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The New Zealand Society of Gastroenterology and the University of Auckland

Nutrition Course

April 15-17th, 2019.

The Medical School, Grafton, Auckland
Missed Lesions at Endoscopy

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Gastroenterologist WDHB
Chair Endoscopy Guidance Group for New Zealand
Missed Lesions at Endoscopy

• Is there a problem?
  • With Gastroscopy
  • With Colonoscopy
• How to improve?
  • Take a better look
  • Prepare the organ better
  • Specific techniques
    • Manual
    • Virtual and chromendoscopy
    • Devices
• Conclusion
Missed Lesions at Gastroscopy
Is there a Problem?

Metanalysis of oesophageal adenocarcinomas in Barrett’s.
• 24 studies, 820 cases
• Definition; diagnosed within 1 year of initial gastroscopy
• missed lesions in 25.4% (16.4-36.8%)
  • Gastro 2016; 150(3) 599-607

Retrospective cohort study of Gastric cancers in England
• April 2011-march 2012
• 2727 patients
• 8.3% (7.2-9.3) had Gastroscopy 6-36/12 prior
• GU seen at prior GD in 64%
  • Chadwick et al. CGH 2015; 13 (7): 1264-70
Missed Lesions at Colonoscopy
Is there a problem?

Polyp Miss Rate @ Tandem Colonoscopy ; a Systematic Review
Van Rijn et al.  Am J Gastro 2006
Missed Lesions at Colonoscopy
Is there a problem?

Interval Colorectal Cancer
• Definition; colonoscopy >6/12, < 36/12 of diagnosis
• 12 studies
• 7,912 interval CRCs
• ‘missed’ CRCs = 3.75% (2.8-4.9%)

1 in 27 Colorectal Cancers

Singh et al ; AJG 2014, 109;1375-89
Missed Lesions at Endoscopy
How to improve?

• “Just take a better look”
  • Take longer
  • Prepare better
  • Use appropriate techniques
  • +/- use devices
Missed Lesions at Endoscopy
How to improve? - Just take a better look

ESGE Recommendations for Quality Control in Gastrointestinal Endoscopy: Guidelines for Image Documentation in Upper and Lower GI Endoscopy

Endoscopy 2001; 33 (10): 901–903
Missed Lesions at Gastroscopy
How to improve? – Take longer

- Barrett’s Oesophagus;
- 112 (94M) patients surveillance by 11 endoscopists
- Prague C 2.0 (3.1), M 3.7 (3.4)
- 33.9% HGD/EAC
- Seattle protocol +
- HD-WLE

Gupta et al GIE 2012, 76(3); 531-8
Missed Lesions at Gastroscopy
How to improve? – Take longer

Gastroscopy
- 837 symptomatic first OGD,
- From 224 normal (mean 6 minutes)
- segregated into fast (5.5mins) vs slow (8.6mins)
- From 613 gastroscopies where Bx taken:
  - IM/G atrophy (8.7%), dysplasia (1%), cancer (1.3%)

- Slow vs Fast ‘scopers:
  - ‘High risk lesion’ OR 2.5 (1.52-4.12)
  - Cancer/dysplasia OR 3.42 (1.25-10.38)
Missed Lesions at Colonoscopy
How to improve? – Take longer

Withdrawal Times and Adenoma Detection
• 12 Gastroenterologists performed 7882 colonoscopies over 15 months.
• 2053 initial screening colonoscopies.
• Compared neoplastic lesion detection rate in screening colonoscopies of those with 6 minutes withdrawal with those> 6 minutes.
• Non-interventional colonoscopies.

Results:
Neoplasms in 23.5% (9.4-32.7%)
Withdrawal times 3.1-16 minutes
Mean non-interventional WT >6 minutes vs. < 6 minutes:
  Neoplasm 28.3% vs 11.8% (p<0.001)
  Advanced neoplasms 6.4% vs 2.6% (p 0.005)

Barclay et al NEJM 2006: 355;2533
Missed Lesions at Colonoscopy
How to improve? – Take longer

EGGNZ BSP Individual Standards for Colonoscopy
Quality Standard Essential

1.2.1
Withdrawal time (in non-interventional cases only) >6min for 90% of colonoscopies.

 Colonoscopists
(>100 procedures, >90% CIR, >20% ADR in last 12

WT > 9mins = 11% ↑ no. of procedures with adenomas & 25% ↑ total number adenomas removed.
WT > 11 mins found 50% more Rt adenoma cf. WT <7 mins.

For each 1% increase in ADR = 3% decrease in CRC risk
NEJM, 2014;370:14:1298
Missed Lesions at Gastroscopy
How to improve? – prepare better

Semithecone in Gastroscopy
• 50mls
• 10-30 mins before
• 4 RCTs, 364 patients

Transl Gastro Hepatol 2018;3;29
Missed Lesions at Colonoscopy
How to improve? – prepare better

Split-dose preparation for colonoscopy increases ADR: an RCT in a Screening programme

• Multicentre
• 690 screening intact colons
• 2 Litre PEG prep
• Split-Dose = 20.00 day before then next day 4 hours before procedure
• Day before = 18.00 then 21.00

Proportion of subjects with at least one adenoma, advanced adenoma and sessile serrated polyps (per-patient analysis).

Missed Lesions at Colonoscopy
How to improve? – prepare better

EGGNZ BSP Unit Standard 13; Audit
13.6 Quality of bowel prep using the Boston Bowel Prep Score;
- KPI target; excellent/adequate in ≥90% or
- Boston Bowel Prep Score (BBPS) on withdrawal of ≥6, with no single segment score <2, in ≥90%

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0154149
Missed Lesions at Endoscopy
How to improve? – use appropriate techniques

ASGE Technology Committee systematic review and meta-analysis assessing the ASGE Preservation and Incorporation of Valuable Endoscopic Innovations thresholds for adopting real-time imaging–assisted endoscopic targeted biopsy during endoscopic surveillance of Barrett’s esophagus. GIE Volume 83, No. 4 : 2016
Missed Lesions at Gastroscopy
How to improve? – use appropriate techniques

a. HD WLE
b. NBI
c. darker mucosa, demarcation line, dilated capillary loops = IEC/HGD (squamous)
d. Lugols Iodine

Oesophageal Inlet patch (NBI)
Missed Lesions at Gastroscopy
How to improve? – Summary

Minimum total gastroscopy procedure time 8 min

2 min to 2nd part duodenum
Intubation
Cleaning, mucolytic,
antifoam ± antispasmodic

4 min with SSS protocol
Stomach
Systematic examination,
avoid miss at cardia

2 min + 1 min/cm Barrett oesophagus
oesophagus
Focus on 3 o’clock in
Barrett oesophagus

Figure 4 | Algorithm for the systematic examination of the upper gastrointestinal tract at endoscopy. Abbreviation: SSS, systematic screening protocol for the stomach.

Missed Lesions at Colonoscopy
How to improve? – use appropriate techniques

EGGNZ BSP Individual Standards for Colonoscopy
Practice Guideline Essential

3.1
Retroflexion in the rectum should be attempted
Retroflexion in the right colon should be attempted where comfortable
Missed Lesions at Colonoscopy
How to improve? – use appropriate techniques

A simple method to improve adenoma detection rate during colonoscopy:
Altering patient position.

120 pts, 57 yrs (40-82), 51 M
18 excluded (poor prep, MMS problems, long caecal intubation, colitis, withdrawal of consent)

Randomised to:
• all of withdrawal in Left Lateral
• Dynamic positioning for each segment

<table>
<thead>
<tr>
<th>Position</th>
<th>PDR</th>
<th>ADR</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Lateral</td>
<td>30.3%</td>
<td>23.5%</td>
<td>0.001</td>
</tr>
<tr>
<td>Dynamic</td>
<td>43.1%</td>
<td>33.3%</td>
<td>**0.002</td>
</tr>
</tbody>
</table>

**Increase is in Transverse, Desc. Sigmoid Colon

9.8% increase in ADR
Missed Lesions at Colonoscopy
How to improve? – use of devices


Polyp detection rate with Endocuff
Missed Lesions at Colonoscopy
How to improve? – use of devices

Impact of cap-assisted colonoscopy on detection of proximal colon adenomas: systematic review and meta-analysis.

Missed Lesions at Colonoscopy
How to improve? – use appropriate techniques

Impact of Hyoscine on PDR in Colonoscopy

- Gastro Res 2018; 11(4):2950304
Missed Lesions at Colonoscopy
How to improve? – Summary

- Split Bowel Prep
- ? Use Distal Device
- Minimum withdrawal time* 9 minutes
  - Caecum
  - Ascending-HF-Transverse-SF-Descending-Sigmoid
  - Rectum
- Dynamic Positioning
- 2nd pass or Retroflexion in Right
- Retroflexion

*if no intervention

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Missed Lesions at Endoscopy

Conclusion

• Is there a problem?
  • Yes

• How to improve?
  • take a better look
    • Take longer
    • Prepare better
    • Use appropriate techniques
    • +/- use devices