria or muscularis mucosae
    - pT1b submucosa
- pT2 Tumour invades muscularis propria
- pT3 Tumour invades adventitia
- pT4 Tumour invades adjacent structures
    - pT4a pleura, pericardium, diaphragm, or adjacent peritoneum
    - pT4b other adjacent structures, e.g. aorta, vertebral body, trachea

PM Primary tumour

- pNX Regional lymph nodes cannot be assessed
- pN0 No regional lymph node metastasis
- pN1 1 to 2 regional lymph node metastasis
- pN2 3 to 6 regional lymph node metastasis

- pN3 >6 regional lymph node metastasis

M Distant metastasis

- M0 No distant metastasis (exists only at autopsy)
- M1 Distant metastasis

For tumours of lower thoracic oesophagus:

- M1a Metastasis in coeliac lymph nodes
- M1b Other distant metastasis

For tumours of upper thoracic oesophagus:

- M1a Metastasis in cervical lymph nodes
- M1b Other distant metastasis

For tumours of mid-thoracic oesophagus:

- M1a Not applicable
- M1b Non-regional lymph node or other distant metastasis

2.3 Other malignancies

Rarely other types of malignant tumour can involve the oesophagus. These may be primary or secondary tumours. Examples of primary tumours include sarcomas, gastrointestinal tumours (GISTs) or melanomas. GISTs should be reported as per the Royal College of Pathologists Dataset for GISTs 2011 and TNM 7th edition. Lymphomas involving the oesophagus are very rare. Secondary tumours should always be considered, especially if a malignancy from a different site has been previously diagnosed or if the clinical, endoscopic or imaging is unusual. Immunohistochemistry may be helpful together with discussion at the MDT.

3.0 Gastric carcinoma

3.1 Adenocarcinoma

3.1.1 Diagnosis: Adenocarcinoma is the commonest form of malignant tumour in the stomach. It is usually diagnosed on endoscopic biopsy. There are four commonly used histological classifications of gastric adenocarcinoma (Goseki, Lauren, Ming and WHO). In British practice the Lauren classification is most widely used and is including in the RCPath cancer dataset. Tumours are classified as diffuse, intestinal and mixed types.

3.1.2. Grading: Tumours are graded by differentiation (well, moderate and poor) based on the highest grade identified within the tumour. Significant variation in grade within a tumour may be indicated in the text of the report.

3.1.3. Precursor lesions: Epithelial dysplasia is the only useful morphological indicator of malignant risk and may be identified in biopsies from apparently normal,

inflamed or ulcerated mucosa or may be seen in the context of adenomatous polyps. Biopsies should be reported according to the Vienna system:

- Negative for dysplasia
- Indeterminate for dysplasia
- Low grade dysplasia
- High grade dysplasia
- Invasive malignancy

Biopsies reported as dysplasia (any grade) should be discussed within the reporting department according to local protocols. This may involve double reporting or specialist review.

Low grade dysplasia and indeterminate for dysplasia includes cases of reactive atypia associated with inflammation which may regress to normal if inflammation is treated and there is recognised significant intra- and inter-observer variation in reporting. The natural history of low grade dysplasia is difficult to define but it may progress to high grade dysplasia and should therefore be followed carefully.

High grade dysplasia is recognised more reproducibly and has a high malignant potential and may progress to adenocarcinoma within a period of a few years. Current practice is that a diagnosis of high grade dysplasia should be confirmed by a second pathologist and should be discussed at an MDT meeting. Further biopsies should be taken within a short period and results discussed at MDT meeting.

It should be noted that criteria for diagnosis of low or high grade dysplasia are relatively ill defined and subjective. There should be collaboration between pathologists within the network to ensure consistency of reporting.

3.1.4.Staging: The Royal College of Pathologists recommends staging using TNM 7th edition. If the 5th or 6th editions are used this should be stated in the report.

Gastric TNM 7th Edition Staging

- TX Primary tumour cannot be assessed
- T0 No evidence of primary tumour
- Tis Carcinoma in situ: intraepithelial tumour without invasion of lamina propria
- T1 Tumour invades lamina propria or submucosa
    - pT1a lamina propria
    - pT1b submucosa
- T2 Tumour invades muscularis propria.
- T2 Tumour invades subserosa.
- T4a Tumour penetrates serosa (visceral peritoneum) without invasion of adjacent structures.
- T4b Tumour invades adjacent structures.

- N0 No regional node involvement
- N1 Involvement of 1–2 regional nodes
- N2 Involvement of 3–6 regional lymph nodes
- N3a Involvement of 7-15 regional lymph nodes
- N3b Involvement of 16 or more regional lymph nodes

- Involvement of non-regional intra-abdominal lymph nodes such as retro-pancreatic, mesenteric and paraaortic groups is considered to be distant metastasis (M1).
- Involvement of the liver or the presence of peritoneal seedlings is also staged as M1.

3.2 Other Malignancies

Other types of malignant tumour can involve the stomach. These may be primary or secondary tumours. Examples of primary tumours include gastrointestinal tumours (GISTS), sarcomas, lymphomas or melanomas. GISTs should be reported as per the Royal College of Pathologists Dataset for GISTs 2011 and TNM 7th edition. Secondary tumours should always be considered, especially if a malignancy from a different site has been previously diagnosed or if the clinical, endoscopic or imaging is unusual. A classical example is metastatic lobular carcinoma of the breast which may present as linitis plastica. Immunohistochemistry may be helpful together with discussion at the MDT.

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