



THE UNIVERSITY
OF BRITISH COLUMBIA

Providence
HEALTH CARE



That Polyp Has Cancer?

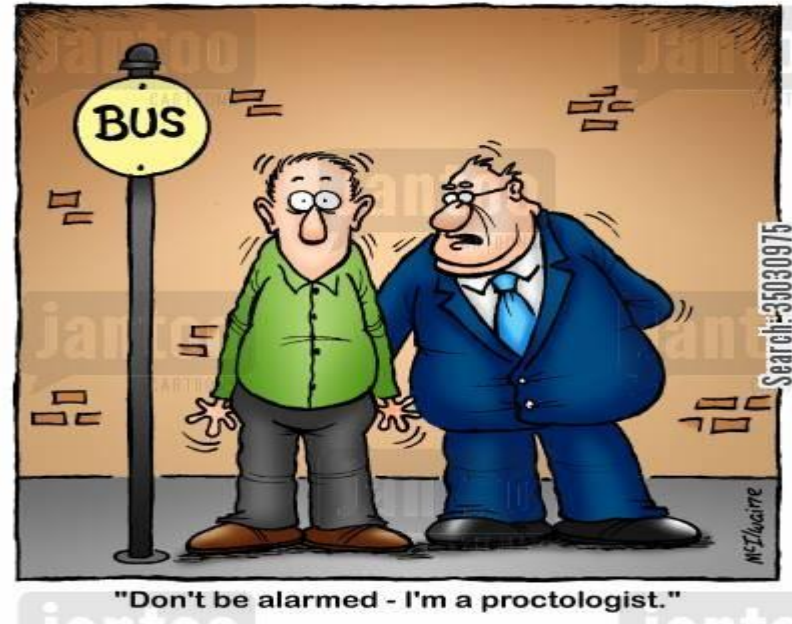
Ahmer A Karimuddin, MD, MAEd, FRCSC
General & Colorectal Surgery



 st paul's

Conflict of Interests

- None Relevant
- Honoraria Received
 - 3M
 - Sanofi
 - Servier
 - Medtronic
 - Takeda
 - Cook Surgery
 - DOPS Assessor
 - Doctors of BC - ERAS



The Malignant Polyp

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- Endoscopy Tips
 - Paris Classification
 - Polypectomy consideration
- Malignant Polyp = Surgery?
 - What do you need to see on Path report?
 - What do you need to know about the patient?



The Malignant Polyp

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- 64 year old male
- 5 years post prior colonoscopy
- Returns for surveillance



The Malignant Polyp

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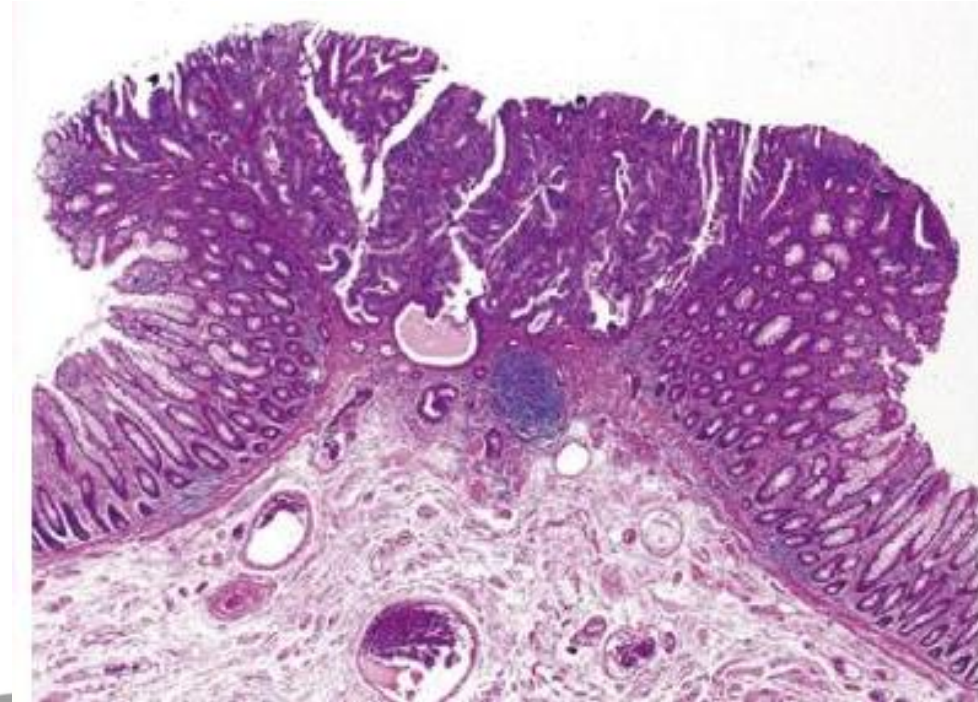
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The Malignant Polyp

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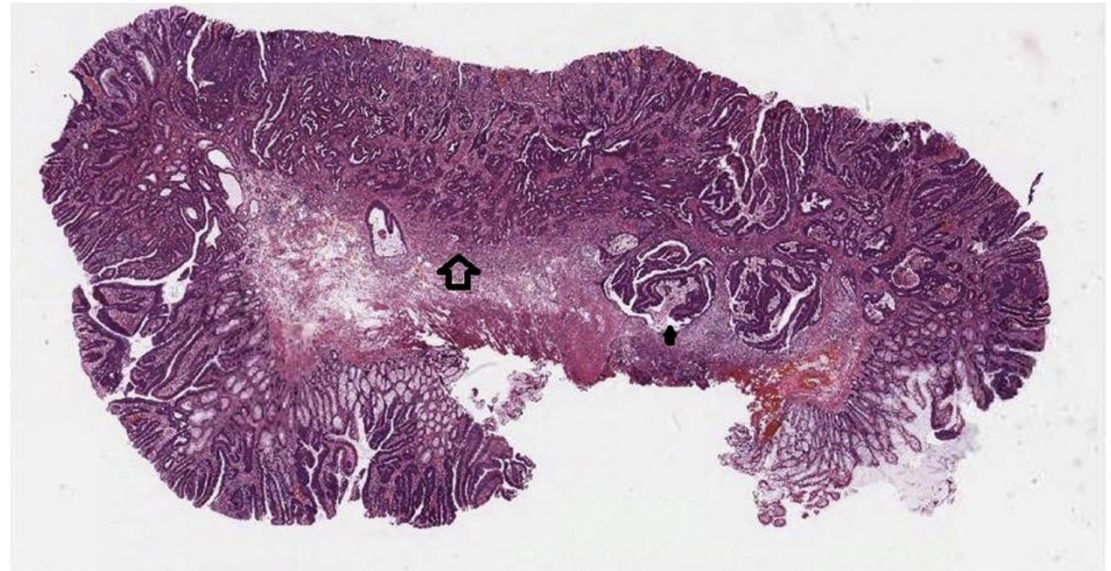
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The Malignant Polyp

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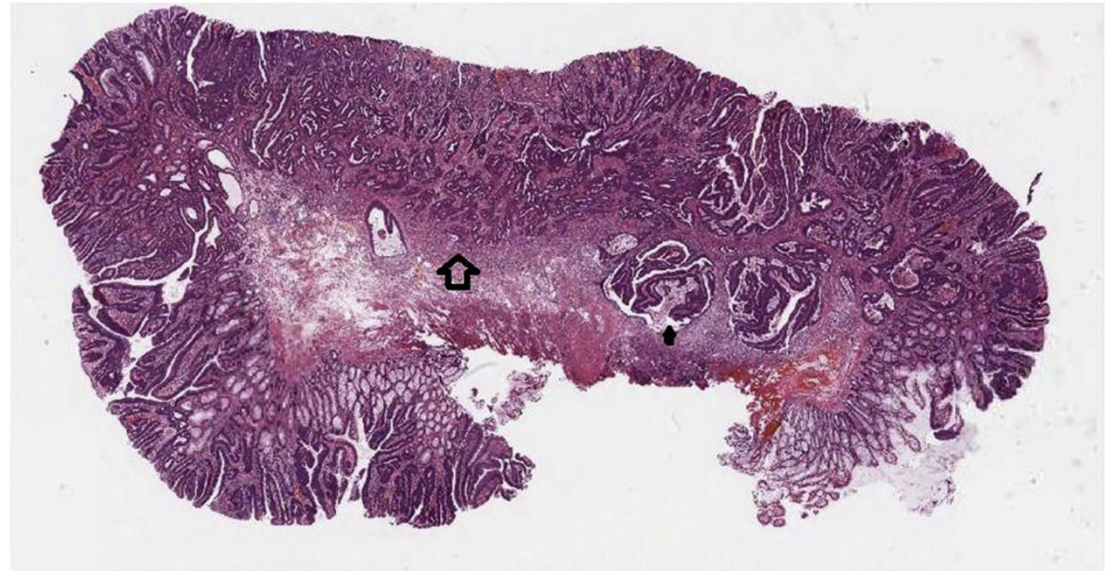
- Initially appears as benign polyp
- Adenoma with invasive adenocarcinoma
- Invasion into submucosa



The Malignant Polyp

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- Early carcinoma
 - “successful screening”
- 1-6% of all polyps removed



The Malignant Polyp

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- Nottingham Bowel Cancer Screening Trial
 - 1466 +FOB patients
 - 5% had malignant polyps
- National Bowel Screening Programme
 - 17000 +FOB patients
 - 0.9% malignant polyps



The Malignant Polyp

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- Nottingham Bowel Cancer Screening Trial
 - 1466 +FOB patients
 - 5% had malignant polyps
- National Bowel Screening Programme
 - 17000 +FOB patients
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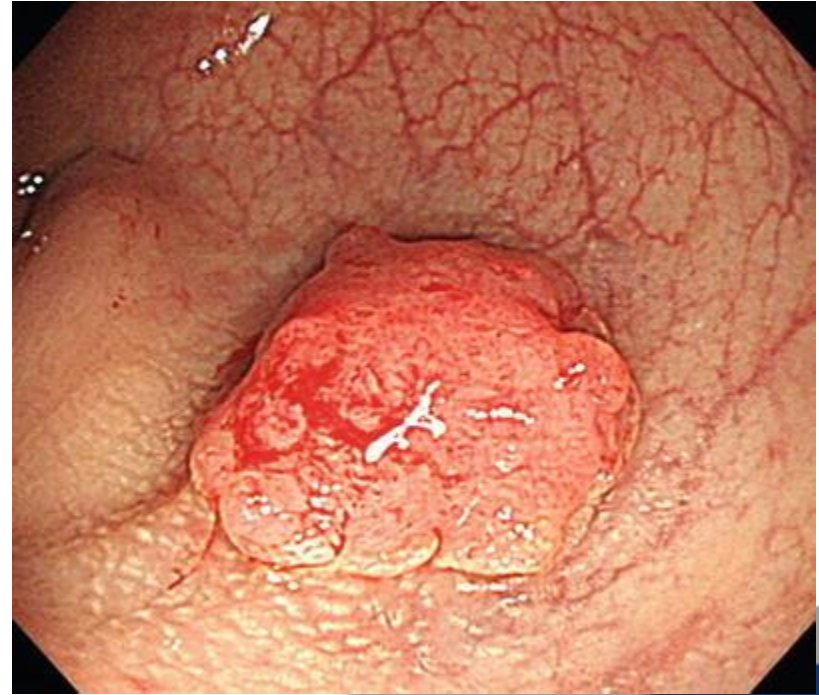
Given current FIT+ scope volumes, you will see someone like this every few months!



Assessment of the Malignant Polyp

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- Wash the polyp
 - Important to assess margins
 - Important to assess true size



Assessment of the Malignant Polyp

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- Size
 - Nusko et al
(Endoscopy, 1997)
 - 11,000 polyps

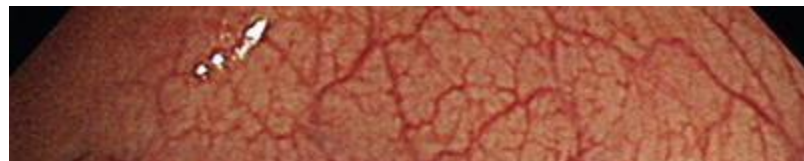


Assessment of the Malignant Polyp

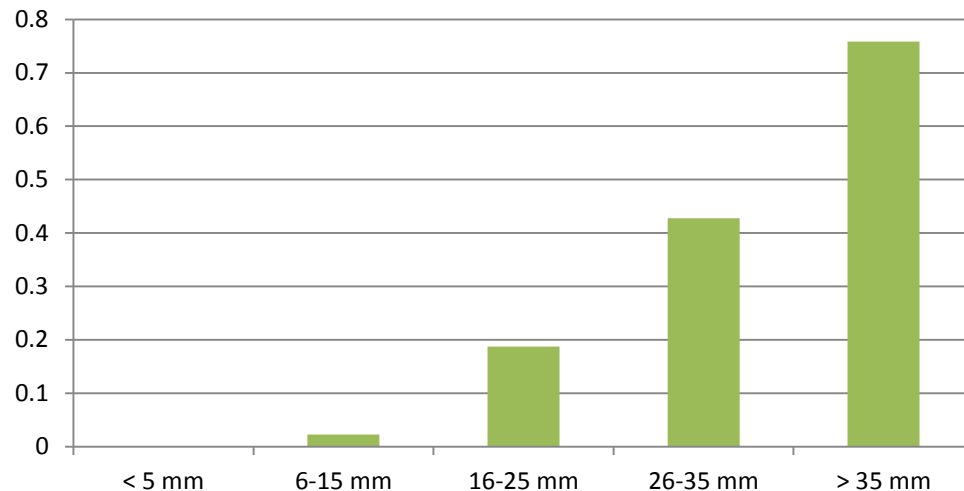
@ahmerkarimuddin

- Size

- Nusko et al
(Endoscopy, 1997)
- 11,000 polyps



Cancer Rate as related to Polyp Size



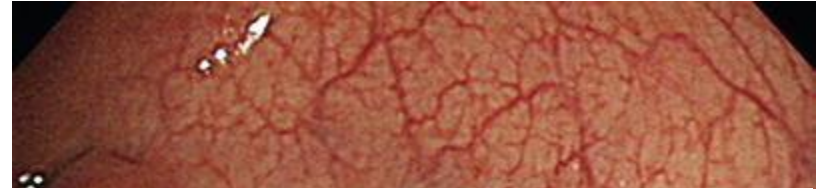
Assessment of the Malignant Polyp

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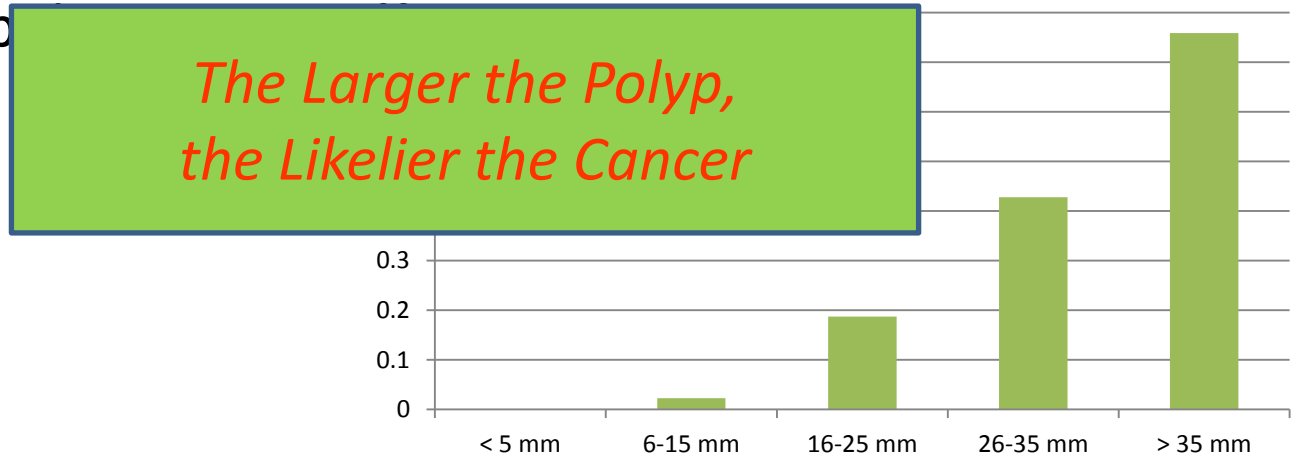
- Size

- Nusko et al
(Endoscopy, 1997)

- 11,000 p



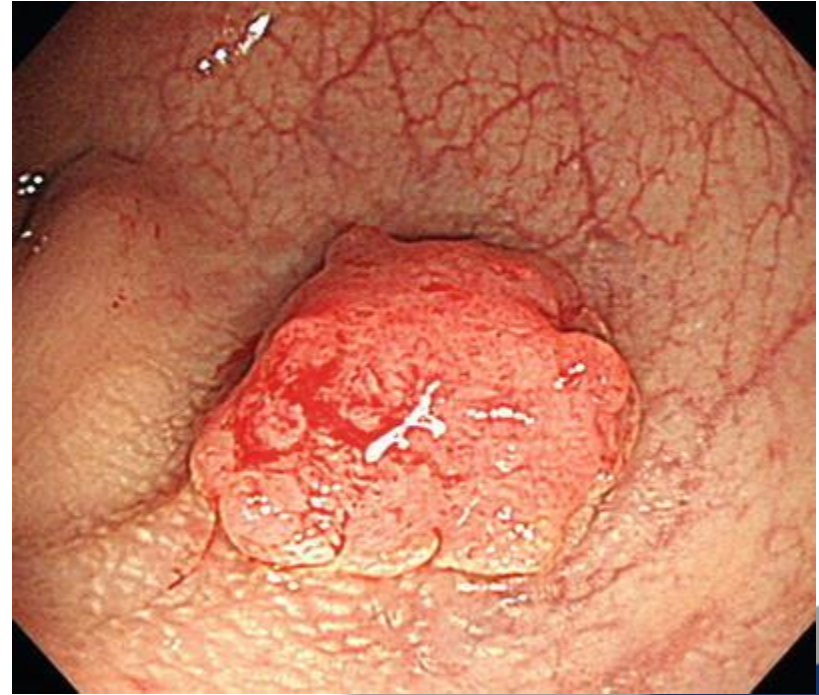
Cancer Rate as related to Polyp Size



Assessment of the Malignant Polyp

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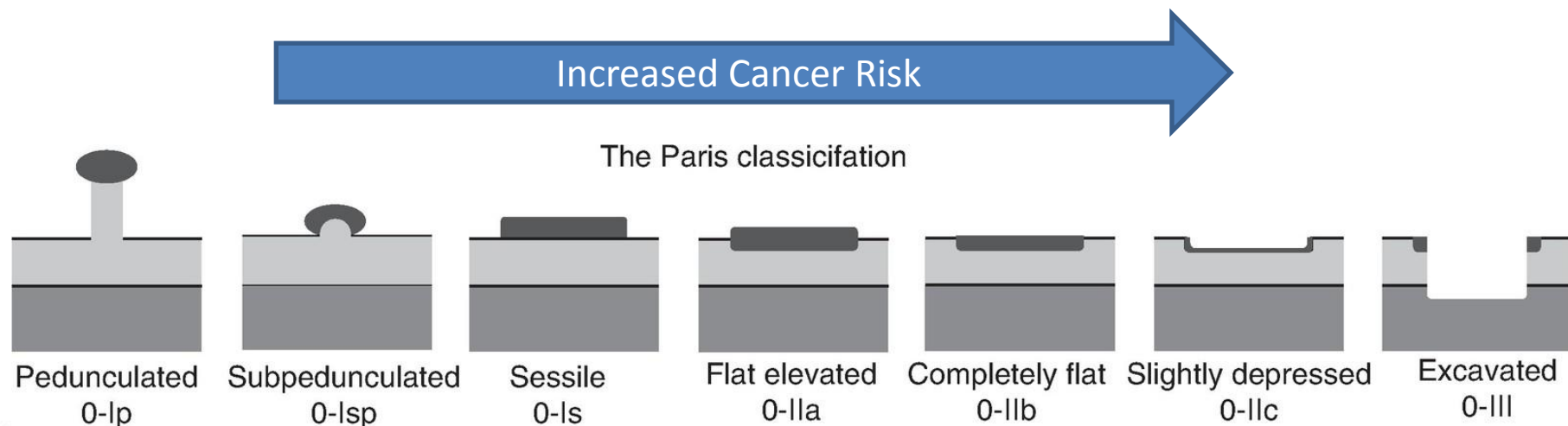
- Size
 - Nusko et al (Endoscopy, 1997)
 - Rectal Polyps more likelier to have malignancy
 - Larger (> 3 cm) polyps in rectum less likely to be malignant



Assessment of the Malignant Polyp

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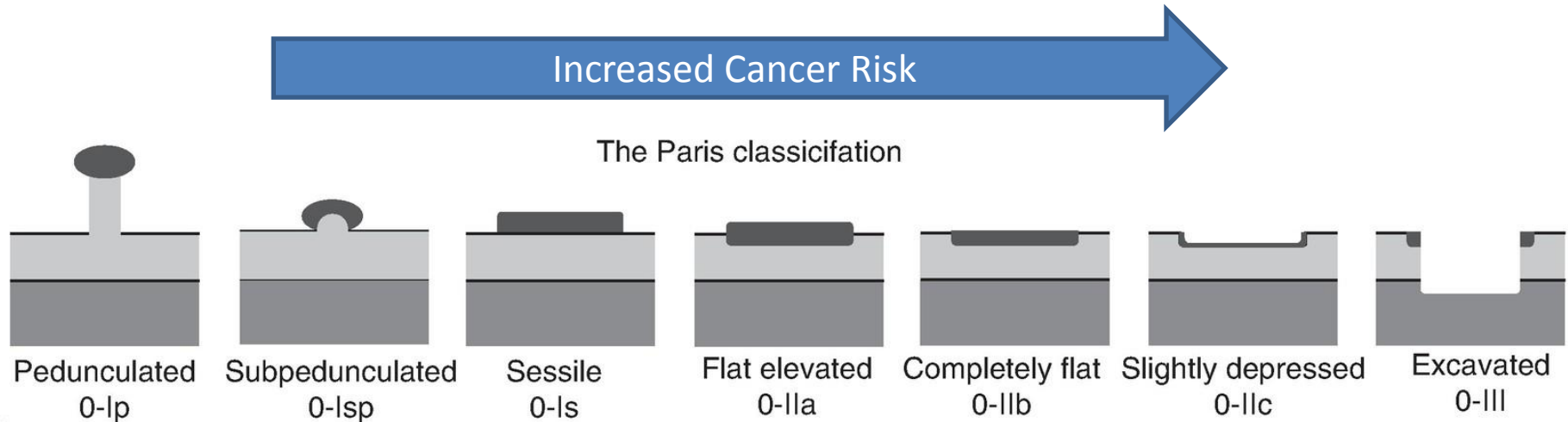
- Morphology
 - Paris Classification



Assessment of the Malignant Polyp

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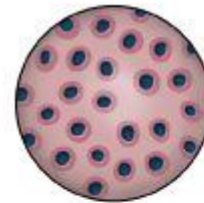
- Morphology
 - Paris Classification
- Van Doorn et al (Am J G, 2015)
 - Significant inter-rater variability
 - Despite teaching sessions



Assessment of the Malignant Polyp

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- Pit Pattern
 - NBI or Chromoendoscopy
 - Moss et al (Gastro, 2011)
 - I and II – no cancer risk
 - III & IV – 5% cancer risk
 - V – 60% cancer risk



Type I
Round pit pattern
(normal pit pattern)



Type III
Tubular or round pit
pattern that is larger
than the normal pit
pattern (Type I)



Type II
Stellar pit pattern



Type IV
Dendritic or gyrus-
like pit pattern



Type IIIS
Tubular or round pit
pattern that is smaller
than the normal pit
pattern (Type I)



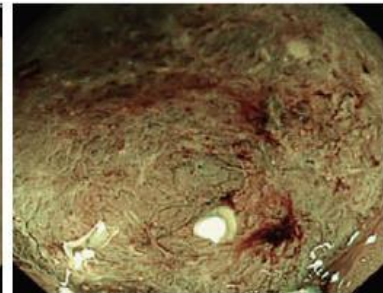
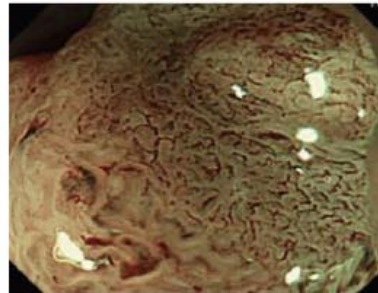
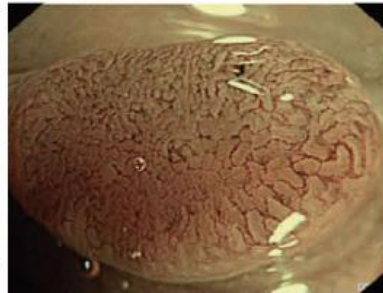
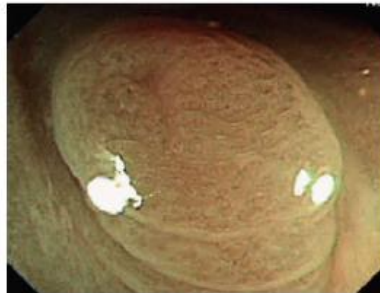
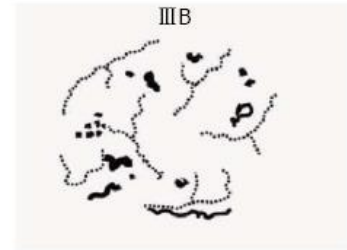
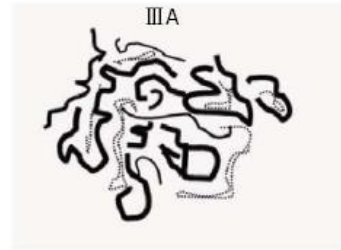
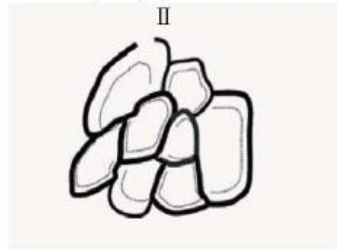
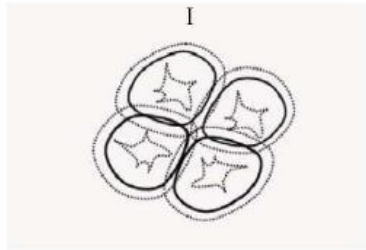
Type V
Amorphous or
nonstructural
pit pattern

Assessment of the Malignant Polyp

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- NBI Capillary Pattern

Sano's Capillary pattern classification^[29]

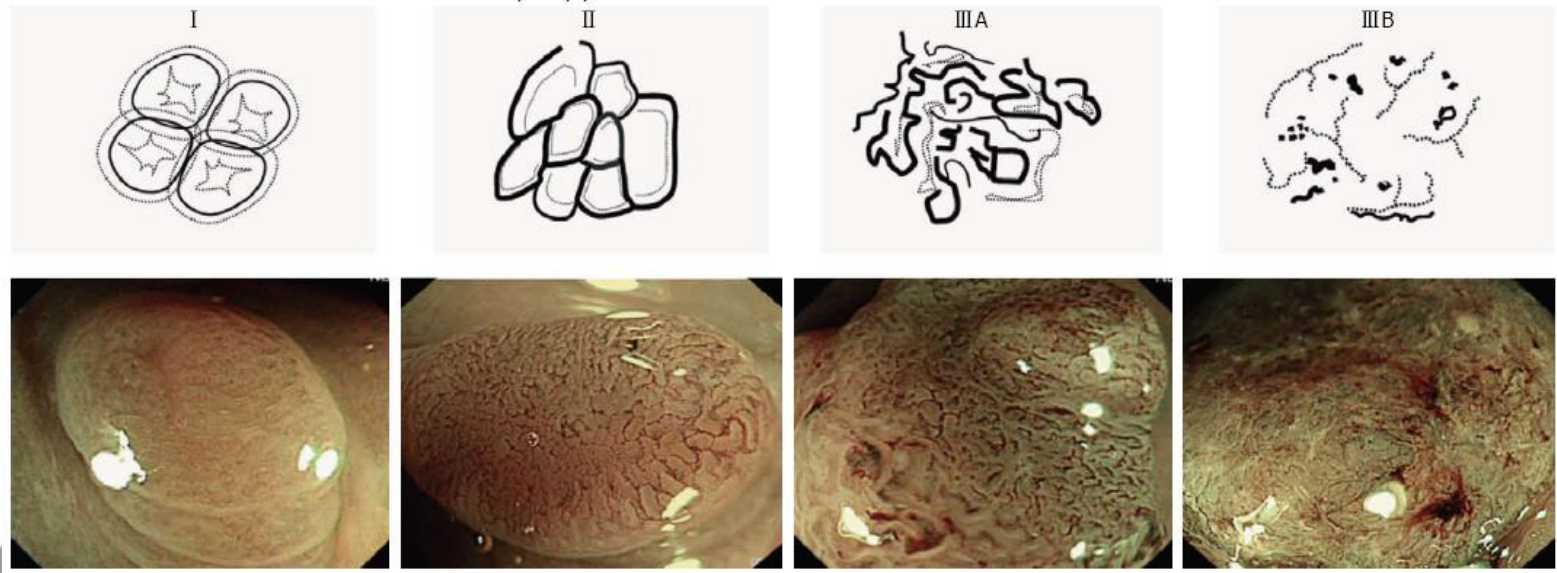


Assessment of the Malignant Polyp

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Hyperplastic *Adenoma* *Malignancy*

Sano's Capillary pattern classification



Assessment of the Malignant Polyp

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- Morphology
 - Size
 - Paris Classification
 - Pit Pattern
 - Capillary Pattern
 - Ulceration



Endoscopic Management of the Malignant Polyp

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- Aim:
 - En-bloc resection



Endoscopic Management of the Malignant Polyp

- Wash
- Assess morphology
- Can you remove it en-bloc?

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**NEXT IN
IMPORTANCE
TO HAVING
A GOOD AIM
IS TO RECOGNIZE
WHEN
TO PULL
THE TRIGGER. ”**

David Letterman



Endoscopic Management of the Malignant Polyp

- Wash
- Assess morphology
- Can you remove it en-bloc?
- Don't have a go at it
- Gill et al (Colorec Dis, 2012)
 - Piecemeal excision associated with increased rates of surgery

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**NEXT IN
IMPORTANCE
TO HAVING
A GOOD AIM
IS TO RECOGNIZE
WHEN
TO PULL
THE TRIGGER. ”**

David Letterman



Endoscopic Management of the Malignant Polyp

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- Wash
- Assess morphology
- Can you remove it en-bloc?
- Should you remove it piecemeal?



Endoscopic Management of the Malignant Polyp

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- Wash
- Assess morphology
- Can you remove it en-bloc?
- Should you remove it piecemeal?
 - Morphology
 - Paris Classification
 - NBI assessment



Endoscopic Management of the Malignant Polyp

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- Wash
- Assess morphology
- Can you remove it en-bloc?
- Should you remove it piecemeal?
 - Reserve it for lesions > 2 cm in size
 - Margins cannot be assessed histologically
 - More likely to leave behind residual tumor
 - Is it in the rectum?



Endoscopic Management of the Malignant Polyp

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- Wash
- Assess morphology
- Can you remove it en-bloc?
- Should you remove it piecemeal?
- Don't biopsy it.



Endoscopic Management of the Malignant Polyp

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- Use appropriately sized Endoscopic snare
- Try to have polyp at 6
- Apply snare close to the bowel wall
- Raise sessile lesions (if you think you can get it)
- Strongly consider tattooing to identify location if you have concern



Endoscopic Management of the Malignant Polyp

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- Its not resectable endoscopically?
- You still think its benign?



Endoscopic Management of the Malignant Polyp

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- Its not resectable endoscopically?
- You still think its benign?
- Refer to the next talk!
- Consider TEM for rectal lesions, ESD and/or MIS assisted resection if available at your site



Clinical Management of the Malignant Polyp

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- Malignant Colorectal Polyps are T1 cancers
- Patients should have appropriate staging interventions
- BCCA Guidelines suggest
 - CT Chest/Abd/Pelvis
 - CEA levels
- Which patients need surgery?



Clinical Management of the Malignant Polyp

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- Malignant Colorectal Polyps are T1 cancers
- No evidence of metastatic spread
- What do you need to know to decide?



Clinical Management of the Malignant Polyp

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- Malignant Colorectal Polyps are T1 cancers
- No evidence of metastatic spread
- Haggitt Level
 - Pedunculated?
 - Levels 1 - 3 - < 1% risk of LNs
 - Levels 4 / 5 – 8-10% risk of LNs

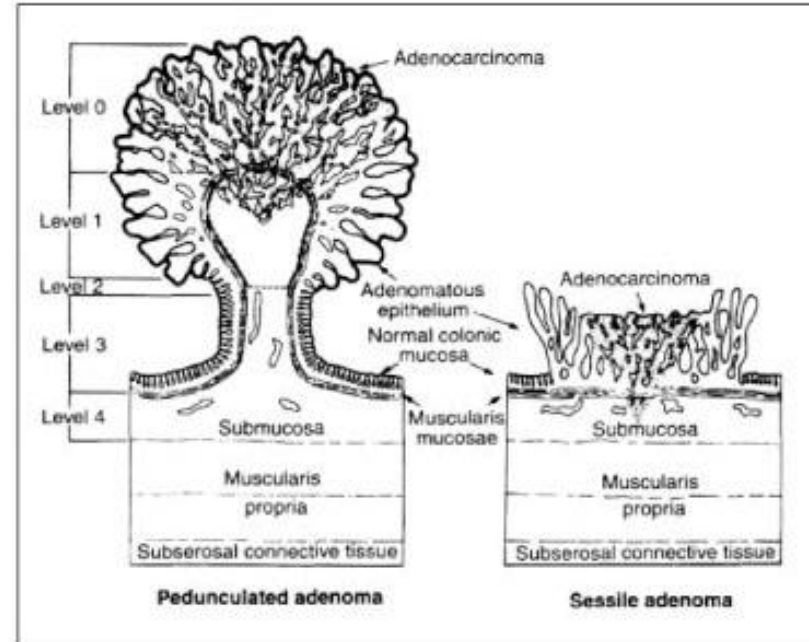
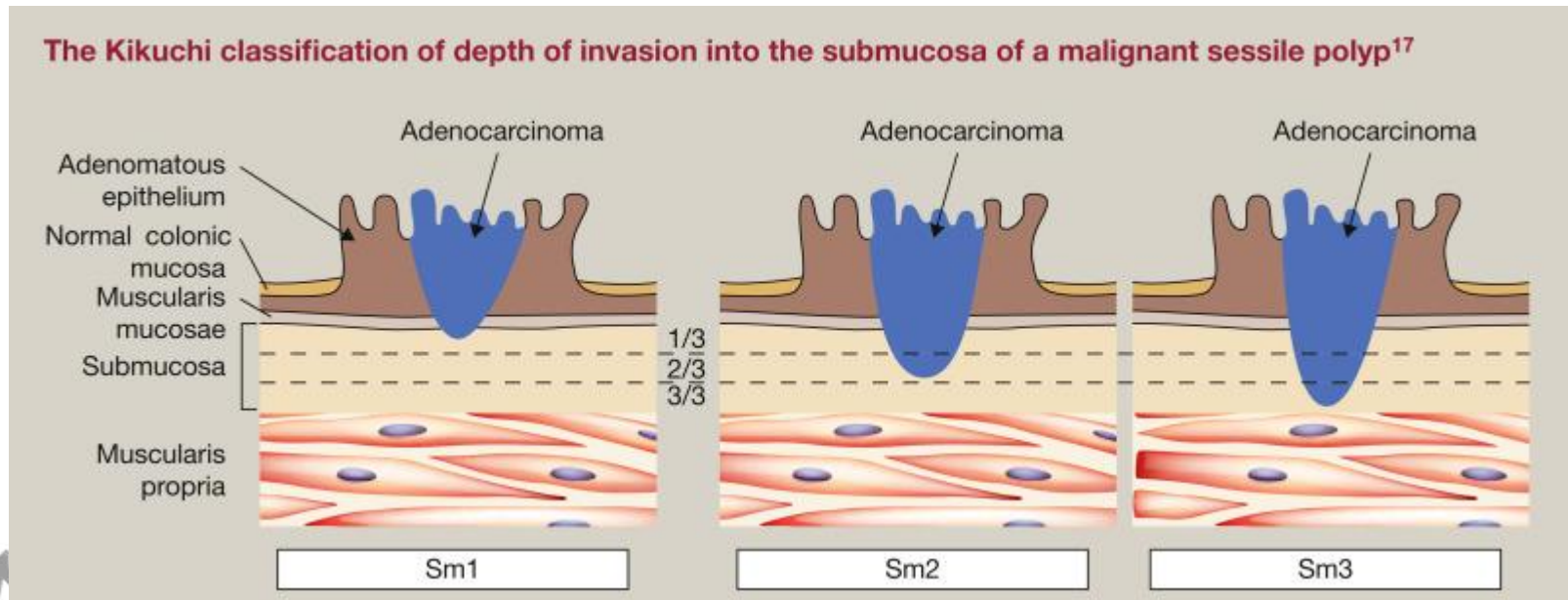


Fig. 1. Haggitt classification (18).

Clinical Management of the Malignant Polyp

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- Kikuchi Classification



Clinical Management of the Malignant Polyp

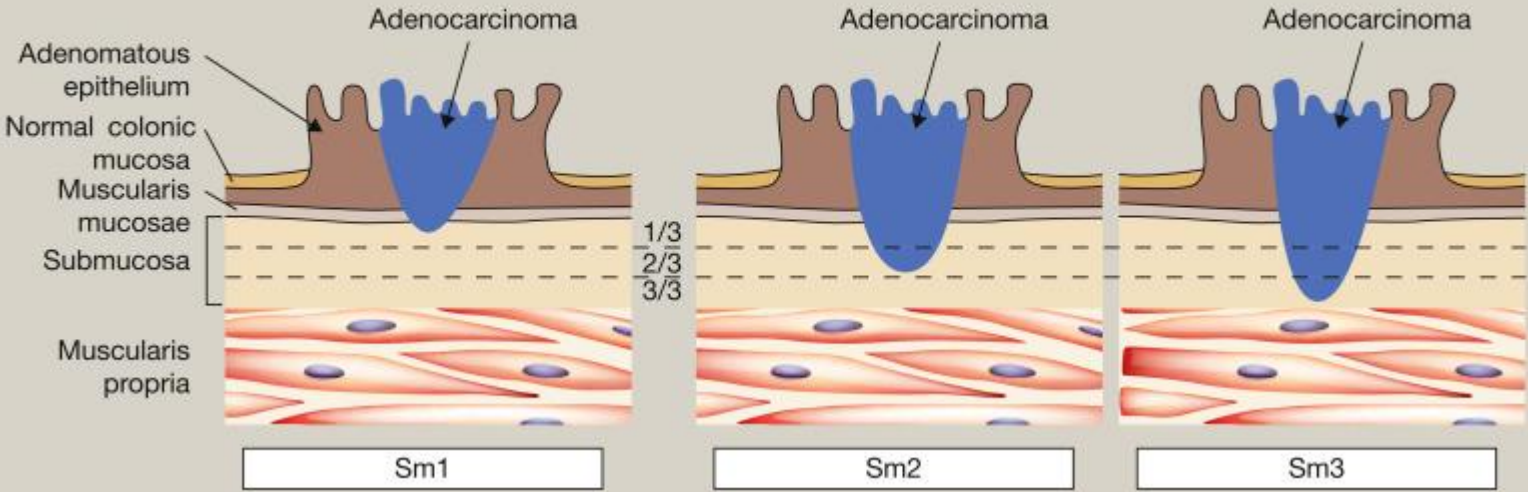
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Risk of LN Mets

0%	22%	33%
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- Kikuchi

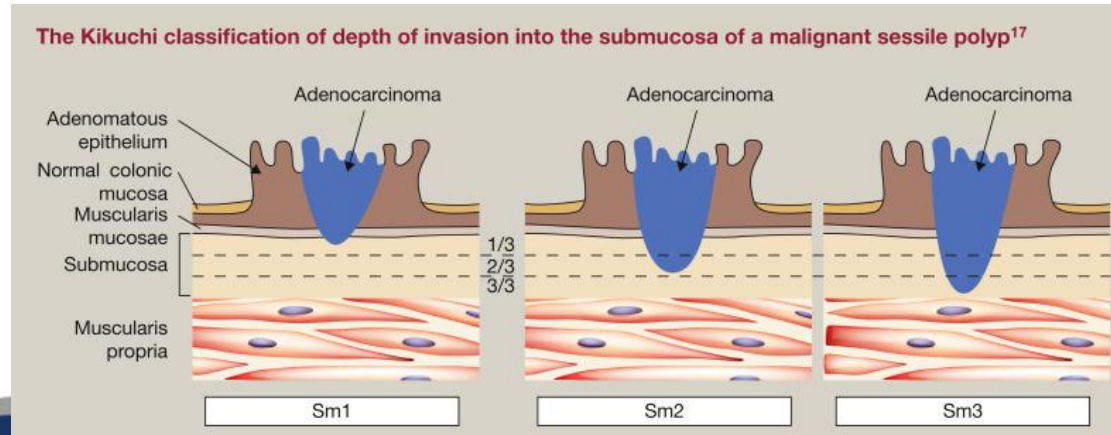
The Kikuchi classification of depth of invasion into the submucosa of a malignant sessile polyp¹⁷



Clinical Management of the Malignant Polyp

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- Kikuchi Classification
- Hard to determine after endoscopic resection
 - No submucosa available
- All assessments tend to be estimates



Clinical Management of the Malignant Polyp

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- Kikuchi Classification
- Ueno et al (Gastro, 2004)
- Depth of invasion – more accurate and reliable
 - < 2 mm depth can be considered safe



Clinical Management of the Malignant Polyp

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- What margin do I need?
 - Clear margin is needed
 - Quirke et al (Virchows Arch, 2011)
 - European guidelines – 1 mm is a clear margin
 - Validated by Levic et al (Langenbeck Arch Surg, 2018) in Denmark with 3000 patients
 - 1 mm from carcinoma is a clear enough margin
 - Cannot assess margin with piecemeal excision
 - If piecemeal, needs surgery



Clinical Management of the Malignant Polyp

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- When can I avoid taking the patient to surgery?
 - Polyp / Cancer factors
 - Patient factors



Clinical Management of the Malignant Polyp

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- Why are you taking the patient to the OR if the polyp/cancer has been removed?



Clinical Management of the Malignant Polyp

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- Why are you taking the patient to the OR if the polyp/cancer has been removed?
 - Staging Intervention
 - Lymph node involvement
 - Suitability for adjuvant treatment



Clinical Management of the Malignant Polyp

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- Patient has a risk of lymphatic involvement
- Patient can tolerate surgery
- Patient will be a candidate for chemotherapy



Which Patients have a risk of LN involvement?

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- Lymphovascular Invasion
- Hassan et al (DCR, 2005)
 - Pooled Analysis of 1900 patients
 - 18% of malignant polyps
 - If lymphovascular invasion present,
 - 35% of patients had node positive disease vs 7% if absent
 - Lymphovascular invasion means surgery



Which Patients have a risk of LN involvement?

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- Differentiation
 - Most malignant polyps are well differentiated
 - Poor differentiation
 - 25% risk of lymph node disease
 - 10% risk of distant metastatic disease
 - Poor differentiation means surgery



Which Patients have a risk of LN involvement?

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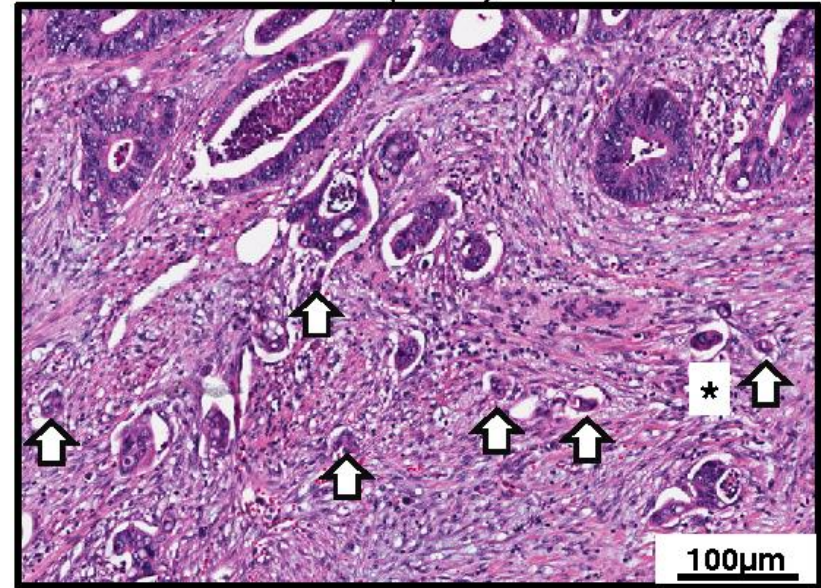
- Kikuchi Levels
 - Park et al (WJS, 2000)
 - Sm1 – 0% risk of LN involvement
 - Sm2 – 10% risk of LN involvement
 - Sm3 – 33% risk of LN involvement
 - Validated by Nascimbeni et al (DCR, 2002) from the Mayo Clinic
 - Sm2 or greater means surgery



Which Patients have a risk of LN involvement?

- Tumour Budding
 - Isolated cancer cells at the advancing edge
 - Associated with increased risk of lymph node involvement
- High grade tumour budding means surgery

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So, who should have Surgery?

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- Review the report
- Discuss at your MDC
- Remember: 80% of patients will have no pathological findings on surgical excision



So, who should have Surgery?

@ahmerkarimuddin

- High Risk Polyp
 - Piecemeal excision
 - Positive margin
 - $\geq sm 2$ or Haggits 4
 - Poor differentiation
 - High grade tumour budding
 - Lymphovascular invasion
- If any 1 of the above, at least 10% risk of LN metastases
- If any 1, and low – risk patient, Surgery is needed



So, who should have Surgery?

@ahmerkarimuddin

- High Risk Polyp
 - Piecemeal excision
 - Positive margin
 - $\geq sm 2$ or Haggits 4
 - Poor differentiation
 - High grade tumour budding
 - Lymphovascular invasion
- High Risk Patient?
- If morbidity / mortality risk is $>$ risk of LN disease
 - Observe



So, who should have Surgery?

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Surgical Risk Calculator



AMERICAN COLLEGE OF SURGEONS
Inspiring Quality: Highest Standards, Better Outcomes

[Risk Calculator Home Page](#)

[About](#)

[FAQ](#)

[ACS Website](#)

[ACS NSQIP Website](#)

Enter Patient and Surgical Information

- Poor differentiation
- High grade tumour budding
- Lymphovascular invasion
- Observe



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So, who should have Surgery?

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- 49 year old male
- History of rectal bleeding
- Completely healthy and fit
- Presented for diagnostic colonoscopy
- 3 polyps found, including one in rectum at 10 cm



So, who should have Surgery?

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- 49 year old male

Specimen #3: rectal polyp

INVASIVE ADENOCARCINOMA

- Well-differentiated (G1/4)
- No evidence of lymphovascular invasion
- No evidence of high-grade tumour budding
- Carcinoma cells present at 0.8 mm (< 1 mm) from deep cauterized margin

- Lesion at 10 cm
- Now what?



So, who should have Surgery?

@ahmerkarimuddin

- 49 year old male

SYNOPTIC REPORT:

SPECIMEN

- Specimen Integrity: Intact
- Polyp Size: 1.2 Centimeters (cm)
- Polyp Configuration: Sessile

TUMOUR

- Tumour Site: Rectum
- Size of Invasive Carcinoma: 0.8 Centimeters (cm)
- Histologic Type: Adenocarcinoma
- Histologic Grade: G1: Well differentiated (Low grade)
- Tumour Extension: Tumour invades submucosa
- Kikuchi Level: 2
- Lymphovascular Invasion: Not identified
- Tumour Budding
- Tumour Budding Score: Low score (0-4)
- Type of Polyp in Which Invasive Carcinoma Arose: Tubular adenoma

MARGINS

- Deep Margin: Negative for invasive carcinoma
- Distance of Invasive Carcinoma from Margin: 0.8 Millimeters (mm)
- Mucosal Margin: Negative for invasive carcinoma or adenoma



So, who should have Surgery?

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- 49 year old male
 - Margin < 1 mm
 - Sm2 lesion
 - High risk lesion

SYNOPTIC REPORT:

SPECIMEN

- Specimen Integrity: Intact
- Polyp Size: 1.2 Centimeters (cm)
- Polyp Configuration: Sessile

TUMOUR

- Tumour Site: Rectum
- Size of Invasive Carcinoma: 0.8 Centimeters (cm)
- Histologic Type: Adenocarcinoma
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- Distance of Invasive Carcinoma from Margin: 0.8 Millimeters (mm)
- Mucosal Margin: Negative for invasive carcinoma or adenoma



So, who should have Surgery?

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- 49 year old male
 - Surgery
 - Low rectal anastomosis
 - Maybe need an ostomy?
 - ? Risk of pelvic sepsis
 - Sexual dysfunction
 - 0.7% risk of mortality
 - 8% risk of complications

SYNOPTIC REPORT:

SPECIMEN

- Specimen Integrity: Intact
- Polyp Size: 1.2 Centimeters (cm)
- Polyp Configuration: Sessile

TUMOUR

- Tumour Site: Rectum
- Size of Invasive Carcinoma: 0.8 Centimeters (cm)
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MARGINS

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- Distance of Invasive Carcinoma from Margin: 0.8 Millimeters (mm)
- Mucosal Margin: Negative for invasive carcinoma or adenoma



So, who should have Surgery?

@ahmerkarimuddin

- 59 year old male
 - Rectal bleeding, anemia
 - Presented for colonoscopy
 - 2 cm sessile, rectal polyp seen on colonoscopy
 - Hot snare, single pass



So, who should have Surgery?

@ahmerkarimuddin

- 59 year c
- Rectal
- Present
- 2 cm se
- Hot sn

Synoptic Report:

SPECIMEN COMMENT

- Pertains To: Part "C".

SPECIMEN

- Polyp Configuration: Sessile

TUMOUR

- Tumour Site: Rectum
- Size of Invasive Carcinoma: 2.0 Centimeters (cm)
- Histologic Type: Adenocarcinoma
- Histologic Grade: G1: Well differentiated (Low grade)
- Tumour Extension: Tumour invades submucosa
- Kikuchi Level: 1
- Lymphovascular Invasion: Present
- Type: Small vessel lymphovascular invasion

MARGINS

- Deep Margin: Negative for invasive carcinoma
- Distance of Invasive Carcinoma from Margin: 2.0 Millimeters (mm)
- Mucosal Margin: Negative for invasive carcinoma

PATHOLOGIC STAGE

- pT1

ANCILLARY STUDIES

- Best Tumour Block: C 1



So, who should have Surgery?

- 59 year old male
 - Complex polyarterial arthritis
 - High dose steroids
 - Badly controlled diabetic
 - Now what?
 - Mortality Risk – 4%
 - Complications Risk – 35%

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Synoptic Report:

SPECIMEN COMMENT

- Pertains To: Part "C".

SPECIMEN

- Polyp Configuration: Sessile

TUMOUR

- Tumour Site: Rectum
- Size of Invasive Carcinoma: 2.0 Centimeters (cm)
- Histologic Type: Adenocarcinoma
- Histologic Grade: G1: Well differentiated (Low grade)
- Tumour Extension: Tumour invades submucosa
- Kikuchi Level: 1
- Lymphovascular Invasion: Present
- Type: Small vessel lymphovascular invasion

MARGINS

- Deep Margin: Negative for invasive carcinoma
- Distance of Invasive Carcinoma from Margin: 2.0 Millimeters (mm)
- Mucosal Margin: Negative for invasive carcinoma

PATHOLOGIC STAGE

- pT1

ANCILLARY STUDIES

- Best Tumour Block: C 1



So, who should have Surgery?

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- 59 year old
 - Complex p
 - High dose
 - Badly cont
 - Now what

SPECIMEN

- Procedure: Low anterior resection
- Macroscopic Tumour Perforation: Not identified
- Macroscopic Intactness of Mesorectum: Complete

TUMOUR

- Tumour Site: Rectum
- Histologic Type: Adenocarcinoma
- Histologic Grade: G1: Well differentiated (Low grade)
- Tumour Size: 1 Centimeters (cm)
- Tumour Extension: Tumour invades submucosa
- Lymphovascular Invasion: Not identified
- Perineural Invasion: Not identified



So,

MARGINS

- Proximal Margin: Negative for invasive carcinoma, intramucosal adenocarcinoma, high-grade dysplasia and adenoma
- Distal Margin: Negative for invasive carcinoma, intramucosal adenocarcinoma, high-grade dysplasia and adenoma
- Radial or Mesenteric Margin: Negative for invasive carcinoma
- Distance of Tumour from Margin: 3.5 Centimeters (cm)

LYMPH NODES, REGIONAL

- Number of Lymph Nodes Examined: 21
- Number of Lymph Nodes Involved: 0
- Tumour Deposits: Not identified

TREATMENT EFFECT

- No known presurgical therapy

PATHOLOGIC STAGE

- pT1 pN0

ANCILLARY STUDIES

- Best Tumour Block: 5
- Biomarker Testing: Not performed

COMMENTS

- Tumor is present as malignant polyp with minimal amount of submucosal invasion.
- Background colonic tissue shows no evidence of active inflammation, dysplasia or granulomata.



The Malignant Polyp

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- An increasing number of patients within screening programs
- If you see a suspicious polyp, take some time and assess it
 - Is it suspicious?
 - Paris/Pits/NBI
 - Can you get it in one pass?



The Malignant Polyp

@ahmerkarimuddin

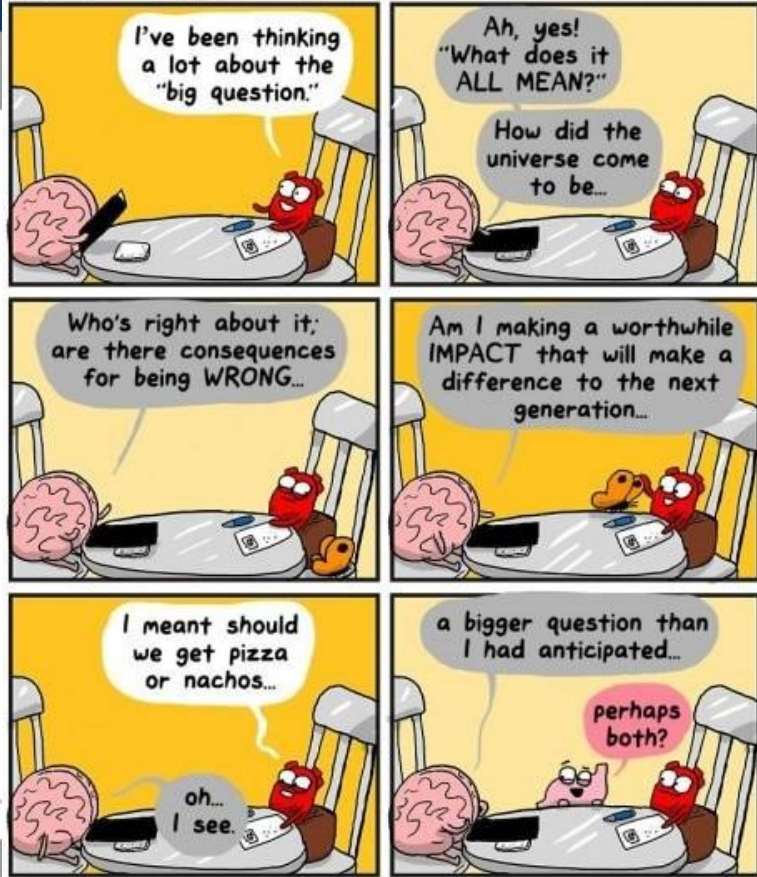
- Review the Pathology Report
- Consider presentation at an MDC
- Majority of patients will not need surgery!
- Differentiation, margins, tumor budding, Kikuchi levels or depth of invasion, lymphovascular invasion
- If risk of LNs > risk of complications, surgical intervention becomes necessary



Questions?

Heart and Brain

THE AWKWARD YETI



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