Surgical Algorithm *for* Inflammatory Bowel Disease

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MALAYSIAN SOCIETY OF COLORECTAL SURGEONS

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Introduction

In developed countries, with a high prevalence of inflammatory bowel disease (IBD), surgical management is performed by colorectal surgeons specializing in IBD surgery. There are significant limitations to achieving this in Malaysia. General surgeons number 1 per 100 000 population, and there are approximately 50 colorectal surgeons in the country, of whom about half are in public hospitals. This severely limits access to care for the socioeconomically challenged patient population. Very few surgeons have received specific training in the recognition and surgical management of IBD. Furthermore, given the low prevalence, it is difficult to gain expertise in managing these patients.

Surgical expertise is most likely to develop in tertiary referral centres having gastroenterologists with an interest in IBD. In such centres, indications and management follow similar protocols to those in high-prevalence countries. Laparoscopic techniques are available for suitably selected cases, but incur significantly higher costs. Similar to the West, the majority requiring surgery are Crohn's rather than ulcerative colitis, the former often requiring multiple surgeries.

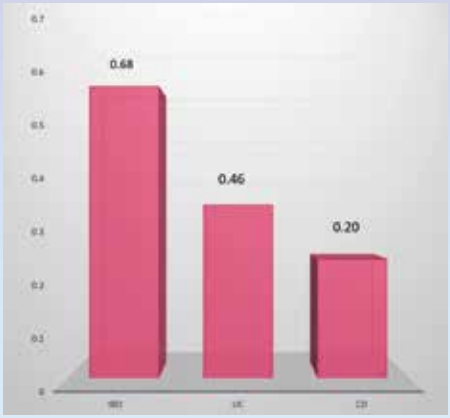
Nonetheless, there are significant obstacles and differences. Many are high-risk for surgery, presenting in emergent or complicated states, such as intestinal perforation/obstruction, infective complications, toxic megacolon or even malignancy. They may exhibit the side effects of long-term steroid use and nutritional deficiencies, further compromising chances of surgical success. Furthermore, many patients are reluctant to undergo surgery for a multitude of reasons, including fear of surgical complications, stoma-aversion and financial constraints. As such, even in a referral centre, the number of surgeries for IBD per year rarely exceeds 15-20.

The keys to improving surgical management of IBD will be early multi-disciplinary management, with centralization of specialized surgical services, and retention of such services within the public healthcare system.

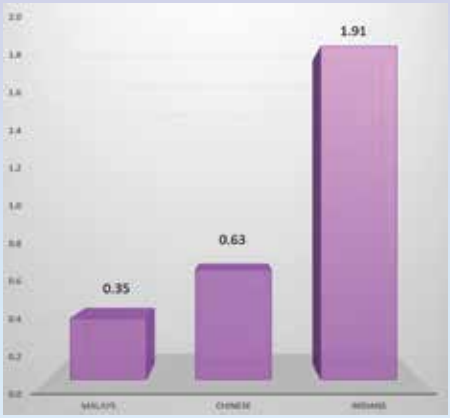
The surgical algorithms proposed in this guide are by no means exhaustive, but aim to aid decision-making for surgeons who do not have access to such centralized services.

Incidence and Prevalence of IBD in Malaysia

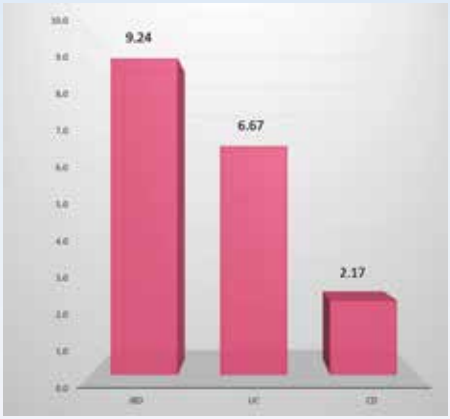
Incidence of IBD, UC and CD in Malaysia (per 100,000 persons)



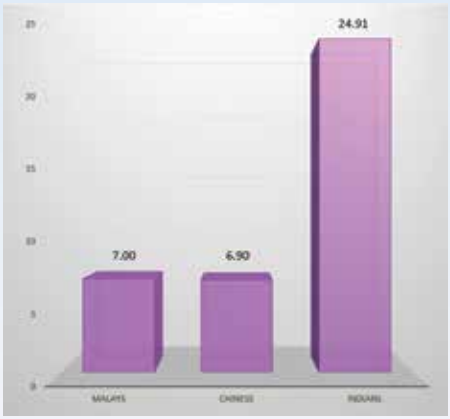
Incidence of IBD, UC and CD according to ethnic group (per 100,000 persons)



Prevalence of IBD, UC and CD in Malaysia (per 100,000 persons)



Prevalence of IBD, UC and CD according to ethnic group (per 100,000 persons)



Management of Crohn's Disease

Crohn's Disease (CD)

CD is a chronic trans-mural inflammatory condition, which can affect any part of the gastrointestinal tract, from mouth to anus, of multi-factorial aetiology, in genetically susceptible individuals. Disease patterns in adults are classified by the Montreal Classification.

Disease severity is categorized by the Crohn's Disease Activity Index (CDAI) or more simply, by the Harvey Bradshaw Index (HBI). Surgical intervention is indicated for those categorized with severe disease (CDAI>450 or HBI>16).

Surgically relevant complications include strictures, enterocutaneous and internal fistulas, malignancy and perianal disease.

1. Disease Pattern Classification Systems

	Vienna	Montreal
Age at diagnosis	A1 below 40 yr A2 above 40 yr	A1 below 16 yr A2 between 17 and 40 yr A3 above 40 yr
Location	L1 ileal L2 colonic L3 ileocolonic L4 upper	L1 ileal L2 colonic L3 ileocolonic L4 isolated upper disease
Behavior	B1 non-stricturing, non-penetrating B2 stricturing B3 penetrating	B1 non-stricturing, non-penetrating B2 stricturing B3 penetrating p perianal disease modifier

2. Harvey Bradshaw Index (HBI)

Variable	Variable description	
General well being	0 = very well, 1 = slightly poor, 2 = poor,	3 = very poor, 4 = terrible
Abdominal pain	0 = none 1 = mild	2 = moderate 3 = severe
No. of liquid stools	**Daily**	
Abdominal mass	0 = none 1 = dubious	2 = definite 3 = definite and tender
Complications	Arthralgia, Uveitis, Erythema nodosum, Aphthous ulcer, Pyoderma gangrenosum, Anal fissure, New fistula	

Clinical remission: HBI <5; Mild: HBI 5-7; Moderate: HBI 8-16; Severe: HBI >16

Crohn's Disease (Luminal) *(severe)*

- Hospital admission
- Exclude surgical abdomen (bowel obstruction, perforation)
- Assess extent of disease (CT/MRI enterography if suspected small bowel involvement)

↓

INDUCTION THERAPY

- Intravenous hydrocortisone 100mg qds/ methylprednisolone 40mg bd OR
- Infliximab 5 or 10 mg/kg 0,2,6 weeks OR
- Adalimumab 160mg/80mg at 0,2 weeks
- Enteral nutrition and/or parenteral nutrition in extensive small bowel disease/fistulae
- Proton pump inhibitor in upper GI disease
- DVT prophylaxis eg enoxaparin 40mg od
- Intravenous antibiotics if coexisting sepsis

Assess 5-7 days
Adequate response?

Yes ↙ ↘ No

MAINTENANCE THERAPY

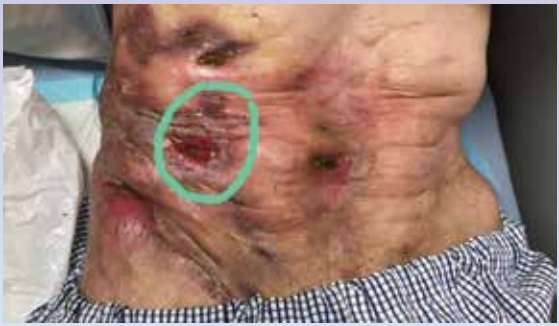
- Convert to oral Prednisolone 30-40mg od then taper 5mg/week OR
- Infliximab 5mg/kg 8 weekly OR
- Adalimumab 40mg every 2 weeks
- Azathioprine 1.5-2.5mg/kg/day or as per drug levels
- Smoking cessation
- Calcium 1g/day + Vitamin D 1000 units per day
- Proton pump inhibitor (upper GI disease)
- ± Mesalazine/enteral nutrition
- Assess with endoscopy/faecal calprotectin/ radiologically 3-12 monthly for mucosal healing or flares not responding to standard therapy

- Switch to Anti-TNF if on steroids
- Tertiary referral
- Surgery

↓ Frequent relapse/ steroid dependent

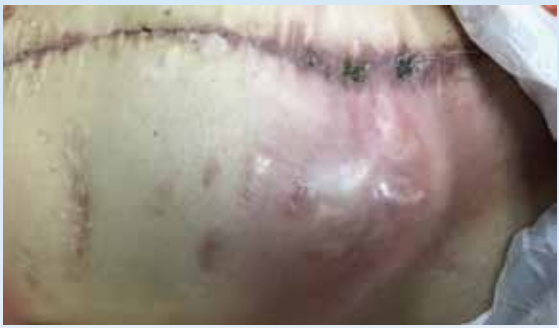
- Tertiary referral
- Dose escalation
- Other rescue therapy
- Surgery

Surgical Indications



Surgical Complications
- Fistulas
- Stenoses
- Abscesses
- Perforation
- Cancer

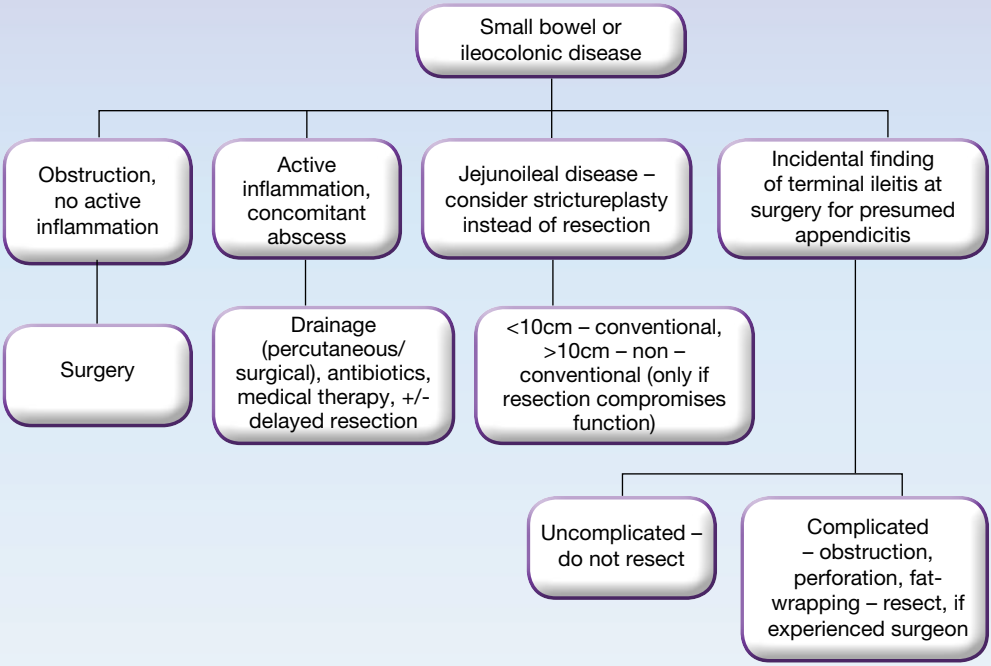
Failed medical Rx
- Lack of efficacy
- Adverse effects
- Resistance
- Non-Adherence
- Unavailability



Atypical Presentation
- Surgical intervention prior to diagnosis of IBD

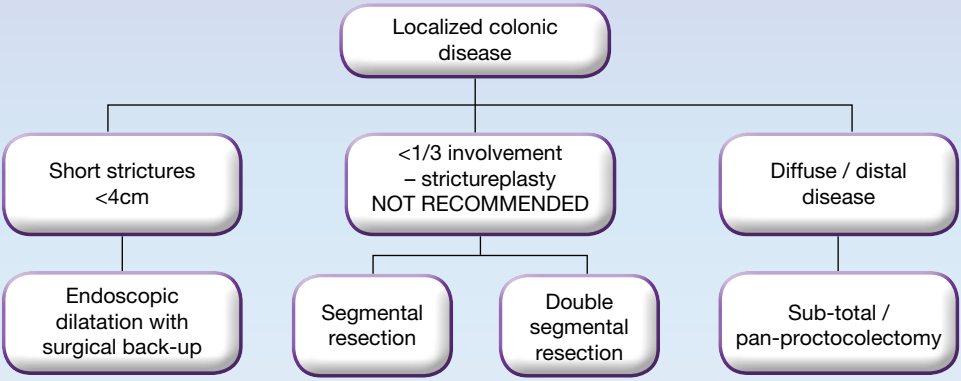
Principles of Surgical Management

1. Management of small bowel or Ileocolonic disease



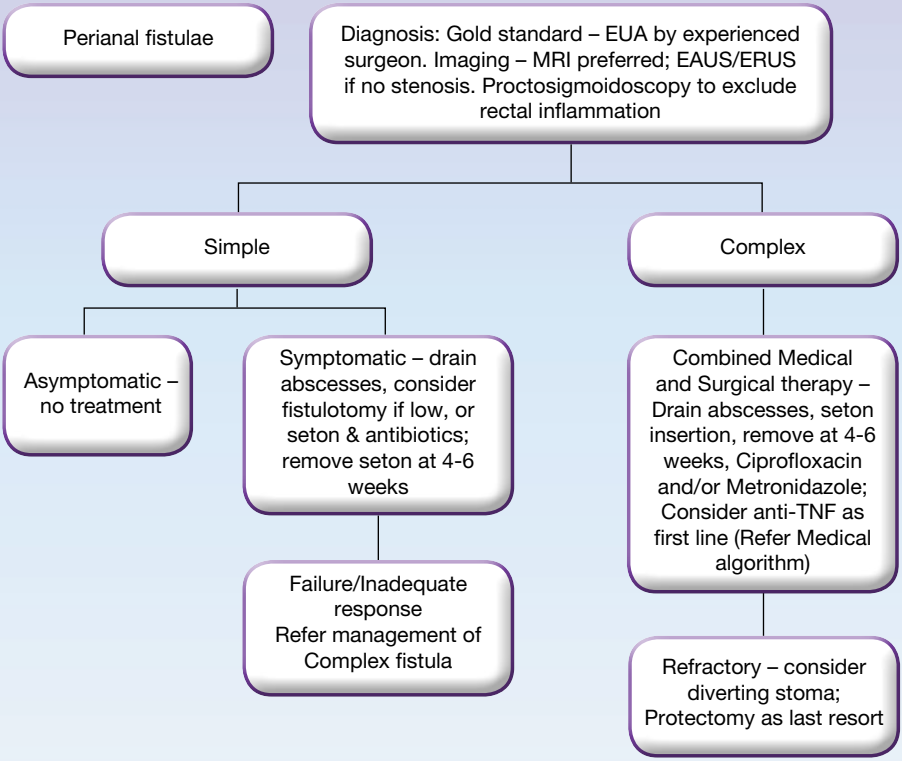
* stapled functional end-to-end preferred to hand-sewn ananstomoses
* laparascopic approach if feasible. Open if complex or recurrent disease

2. Management of Localized Colonic Disease



* Ileal-pouch anal anastomosis should be avoided if known CD
* Selective use in highly motivated CD if no current / previous small bowel and perianal disease
* Must accept high risk of complications and pouch failure

3. Management of Perianal Fistulae

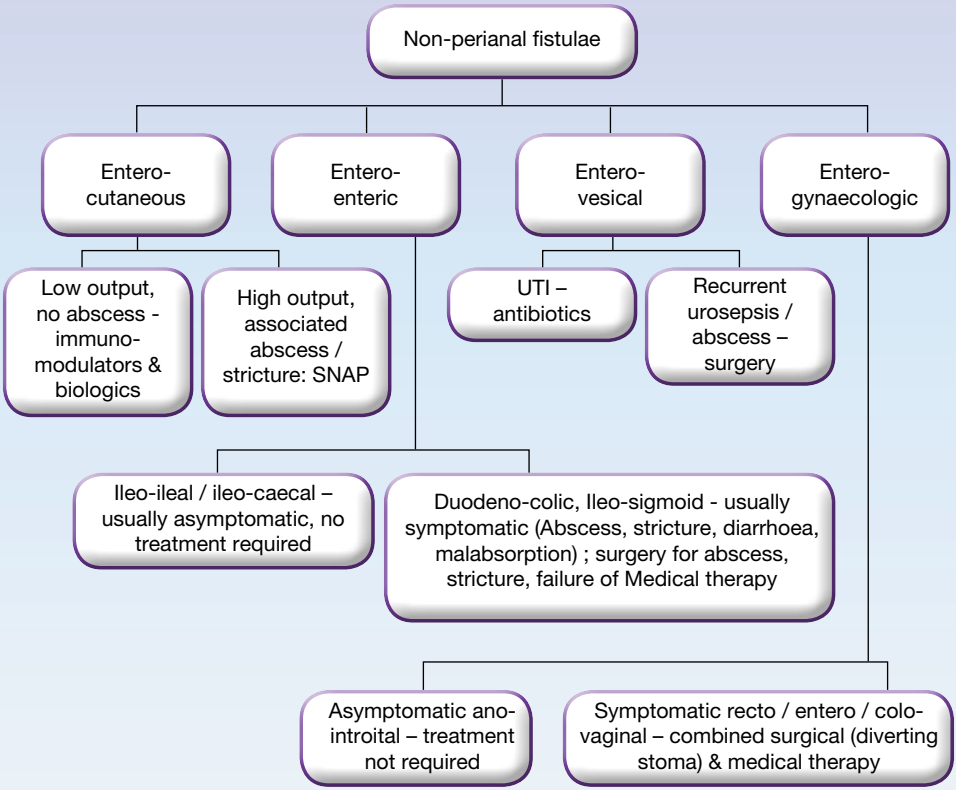


* Monitoring outcomes:
Clinical: Cessation of drainage despite pressure; PCDAI
Imaging: MRI / ERUS / EAUS

* Maintenance therapy:
Thiopurines, Anti-TNF, seton or combination should be used

* Concomitant pelvic floor dysfunction – pelvic rehabilitation programme

4. Management of Non-Perianal Fistulae



Management for Post-operative Recurrence of Crohn's Disease

Introduction:

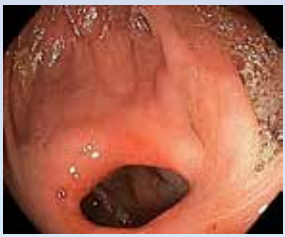
- The rates of postoperative recurrence (POR) varies:
- Endoscopic recurrence in the first postoperative year is reported in 35-85% of cases, with 10-38% of patients being symptomatic.
- By the third year, the rates are 85-100% and 34- 86% respectively.

Risk Factors for Post-Operative Recurrence in Crohn's Disease

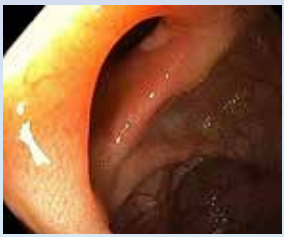
Risk factors	Odd Ratio
Established Increased Risk	
Smoking	2.0
Penetrating disease behaviour	1.5
Prior Intestinal resection	1.8 – 2.6
Perianal disease	1.6
Extensive small bowel resection (>50cm)	1.4
Possible Increased Risk	
Myenteric plexitis	1.9
Inconclusive Risk	
NOD2/CARD15 mutation	–
Presence of granulomas	–
Young age at disease onset	–
Location of disease	–

Rutgeerts Endoscopic Scoring System

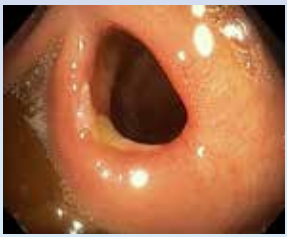
Endoscopic Score	Definition
i0	No aphthous ulcers
i1	≤ 5 aphthous ulcers
i2	> 5 aphthous ulcers with normal intervening mucosa, skip areas of large lesions or lesions confined to ileocolonic anastomosis
i3	Diffuse aphthous ileitis with diffusely inflamed mucosa
i4	Diffuse inflammation with large ulcers, nodules and/or narrowing



i0



i1



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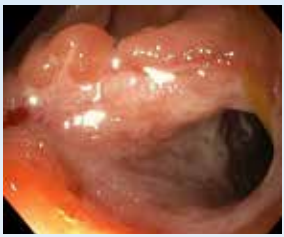

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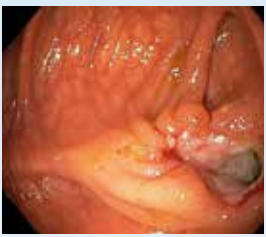
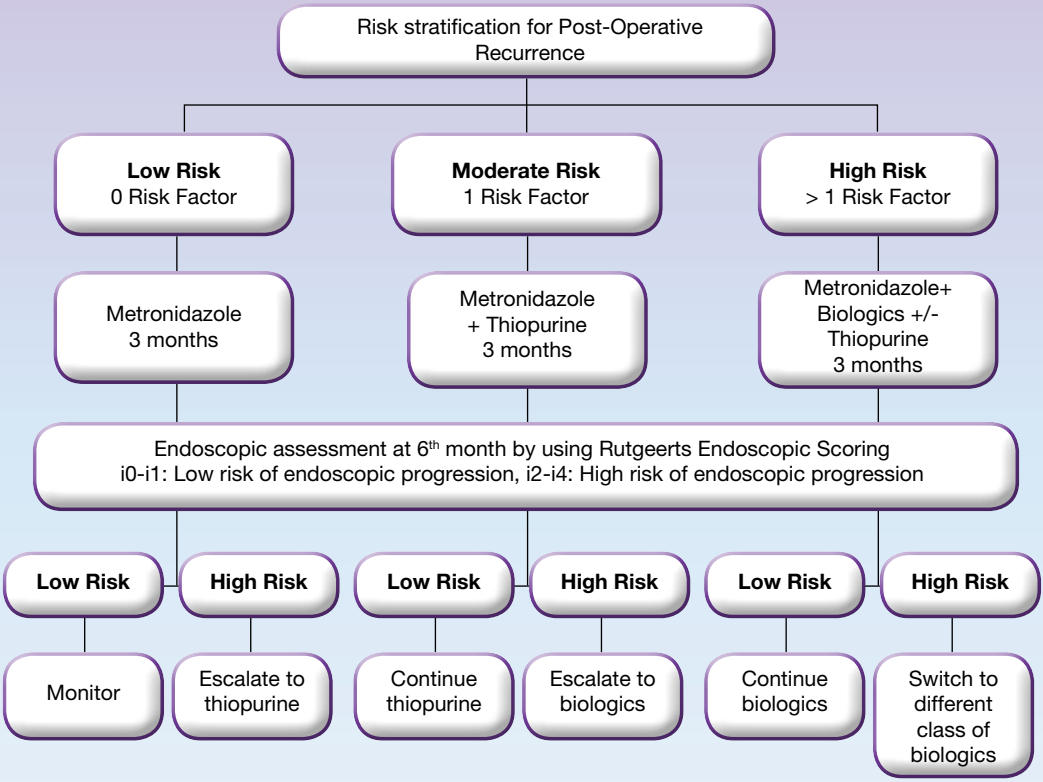


i4

Risk Stratification for Post-Operative Recurrence



* Metronidazole (20mg/kg/day), Azathioprine (2.0–2.5 mg/kg/day)

- This post-operative Crohn's Disease algorithm is only applicable after anastomotic surgery and can be adapted to any anastomotic locations.

Management of Ulcerative Colitis

Pathway in Management of Ulcerative Colitis (UC)

Definition

Ulcerative Colitis (UC) is a chronic inflammatory condition causing continuous mucosal inflammation of the colon without granulomas on biopsy, affecting the rectum and variable extent of the colon in continuity, which is characterised by a relapsing and remitting course.

Classification

A. Truelove and Witts criteria, based on disease activity.

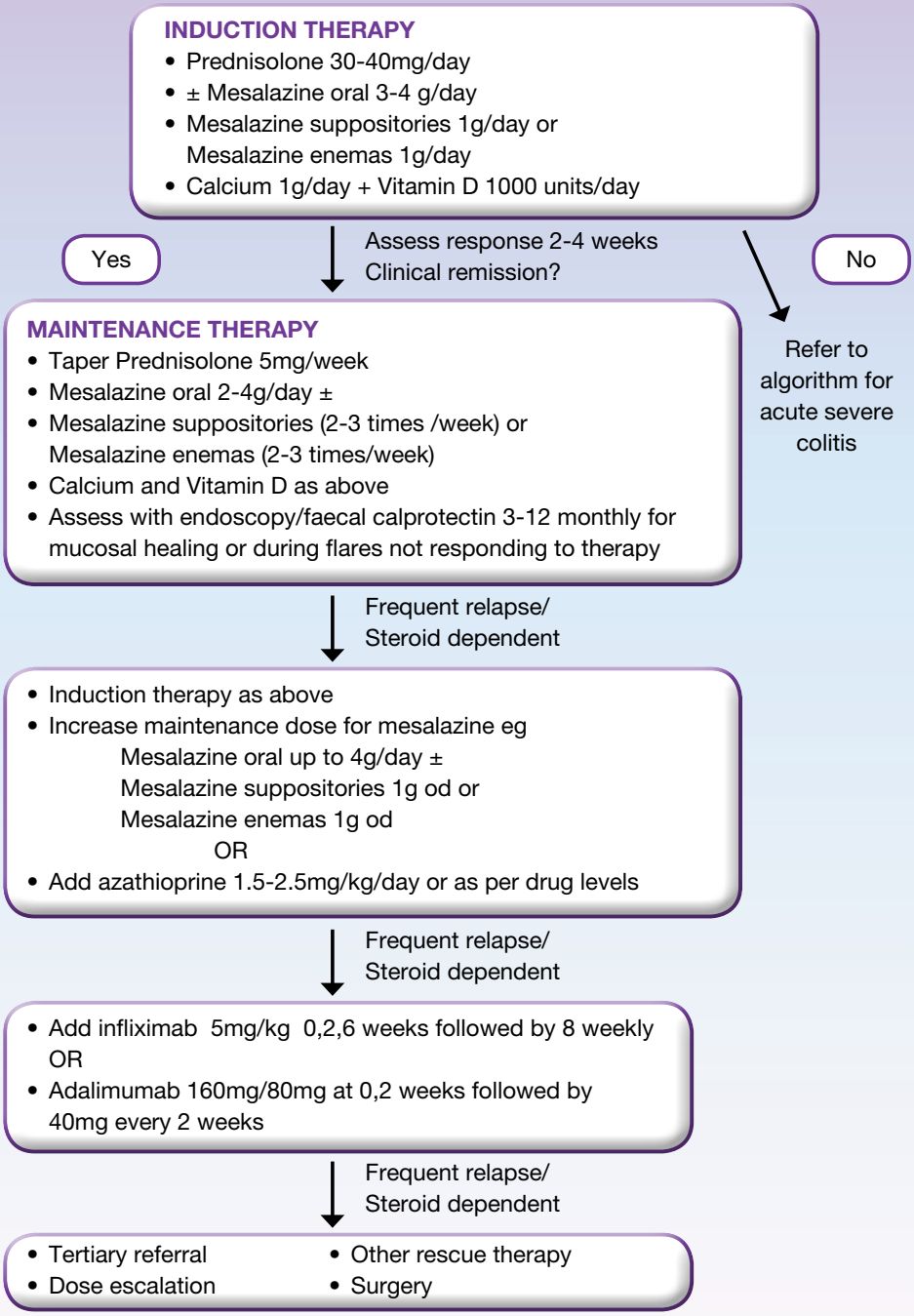
	Mild	Moderate	Severe
Bloody stools/day	< 4	4 or more if	> 6 and
Pulse	< 90 bpm	< 90 bpm	> 90 bpm
Temperature	< 37.5 C	< 37.8 C	> 37.8 C
Haemoglobin	> 11.5 g/dL	> 10.5 g/dL	< 10.5 g/dL
ESR	< 20mm/h	< 30mm/h	> 30mm/h
or CRP	Normal	< 30mg/L	> 30mg/L

B. Partial Mayo Score Index.

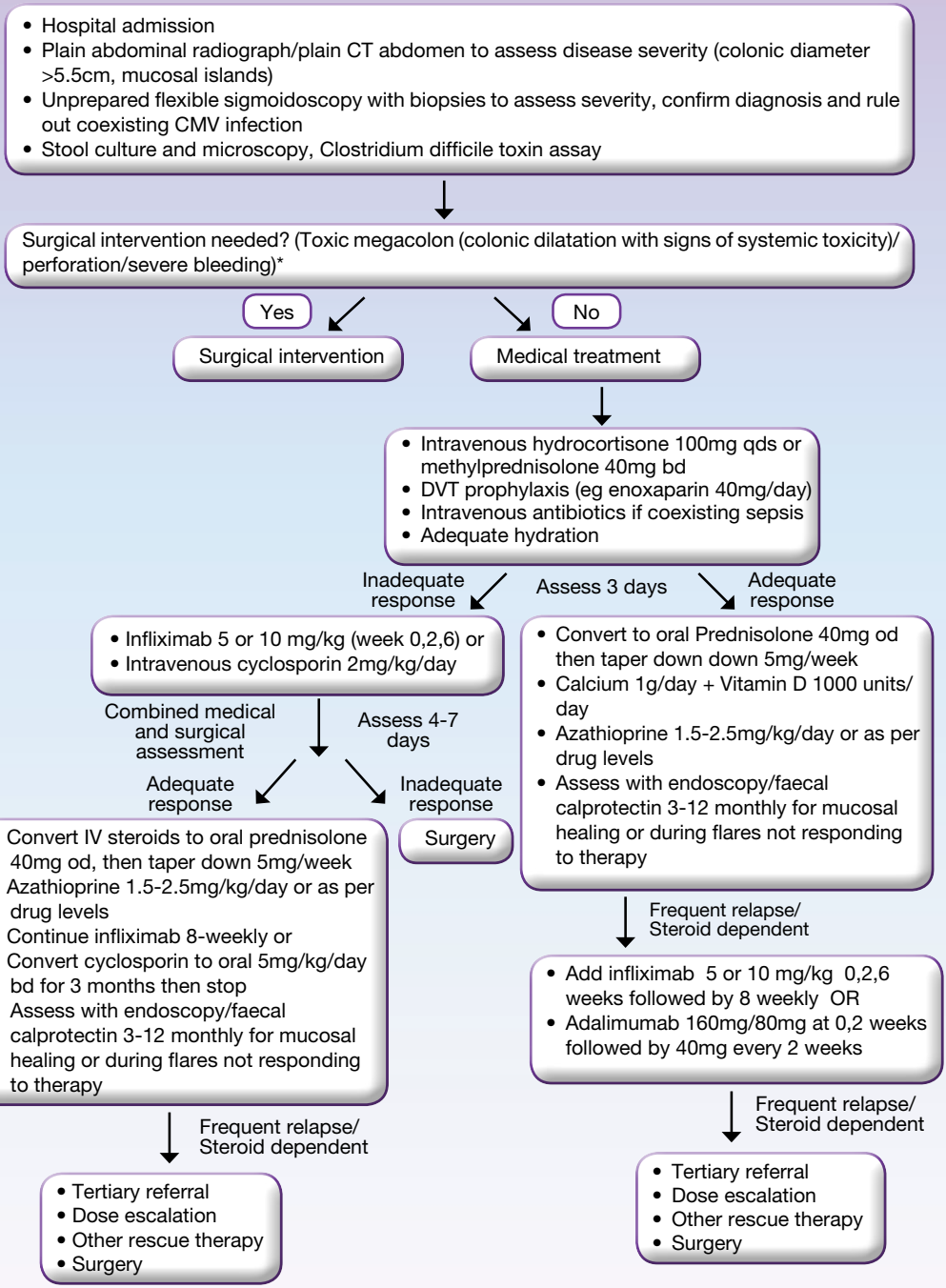
Mayo Index	0	1	2	3
Stool frequency	Normal for patient	1-2/day > normal	3-4/day > normal	5/day > normal
Rectal bleeding	No blood seen	Visible blood with stool less than half the time	Visible blood with stool half of the time or more	Mostly blood
Mucosa	Normal or inactive disease	Mild disease (erythema, decreased vascular pattern, mild friability)	Moderate disease (marked erythema, absent vascular pattern, friability, erosions)	Spontaneous bleeding, ulceration

Remission: 0-1.
Mild disease: 2-4.
Moderate disease: 5-6.
Severe disease: 7-9.

Extensive Colitis *(moderate to severe disease)*

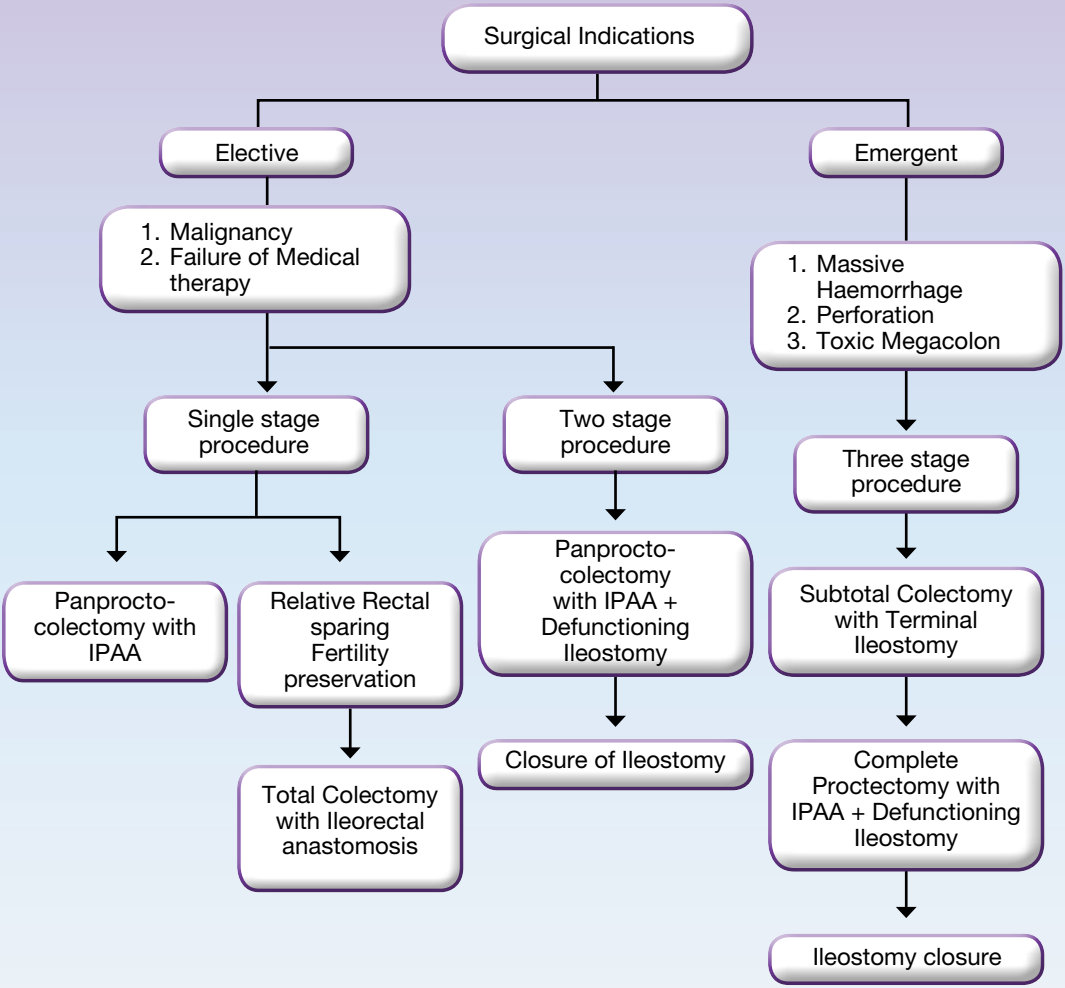


Extensive Ulcerative Colitis *(acute severe / fulminant disease)*

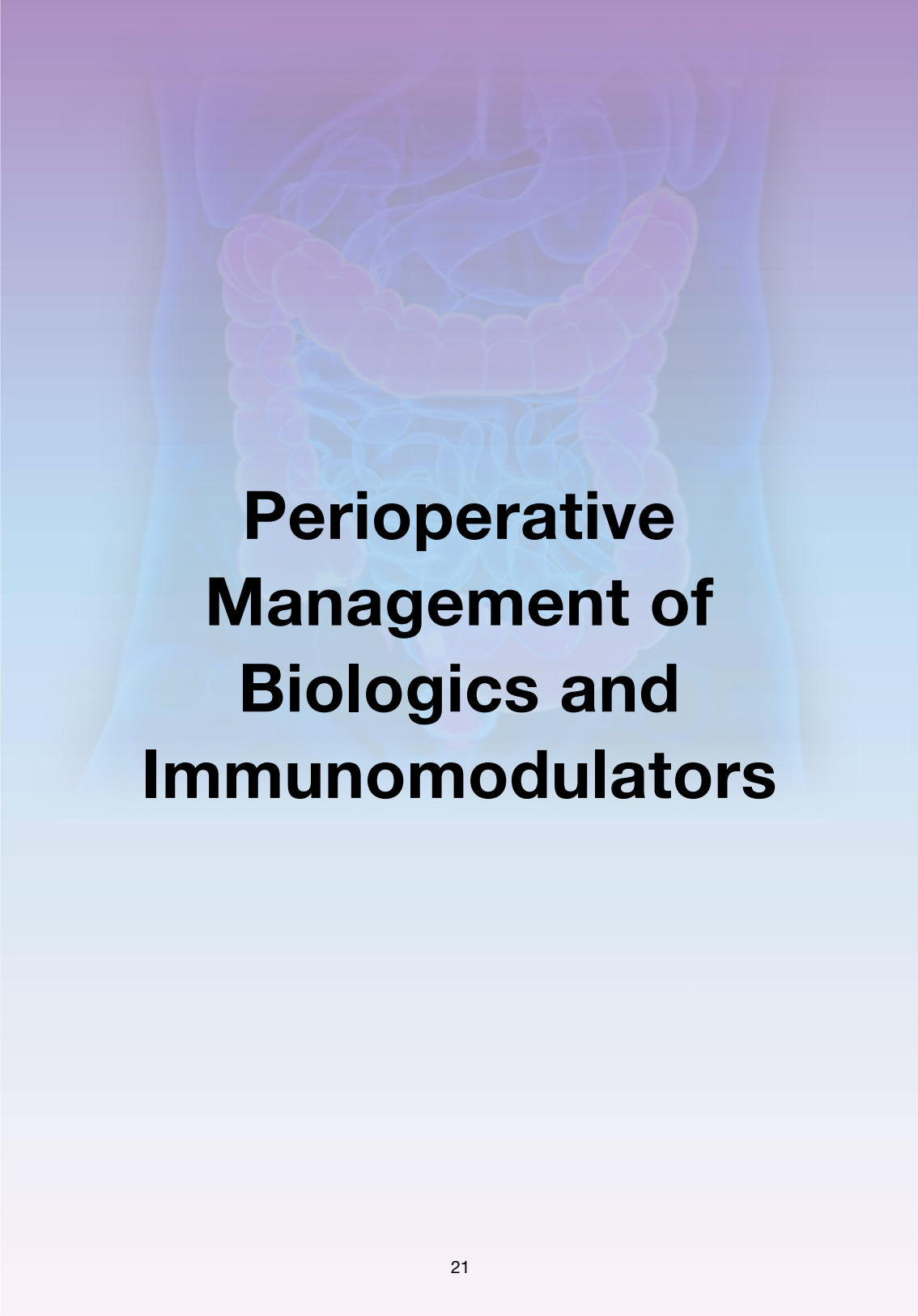


* Careful intensive medical therapy jointly with Surgeons may be an option in selected patients

Surgical Indications



- Toxic Megacolon : Total or segmental non obstructive dilatation of the colon > 5.5cm associated with systemic toxicity.
- Opinion from Colorectal Surgeon upon diagnosis.
- If failed medical therapy after 48 hours or development of dilatation during medical therapy mandates colectomy.



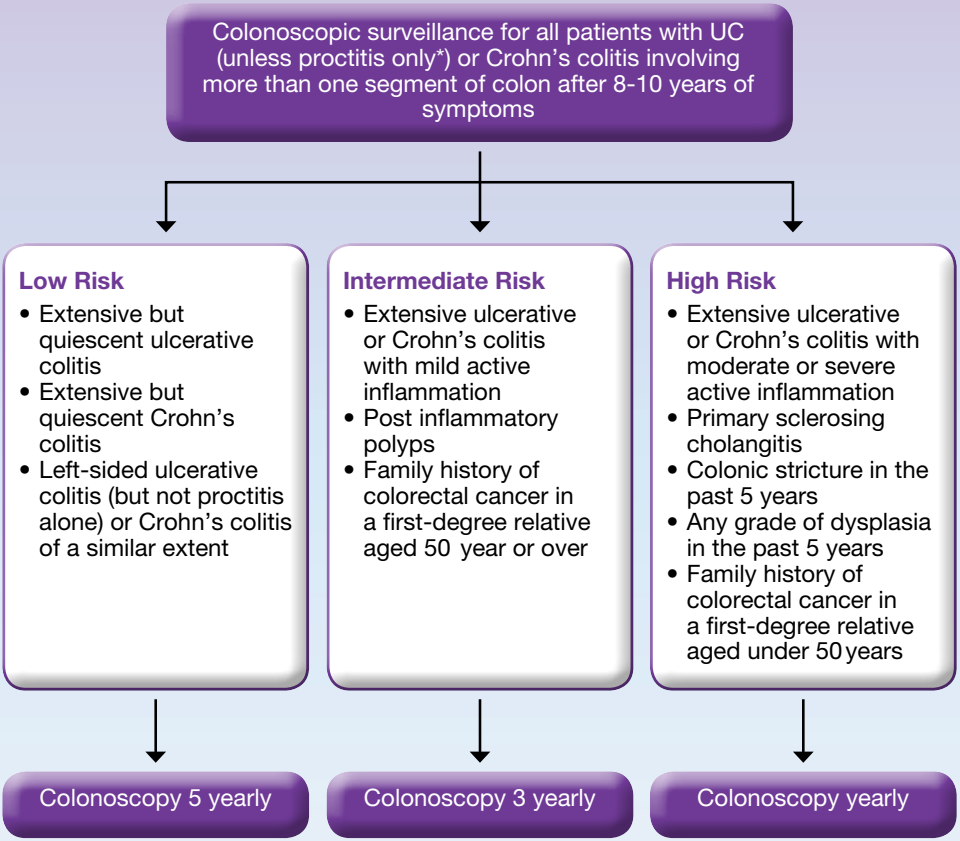
Perioperative Management of Biologics and Immunomodulators

Perioperative Management of Biologics and Immunomodulators

	Data	Preoperative	Postoperative
Steroids	Increased risk of postoperative complications if 20mg of prednisolone or equivalent taken over a period of 3 weeks	Slow tapering by 5mg/week	No data
Thiopurines	Controversial but some data suggests slightly increased risk of postoperative sepsis	Continue but may consider stopping if benefit of continuing not clear	Can resume after 1-3 days if indicated (eg postoperative prophylaxis although this remains controversial)
Methotrexate	Minimal data	Surgery 1 week after last dose but consider stopping if benefit of continuing not clear	Can resume after 1-2 weeks
Anti TNFs	Generally safe but some data shows higher postoperative septic complications after abdominal surgery for Crohn's disease	Elective: Discontinue at least 4 weeks before surgery for infliximab and 2 weeks before surgery for adalimumab Emergency: Discontinue as soon as surgery planned	Resume no earlier than 2 weeks post operatively if strong indication (eg high risk of recurrence, residual disease)
Vedolizumab	Very limited data but one post marketing study shows increased postoperative complications	Elective: Discontinue at least 4-8 weeks before surgery Emergency: Discontinue as soon as surgery planned	Resume no earlier than 2-4 weeks post operatively if strong indication

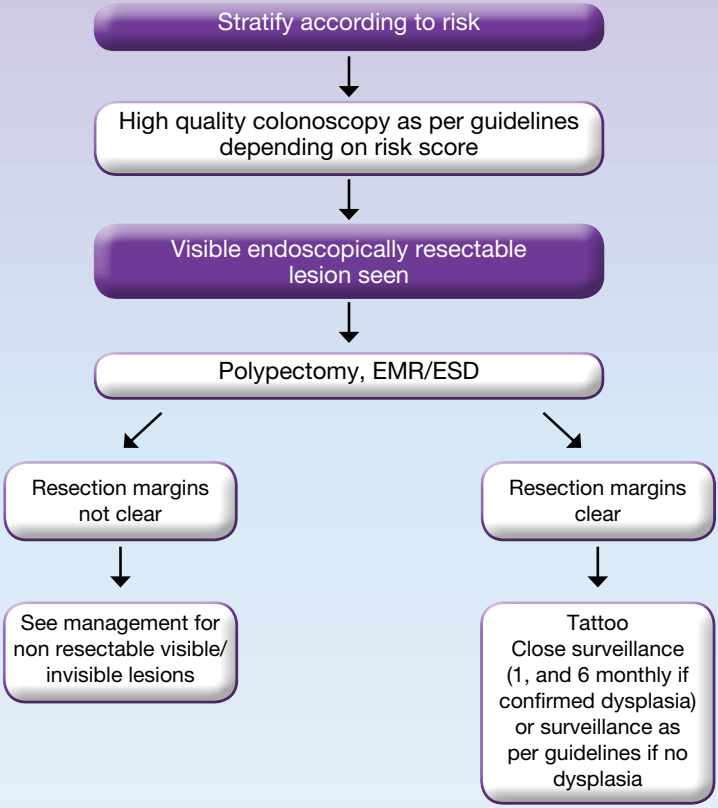
Surveillance and Management of Dysplasia

Guidelines for Dysplasia Surveillance in IBD

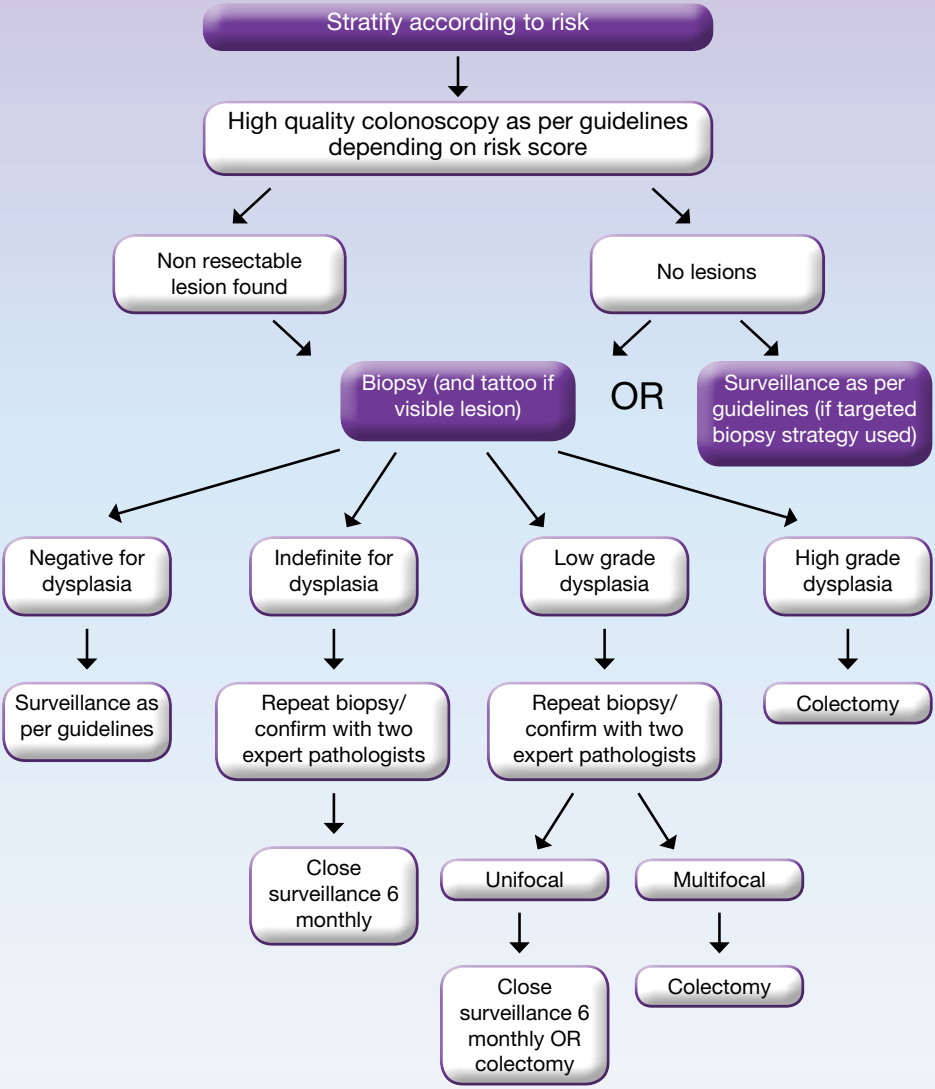


* Patients who had previously documented left sided/extensive colitis but proctitis only during reassessment should also undergo surveillance

Management of Resectable Dysplastic Lesions



Management of Visible Non Resectable or Invisible Dysplastic Lesions



Appendix

Technique for colonosocopy:

- Ensure good bowel preparation
- Surveillance should not be carried out during flares
- High definition white light and chromoendoscopy (image enhanced endoscopy) should be used
- Characterization of visible lesions as per SCENIC guidelines*
- ***Targeted*** (after careful examination using image enhanced techniques) rather than random biopsies preferred although obtaining random biopsies remains an option
- Post inflammatory polyps or 'pseudopolyps' (although a marker for severe disease) have no malignant potential and should not be biopsied or removed unless there are suspicious features

Endoscopic resection of lesions:

- ESD/EMR should be performed in expert centres only and referral should be made to these centres if available. Biopsy and colectomy if confirmed dysplasia remains an option.

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The algorithms are intended as a treatment guide for standard adult patients with IBD. They may not be suitable for special groups (eg. Children, pregnant/breastfeeding women and/or older adult patients) or other special situations.

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