“Barrett’s Oesophagus: When it comes to the Pathologist”

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Specimen handling

• Mucosa upward, pinned on a cork board/similar firm base by the endoscopist

• Pinning (immediate)
  - Margins do not roll
  - Preserve the tissue size, shape, and orientation
  - Avoid overstretching: tears of the mucosa

• Tumour morphology: provided by the interventional endoscopist (Paris classification)
Specimen handling

• Surgical margins must be appropriately inked

• Single specimen: may be oriented using the designation of O (oral) and A (anal) or P (proximal) and D (distal) marked on the board - ink appropriately to assess designated lateral & deep margins

• Multiple or piecemeal resection (long segment of Barrett)-orientation is often difficult - assessment of lateral margins unhelpful

• Best fixed for at least 12 hours in formalin
Specimen dissection:

- Entire specimen: cut into 2-3 mm (not < 2 mm) parallel slices from end to end
- Record/photograph
- Circumferential (lateral) surgical margins: “en face” or perpendicular sections, depending on the size of the specimen & proximity of the lesion/s
- Not more than 4 slices in one block
ER specimen in 3 slices
ER sections

- Mucosa
- MM
- SM (often not the entire depth)
ER: Therapy of choice for IEN and (visible) T1a lesions
ER : Pathology

• Intraepithelial neoplasia (IEN): *majority are for high grade IENs*

• Early carcinomas (PT1)

• Barrett mucosa/CLM only: Repeat resections or mucosa surrounding the lesion
Intraepithelial neoplasia (IEN)/dysplasia

Microscopic assessment

- Confirm IEN
- Histologic grade (AGPS 2015, Sydney)
- Lateral margins when appropriate

Deep margins: not applicable as lesions are mucosal only
Invasive carcinoma

**Microscopic assessment**

- Confirmation of invasive carcinoma: invasion into lamina propria or beyond
- Depth of invasion
- Degree of differentiation
- Presence or absence of lymphovascular invasion
- Margin status

These features dictate further management
- *tumour budding/size*
T1 carcinoma (AJCC)

- **T1a** – Invade lamina propria or *muscularis mucosae*

- **T1b** – Invade *submucosa*
Muscularis mucosae in Barrett mucosa:
Duplicated and distorted
Superficial/inner mm
Space between the mm
Outer TRUE mm
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Further subdivision of mm invasion

2 methods

AJCC: T1a is sub-divided to m1-m3 (3 tiered)
- m1 - in situ
- m2 - into the lamina propria
- m3 – into the muscularis mucosae

Stolte: T1a is sub-divided as m1-m4 (4 tiered)
- m1 - into the lamina propria
- m2 - into the superficial/inner muscularis mucosae
- m3 - into the space between the layers of the mm
- m4 - into the outer/true mm
Invasion: still duplicated mm, T1a
Misinterpretation of invasion of layers of mm

Misinterpretation of mm as muscularis propria

T1a and not T2
Misinterpretation of mm as muscularis propria!

T1 and not T2
T1a M4/ T1b - SM1
T1a- Stolte M3, AJCC M3
desmoplasia

T1b SM 2-3
Implications of duplication of mm

1. Misinterpretation of invasion of MM as MP
   T1 vs. T2

2. Invasion into various levels within the duplicated mm
   - Difficulties in differentiating T1a from T1b (SM)
   - ? Difference in the behaviour of T1a carcinomas


further subdivision of mm invasion is appropriate...
Margins

Deep margins (levels if required)

Lateral margins
Lympho-vascular invasion
Phenotypes

- Intestinal
- Hybrid/Mixed
- Gastric
TISSUE LAYERS PRESENT: Mucosa/ Muscularis mucosa/ submucosa.
TYPE OF LESION: (e.g. Adenocarcinoma, High Grade dysplasia/Intraepithelial neoplasia)
HISTOLOGICAL TYPE: (e.g. sigent ring cell, mucinous, adenocarcinoma NOS)
HISTOLOGICAL GRADE:
PHENOTYPE:
TUMOUR SIZE:
DEPTH OF INVASION: (e.g. T1a - tumour invades lamina propria)
   3-tiered (AJCC): (e.g. M2)
   4-tiered (Stolte): (e.g. M1)
LYMPHATIC AND CAPILLARY SPACE INVASION: Absent/Present
PERINEURAL INVASION: Absent/Present
SURGICAL MARGIN STATUS
   Deep margin: Not involved/Involved
   Distance to deep margin (if applicable)
   Lateral margin (if applicable): Not involved/Involved
   Distance to lateral margin (if applicable)
OTHER PATHOLOGIES: (Barrett disease/ scar formation/ ulceration/other)
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