الجامعة السورية الخاصة
كلية الطب البشري
قسم الجراحة

# الأمراض الجراحية الشائعة في الأمعاء الدقيقة و الغليظة
# Common small and large intestinal surgical diseases

M.A.Kubtan MD-FRCS

# Topics

- Bowel obstruction. انسداد الأمعاء
- Small bowel neoplasms.

الآفات التنشؤية للأمعاء الدقيقة

- Meckele's diverticulum. رتج ميكل
- IBD. متلازمة الكولون المتهيج
- Colorectal cancer. أورام الكولون الخبيثة

# Intestinal Obstruction

- **Intestinal obstruction exists when blockage prevents the normal flow of intestinal contents through the intestinal tract.**

  يحدث الانسداد لأسباب تمنع الجريان الطبيعي ضمن الأنبوب الهضمي

- **Two types of processes can impede this flow.**

  أسباب إعاقة الجريان

**Mechanical.** ميكانيكية

**Functional.** وظيفية

# Intestinal Obstruction

- ***Mechanical obstruction:*** الإنسداد الميكانيكي

  An intraluminal obstruction ( الانسداد عبر اللمعة ) or a mural obstruction from pressure on the intestinal walls occurs.

  Examples are:

  - intussusception الإنغلاف
  - polypoid tumors and neoplasms البوليبات السليمة و الخبيثة
  - Stenosis تضيقات الأمعاء
  - Adhesions الالتصاقات
  - Hernias الفتوق
  - abscesses. الخراجات

# Intestinal Obstruction

- ***Functional obstruction:*** **الإنسداد الوظيفي**

  The intestinal musculature cannot propel the contents along the bowel.

  **عندما تعجز الحركات الحوية عن دفع محتوى الأمعاء باتجاه النهاية البعيدة**

  Examples are:

  Amyloidosis **الداء النشواني**

  Muscular dystrophy **الاعتلالات العضلية**

  Endocrine disorders such as diabetes mellitus

  **الأمراض الغدية و الاستقلابية كالداء السكري**

  Neurologic disorders **الاعتلالات العصبية**

# Intestinal Obstruction

The obstruction can be partial or complete.

Its severity depends on:

يمكن للإنسداد أن يكون جزئياً أو كاملاً و تعتمد الخطورة على :

The region of bowel affected

المنطقة المصابة من السبيل الهضمي

The degree to which the lumen is occluded

درجة أو نسبة الانسداد

The degree to which the vascular supply to the bowel wall is disturbed.

درجة تأثر التروية الدموية للجزء المصاب

# Intestinal Obstruction

Most bowel obstructions occur in the small intestine

غالبية الإنسدادات تحدث في الأمعاء الدقيقة

Adhesions الالتصاقات are the most common cause of small bowel obstruction, followed by hernias الفتوق and neoplasms الأورام .

Other causes include intussusception الانغلاف ,

volvulus الانفتال (ie, twisting of the bowel),

and paralytic ileus الخذل المعدي المعوي.

About 15% of intestinal obstructions occur in the large bowel; most of these are found in the sigmoid colon

ما يقارب 15% من انسدادات الأمعاء يحدث في الأمعاء الغليظة و غالبيتها في السين الكولوني

# انسدادات الأمعاء الدقيقة

## SMALL-BOWEL OBSTRUCTION

**Epidemiology** المراضية

The most frequently encountered surgical disorder.

≥75% is due to intra-abdominal adhesions.

تشكل الالتصاقات ضمن جوف البطن و بنسبة تصل لى 75% السبب الجراحي الغالب

Other: should be considered:

التشخيصات الأخرى تشتمل على :

Hernias الفتوق

Crohn's **disease** داء كرون

Intestinal malrotation عدم دوران الأمعاء

Mid-gut volvulus انفتال الجزء المتوسط من الأمعاء

# انسدادات الأمعاء الدقيقة

## SMALL-BOWEL OBSTRUCTION

Causes can be divided into three categories:

يمكن تصنيف الأسباب إلى :

Extraluminal causes such as adhesions, hernias, carcinomas, and abscesses

أسباب ضاغطة خارج اللمعة المعوية في حالات الالتصاقات و الفتوق و الأورام الخبيثة و الخراجات .

Intrinsic to the bowel wall (e.g., primary tumors)

أسباب ضمن الجدار المعوي كما في الأورام البدئية

Intraluminal obstruction (e.g., gallstones, enteroliths, foreign bodies, and bezoars)

أسباب ضمن اللمعة المعوية ( الحصيات المرارية ، الحصيات البرازية ، الأجسام الأجنبية ، كتل الألياف النباتية و الأشعار )

# إنسداد الأمعاء الدقيقة

## SMALL-BOWEL OBSTRUCTION

**PATHOPHYSIOLOGY:** الفيزيولوجيا الإمراضية

Obstruction onset ألية حدوث الانسداد

Gas and fluid accumulate within the intestinal lumen proximal to the site of obstruction.

يحدث تراكم في السوائل و الغازات ضمن لمعة الأمعاء الدقيقة في الجهة القريبة من منطقة الانسداد .

The bowel distends and intramural pressures rise.

توسع في العرى المعوية و ارتفاع في الضغط ضمن اللمعة

Microvascular perfusion to the intestine is impaired, leading to intestinal ischemia, and, ultimately, necrosis. ( strangulating bowel obstruction)

من الممكن أن تؤدي هذه الحالة إلى إضطراب في التروية الدموية ، يعقبها نقص في تروية الأمعاء ، و يمكن أن يؤدي ذلك إلى حدوث نخر بنقص التروية ( انسداد الأمعاء بسبب اختناق الأمعاء )

Progression to strangulation occurs quicker with complete bowel obstruction and more rapidly with closed loop obstruction which a segment of intestine is obstructed both proximally and distally (e.g., with volvulus).

الإنغلاف

الفتق

الإنفتال

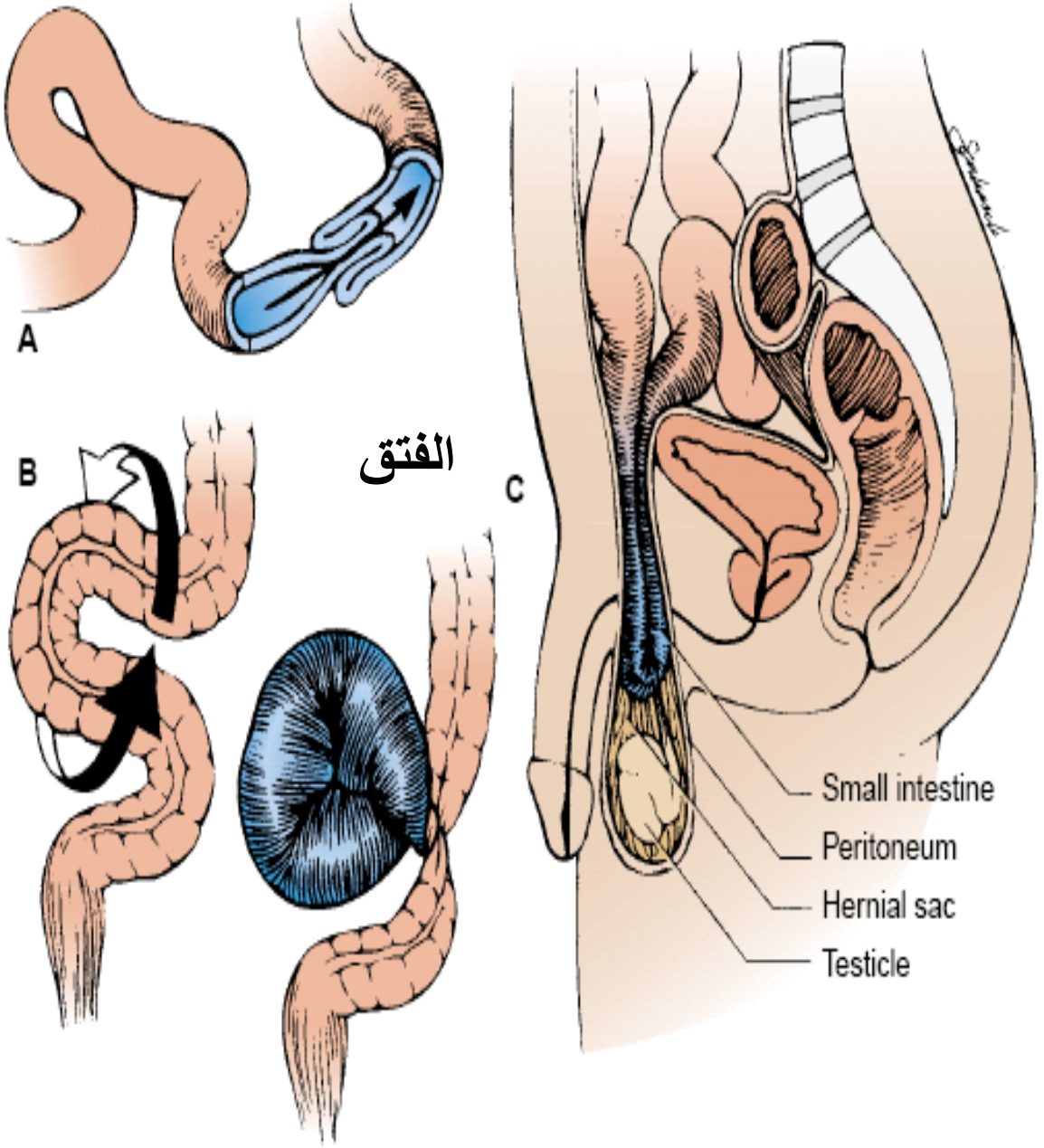



*FIGURE 38-6* Three causes of intestinal obstruction. (A) Intussusception invagination or shortening of the colon caused by the movement of one segment of bowel into another. (B) Volvulus of the sigmoid colon; the twist is counterclockwise in most cases. Note the edematous bowel. (C) Hernia (inguinal). The sac of the hernia is a continuation of the peritoneum of the abdomen. The hernial contents are intestine, omentum, or other abdominal contents that pass through the hernial opening into the hernial sac.

# BOWEL OBSTRUCTION

**Clinical Presentation**

**Symptoms:** الأعراض

**colicky abdominal pain** آلام بطنية ماغصة

**Nausea** غثيان

**Vomiting**

أقياء لمحتويات المعدة و الأمعاء تختلف طبيعتها حسب مستوى الانسداد

**obstipation** انقطاع البراز بحسب مستوى الانسداد

**Continued passage of flatus and/or stool beyond 6–12 h after onset of symptoms is characteristic of partial rather than complete obstruction.**

في حال استمرار التبرز و طرح الغازات فهذا يرجح وجود اسداد تحت التام

# BOWEL OBSTRUCTION

**Signs** العلامات

abdominal distention تطبل البطن

hyperactive bowel sounds. “borborygmi”
أصوات الأمعاء ناشطة

Features of strangulated obstruction include

Tachycardia تسرع النبض

Localized abdominal tenderness ألم بطني موضع

Fever ترفع حروري

Marked leukocytosis ارتفاع في عدد الكريات البيض

Acidosis الحماض

# انسداد الأمعاء الدقيقة

SMALL-BOWEL OBSTRUCTION

## Diagnosis التشخيص

**The diagnostic evaluation should focus on the following goals:**

- Distinguishing **mechanical** obstruction from **ileus**
- Determining the **etiology** of the obstruction
- Discriminating **partial** from **complete** obstruction
- Discriminating **simple** from **strangulating** obstruction.
- Determining the **site** of obstruction.

# انسداد الأمعاء الدقيقة و الغليظة

## SMALL-BOWEL OBSTRUCTION

- **Diagnosis**
  - **Careful history taking:**
    - **prior Hx of abdominal operations → ? presence of adhesions.**
    - **Hx of abdominal disorders (e.g., intraabdominal cancer or inflammatory bowel disease).**
  - **Careful examination:**
    - **a meticulous search for hernias (particularly in the inguinal and femoral regions) should be conducted.**
    - **The stool should be checked for gross or occult blood, the presence of which is suggestive of intestinal strangulation.**

# LARGE BOWEL OBSTRUCTION :Pathophysiology

- As in small bowel obstruction
  - large bowel obstruction results in an accumulation of intestinal contents, fluid, and gas proximal to the obstruction.
  - Obstruction in the large bowel can lead to severe distention and perforation unless some gas and fluid can flow back through the ileal valve.
  - Large bowel obstruction, even if complete, may be undramatic if the blood supply to the colon is not disturbed.

# LARGE BOWEL OBSTRUCTION :Pathophysiology

- If the blood supply is cut off → intestinal strangulation and necrosis (ie, tissue death) occur; this condition is life threatening.

- dehydration occurs more slowly than in the small intestine because the colon can absorb its fluid contents and can distend to a size considerably beyond its normal full capacity.

# LARGE BOWEL OBSTRUCTION :Clinical Manifestations

- Large bowel obstruction differs clinically from small bowel obstruction in that the symptoms develop and progress relatively slowly.
- In patients with obstruction in the sigmoid colon or the rectum, constipation may be the only symptom for days. loops of large bowel become visibly outlined through the abdominal wall, and the patient has crampy lower abdominal pain.
- Finally, fecal vomiting develops. Symptoms of shock may occur.

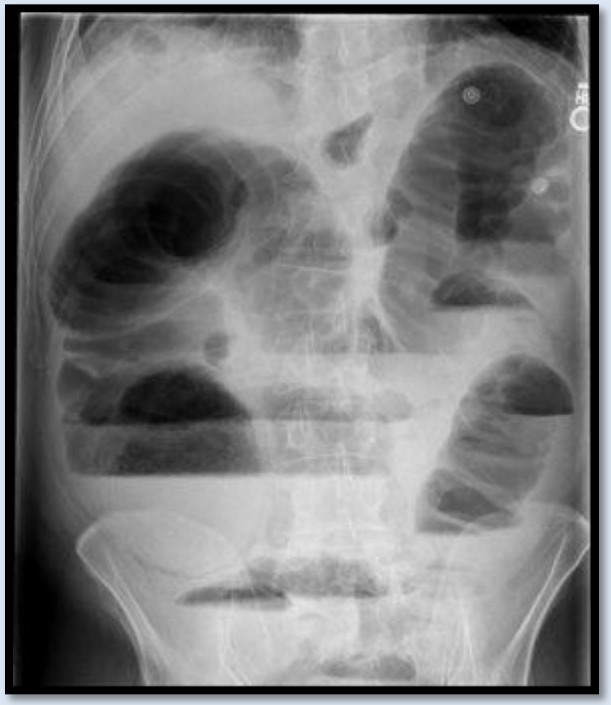
# SMALL-BOWEL OBSTRUCTION

- **X-RAY SERIES:**
- **Obstruction is usually confirmed with radiographic examination.**
- **Abdominal series consists of :**
  - **supine Abdominal X-ray**
  - **upright Abdominal X-ray**
  - **Upright Chest X-ray**

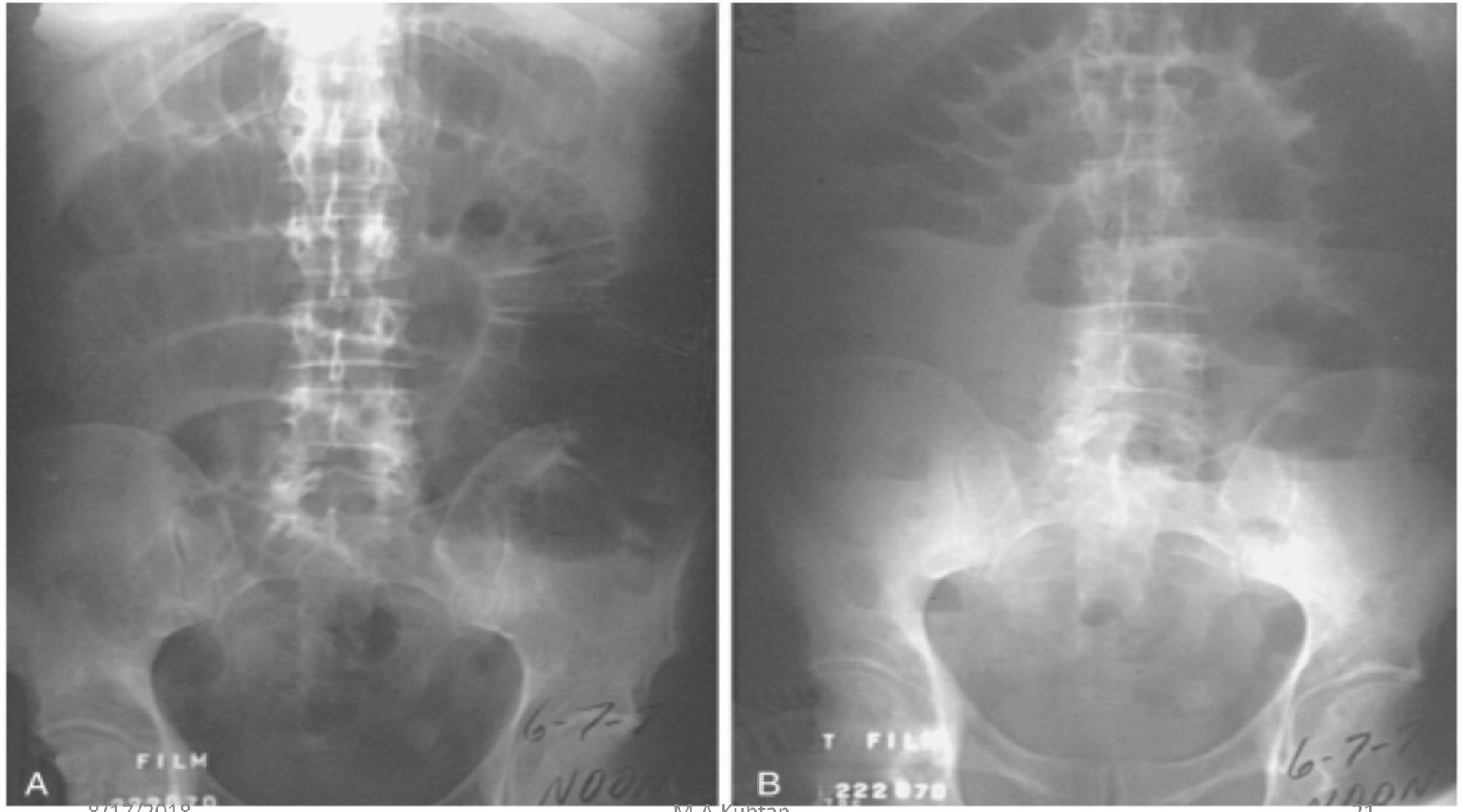
  - **The finding most specific for small-bowel obstruction is the triad of**
    - **dilated small-bowel loops (>3 cm in diameter)**
    - **air–fluid levels seen on upright films**
    - **a paucity of air in the colon.**
- **False negative :**
  - **Proximal obstruction**
  - **The bowel lumen is filled with fluid but no gas.**

# Assessment and Diagnostic Findings

- Diagnosis is based on symptoms and on x-ray studies.
- Abdominal x-ray studies (flat and upright) show a distended colon.
- Barium studies are contraindicated.



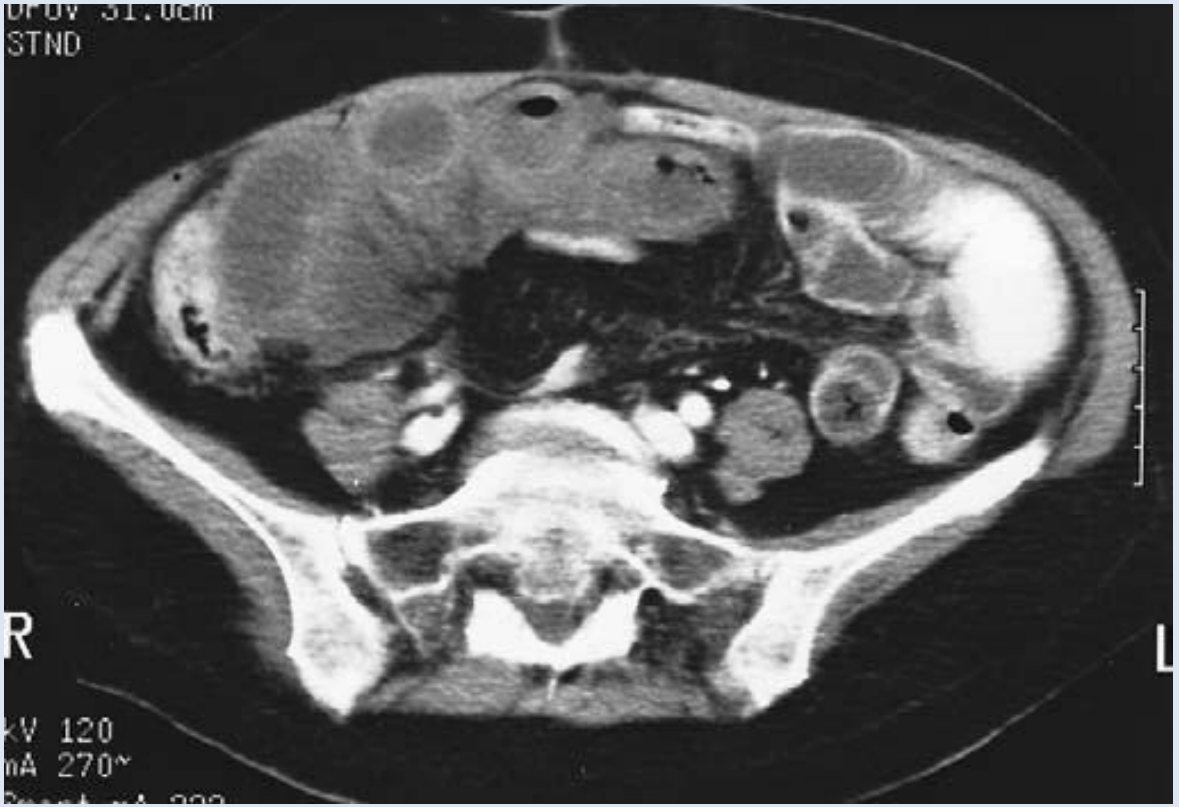
# Plain x-rays

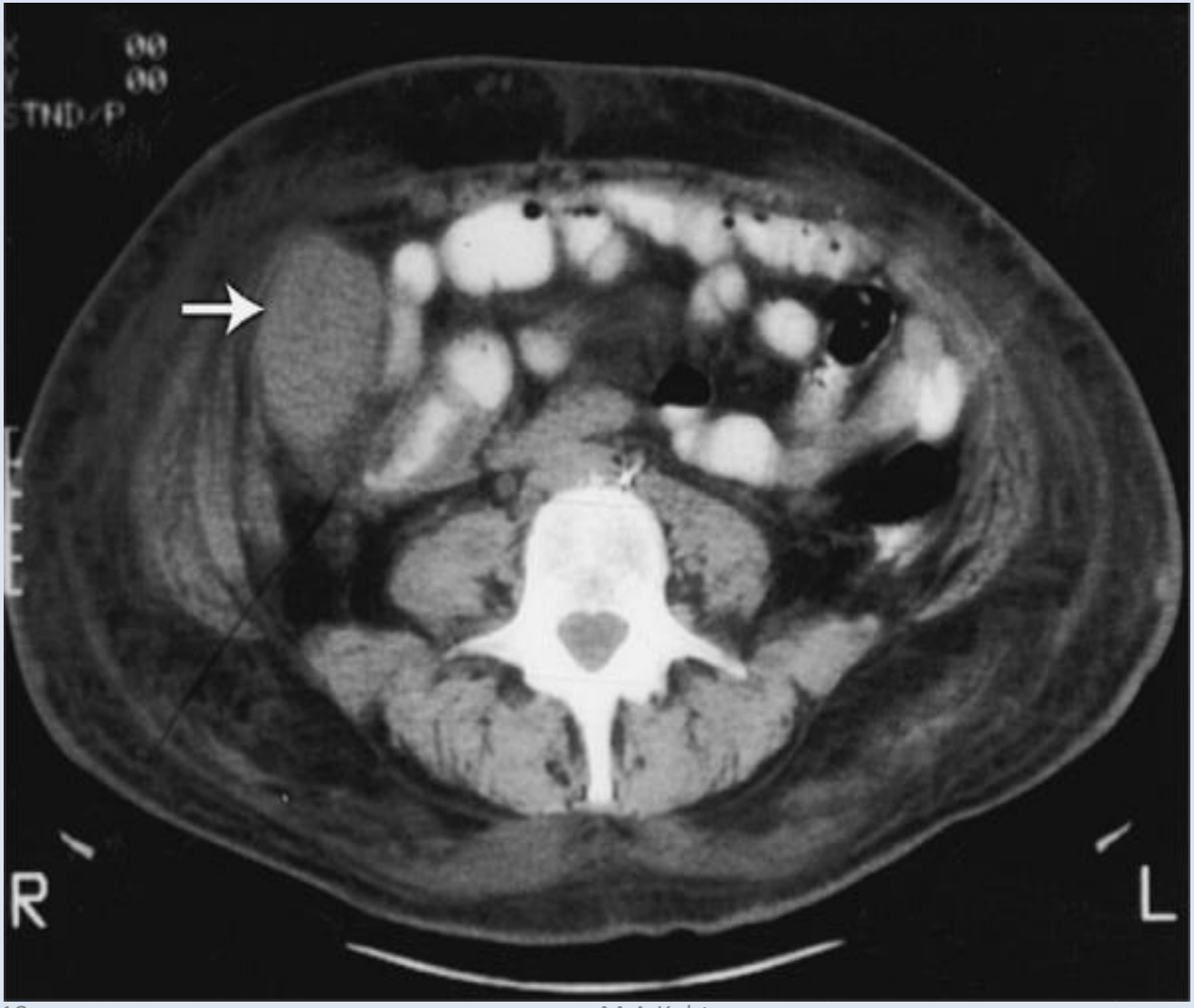


# SMALL-BOWEL OBSTRUCTION

- **CT Abdomen:**
- **Findings include:**
  - **A discrete transition zone with dilation of bowel proximally, decompression of bowel distally**
  - **intraluminal contrast that does not pass beyond the transition zone**
  - **Colon containing little gas or fluid.**
  - **Strangulation is suggested by:**
    - **Thickening of the bowel wall**
    - **Pneumatosis intestinalis (air in the bowel wall)**
    - **Portal venous gas**
    - **Mesenteric haziness**
    - **Poor uptake of intravenous contrast into the wall of the affected bowel.**
  - **CT scanning also offers a global evaluation of the abdomen and may therefore reveal the etiology of obstruction.**

# SMALL-BOWEL OBSTRUCTION

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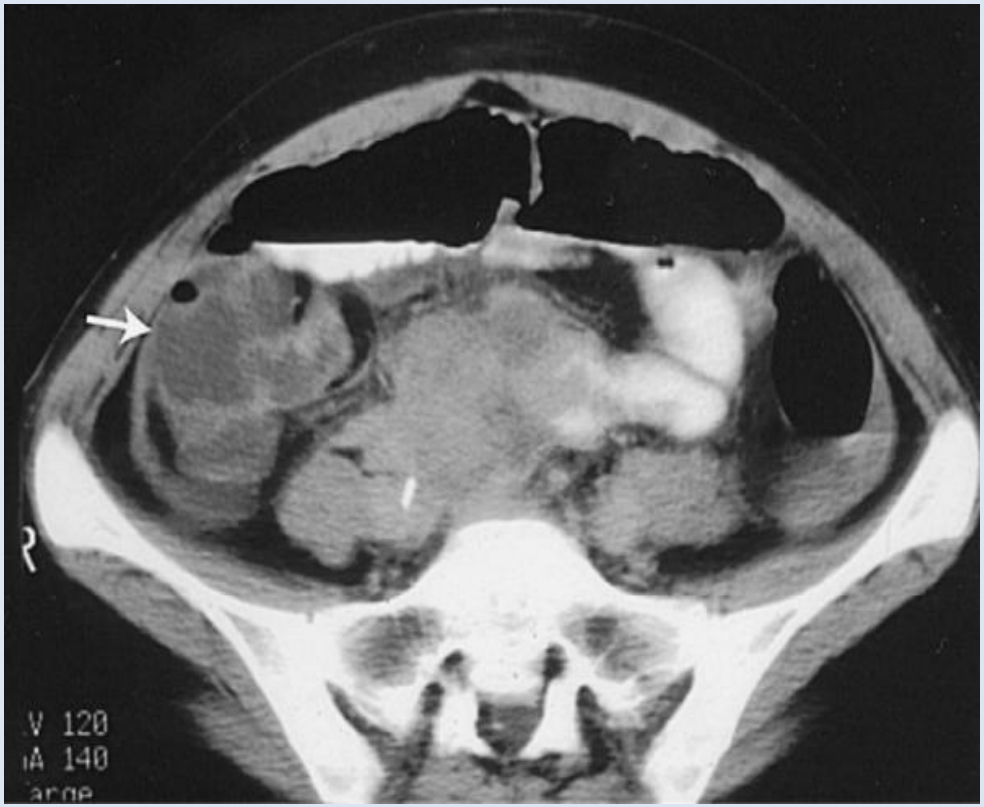
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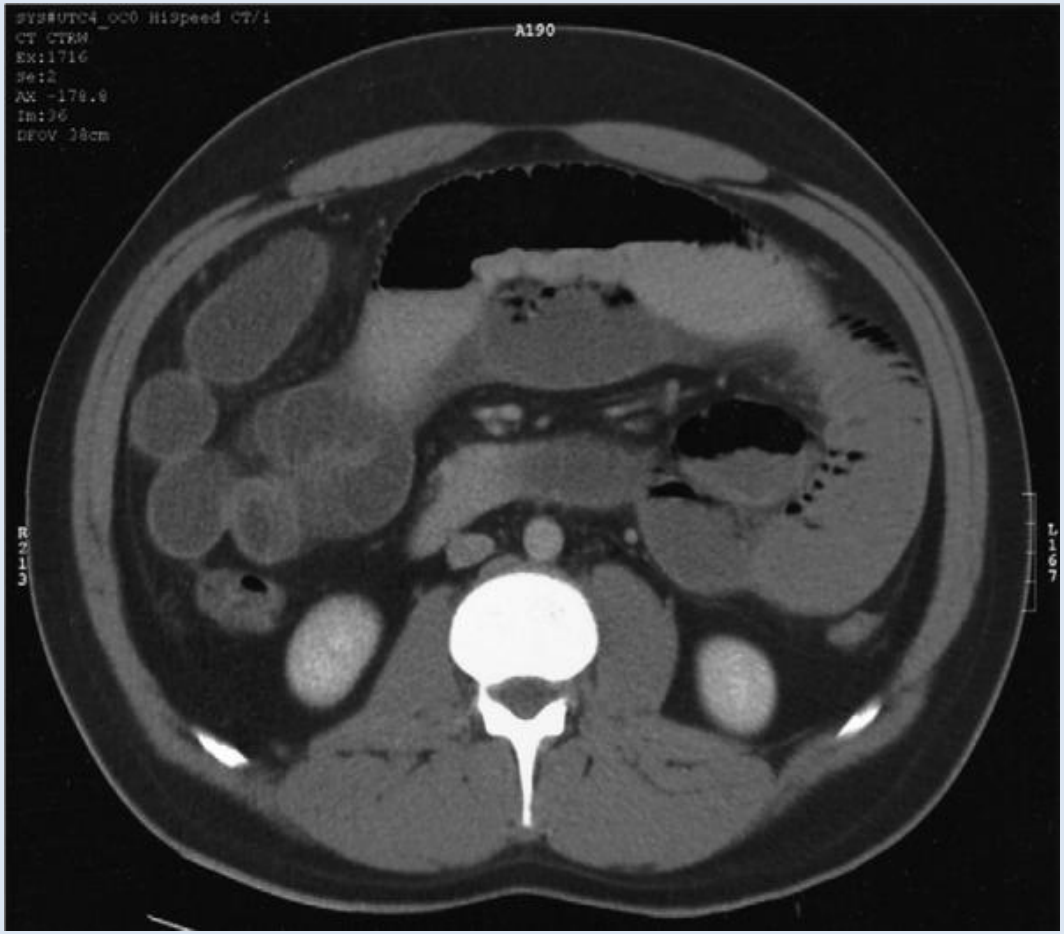
V 120
A 140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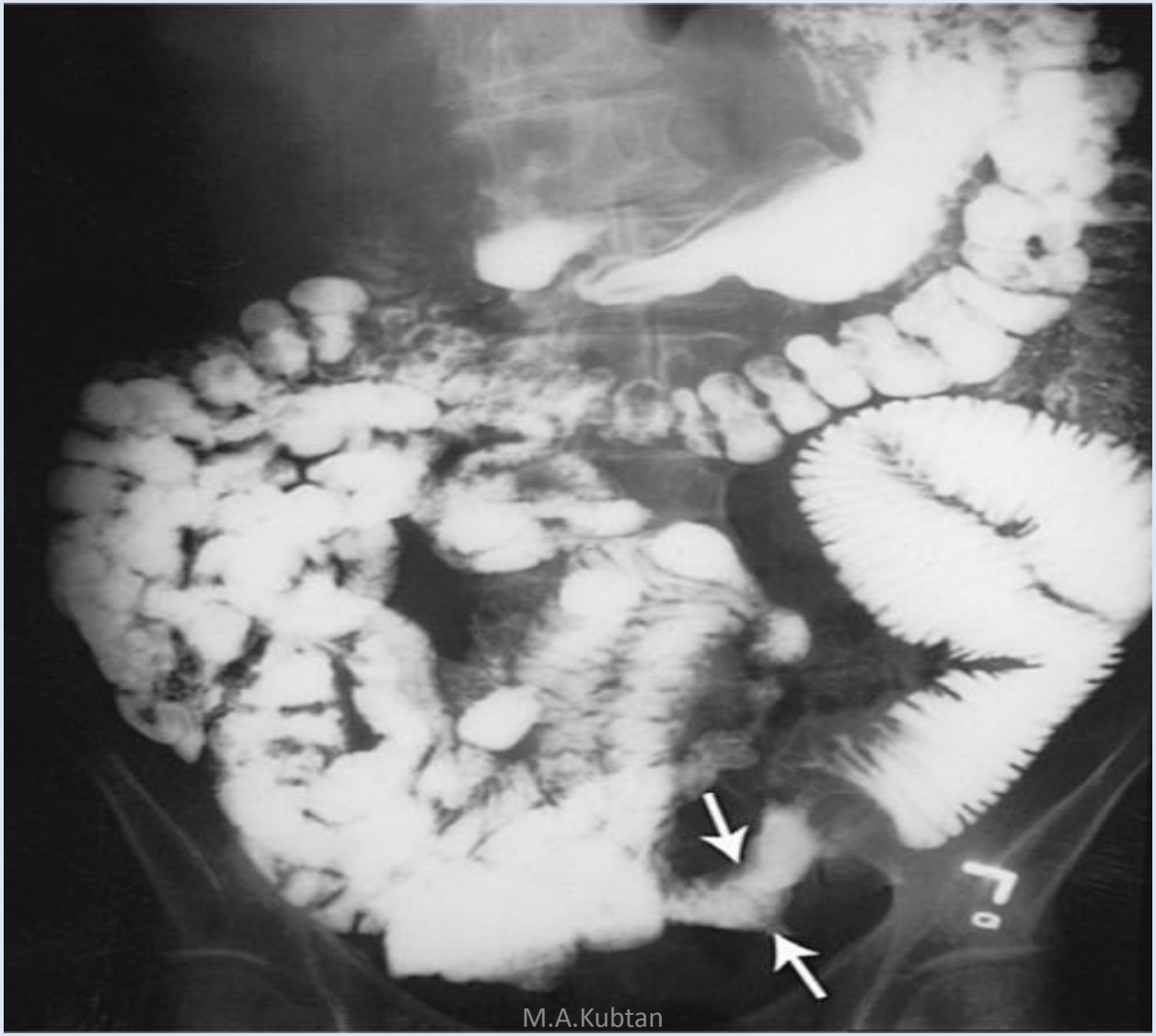
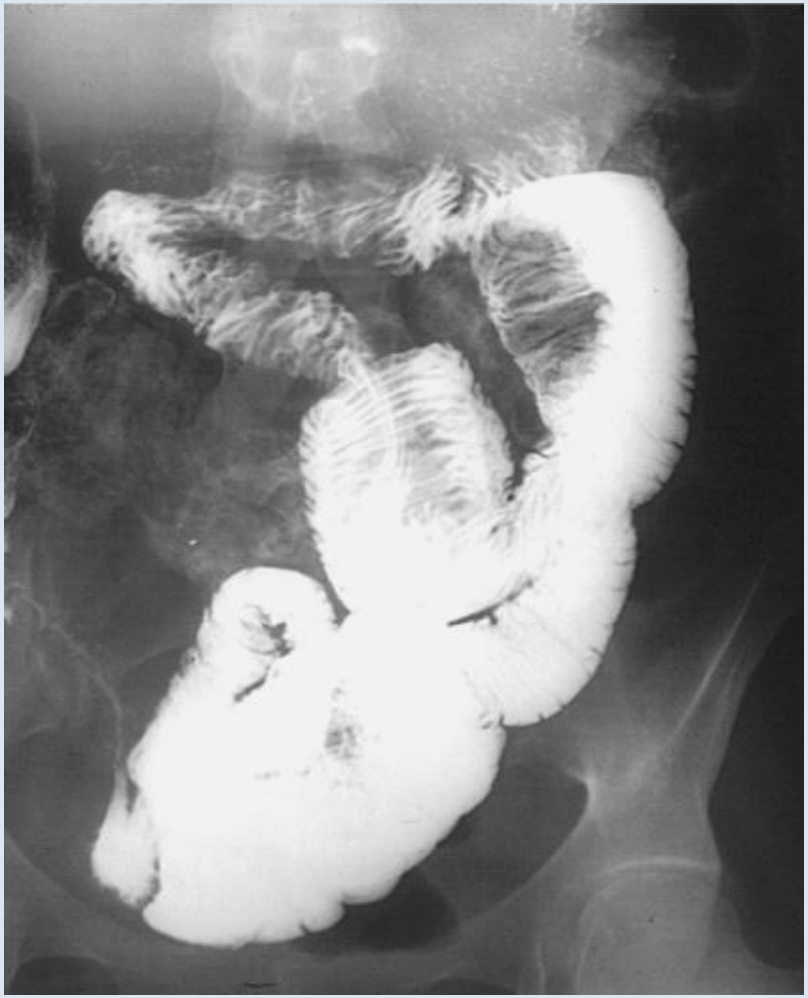
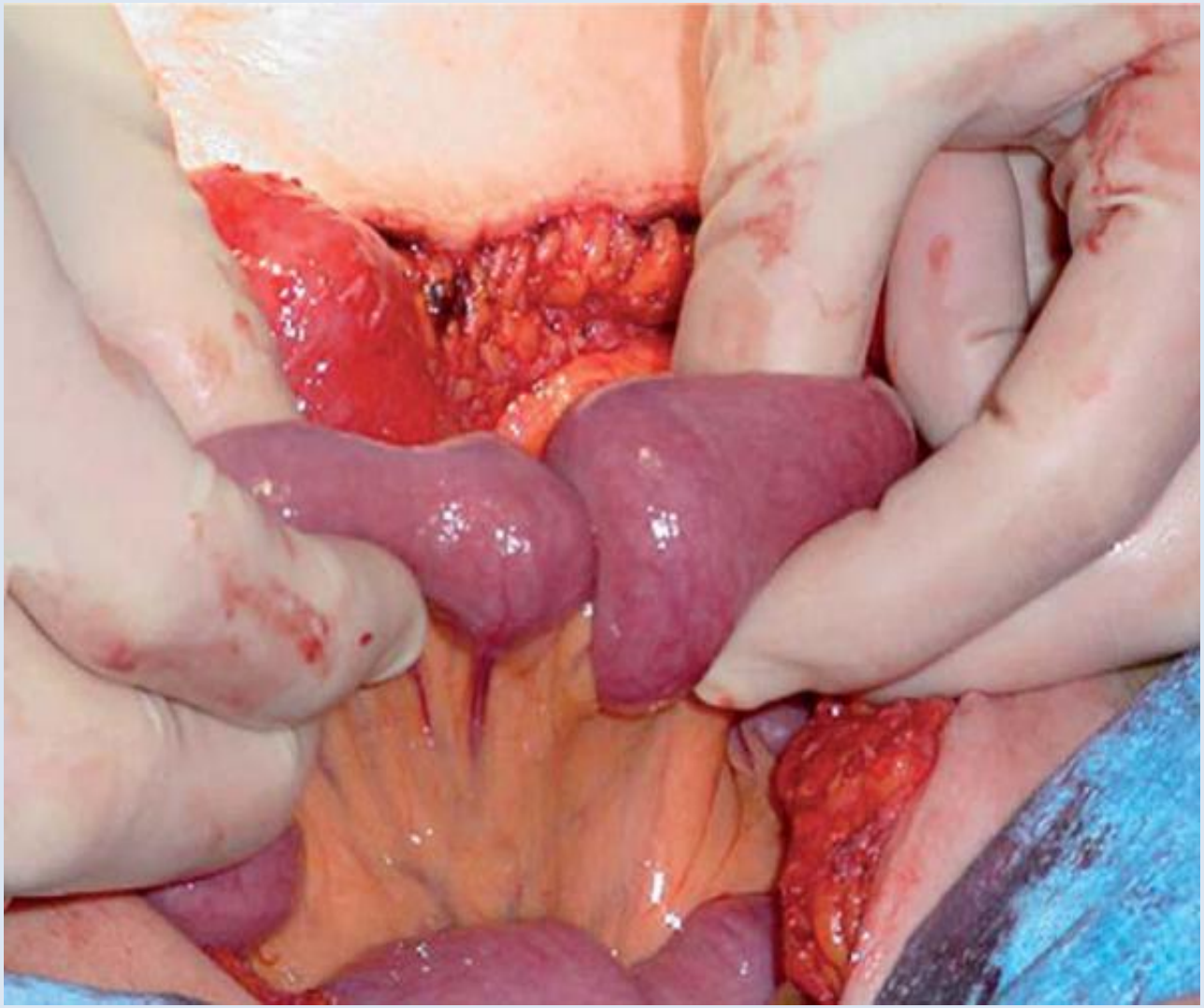






# BOWEL OBSTRUCTION

- **Therapy**
  - **Fluid resuscitation.**
  - **A nasogastric (NG) tube to evacuate air and fluid from stomach.**
  - **An indwelling bladder catheter to monitor urine output.**
  - **Central venous or pulmonary artery catheter monitoring may be necessary**
  - **Broad-spectrum antibiotics**
  - **The standard therapy for bowel obstruction is expeditious surgery with the exception of specific situations**

# Colorectal cancer

# Outline

- Definitions
- Polyps
- Basics of colorectal cancer
- Surgery
- Staging

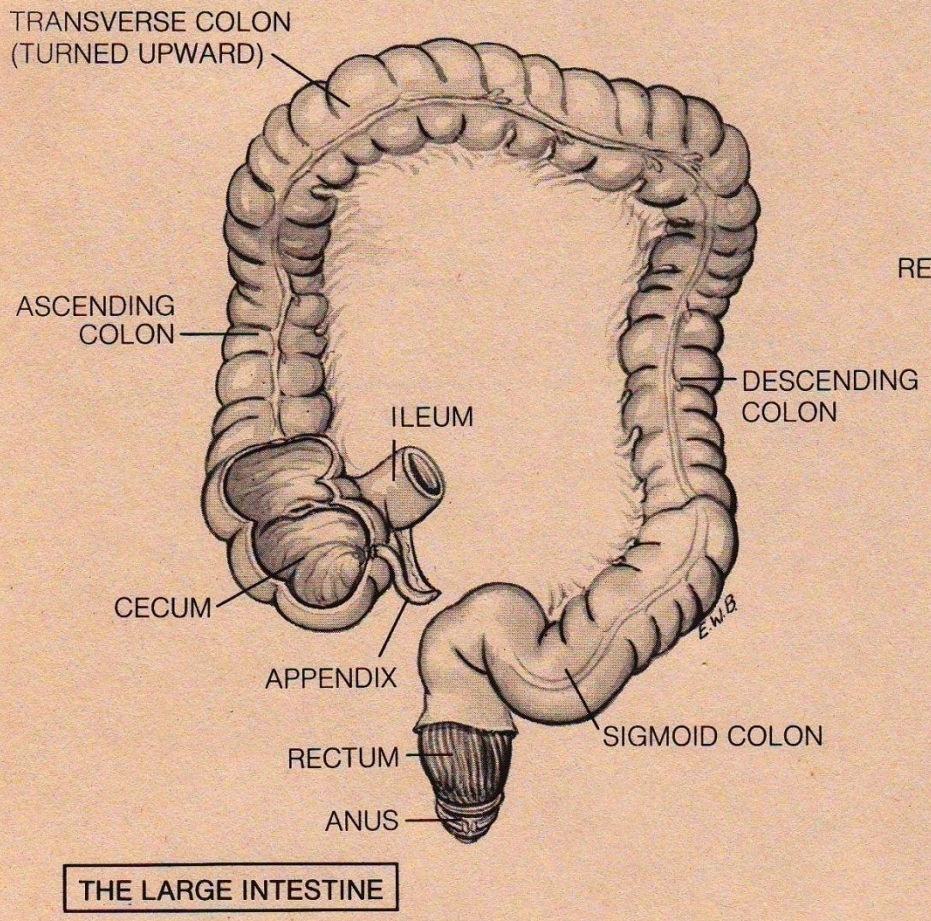
# Perspective


"Whoa, Frank ...
guess what youuuuuuuuuu sat in!"

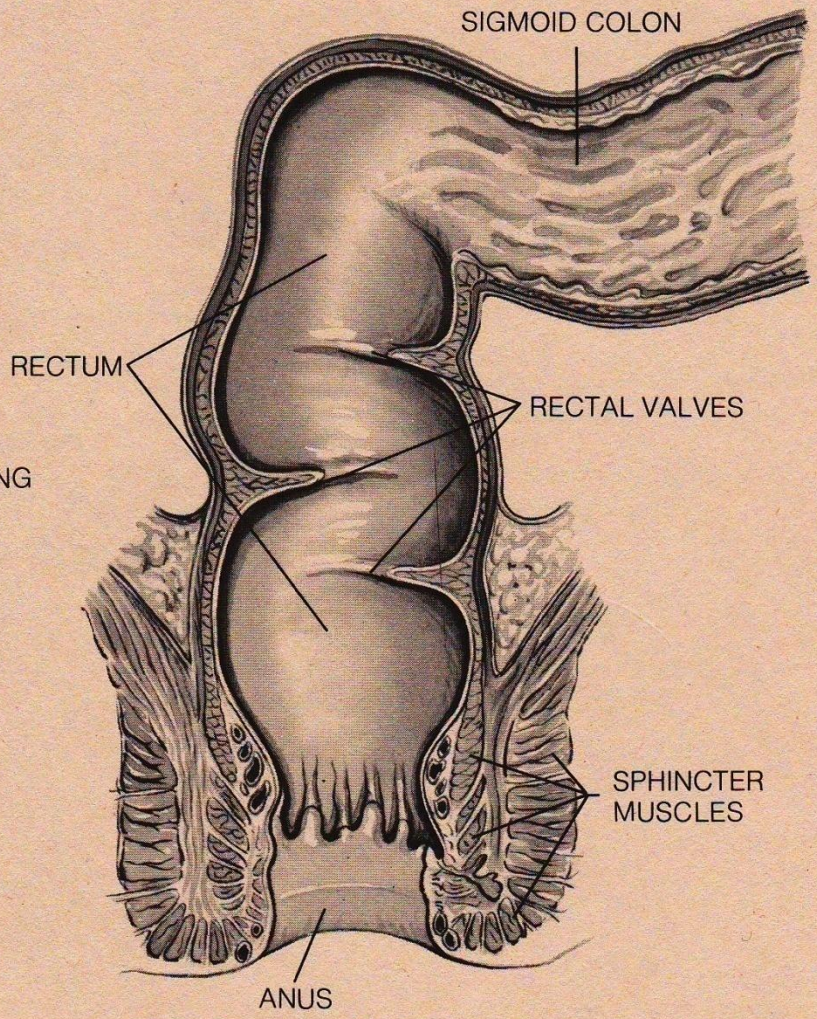
# Definitions

- Colon = large bowel = large intestine
- Rectum - terminal portion of the colon
- Polyp - benign growth; not invasive
- Adenoma - type of polyp
- Cancer - malignant growth; invasive
- Stage - where the cancer is growing
- Primary - the original tumour, where it started
- Metastases - where the tumour has spread to

# Colon and Rectum



THE LARGE INTESTINE



RECTUM AND ANUS

# Colorectal Cancer

- Most cancers are acquired some are inherited
- Almost all cancers begin as a benign polyp or adenoma
- Only a tiny percentage of adenomas become cancers

# What is a polyp?

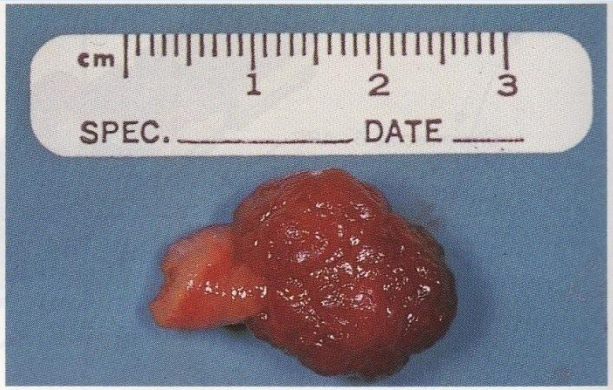



**Fig. 22-7** Pedunculated polyp.

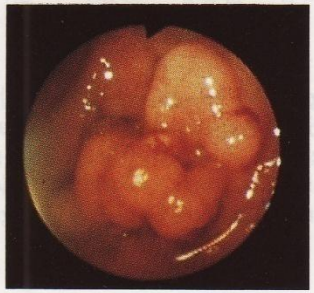


**Fig. 22-8** Sessile polyp.

# Polyp - Cancer Sequence

- The process from benign polyp to cancer takes from 7 - 10 years
- The transformation into cancer is based on
  - the type of polyp
  - Size of polyp
- Multiple polyps = greater risk of cancer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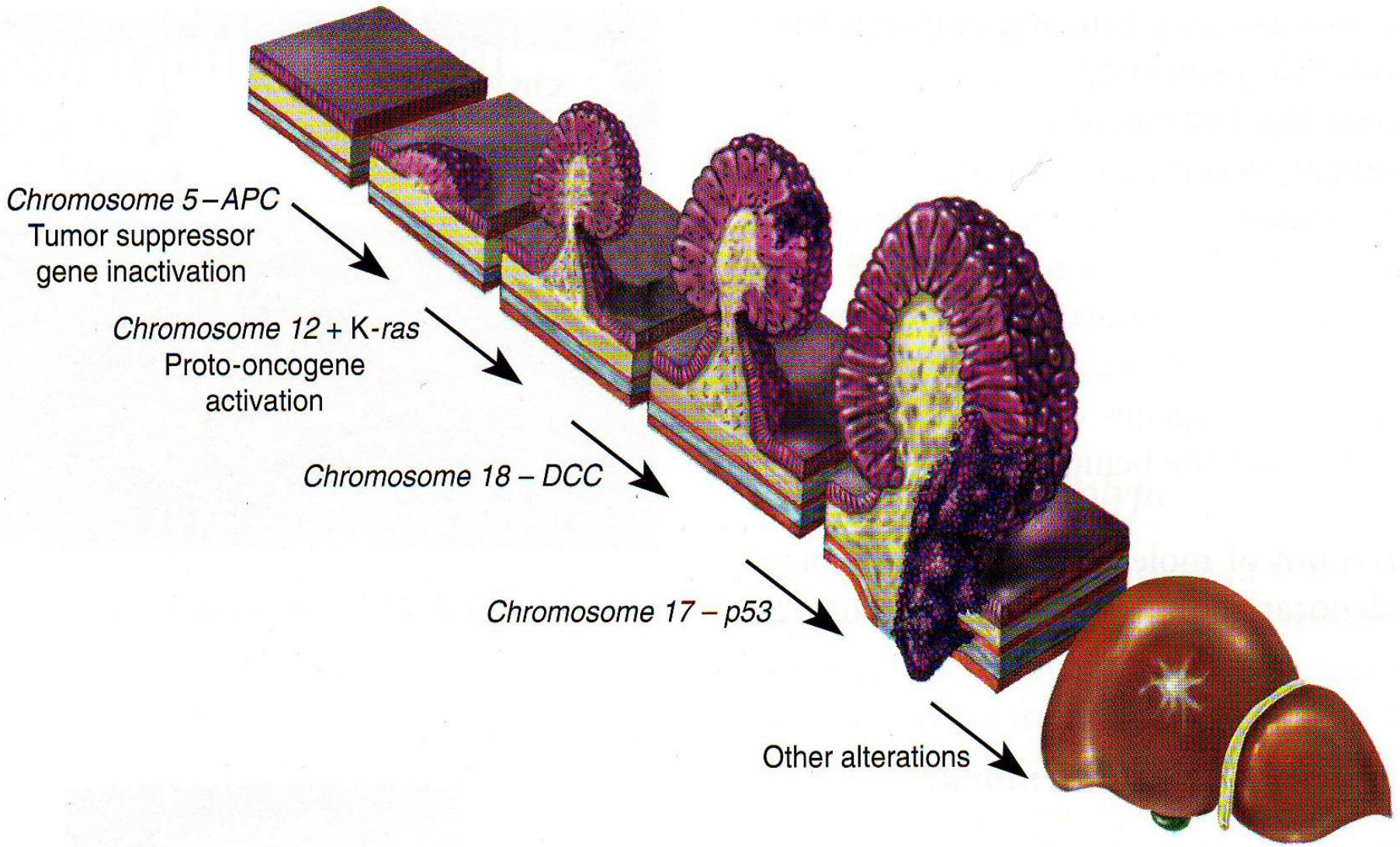
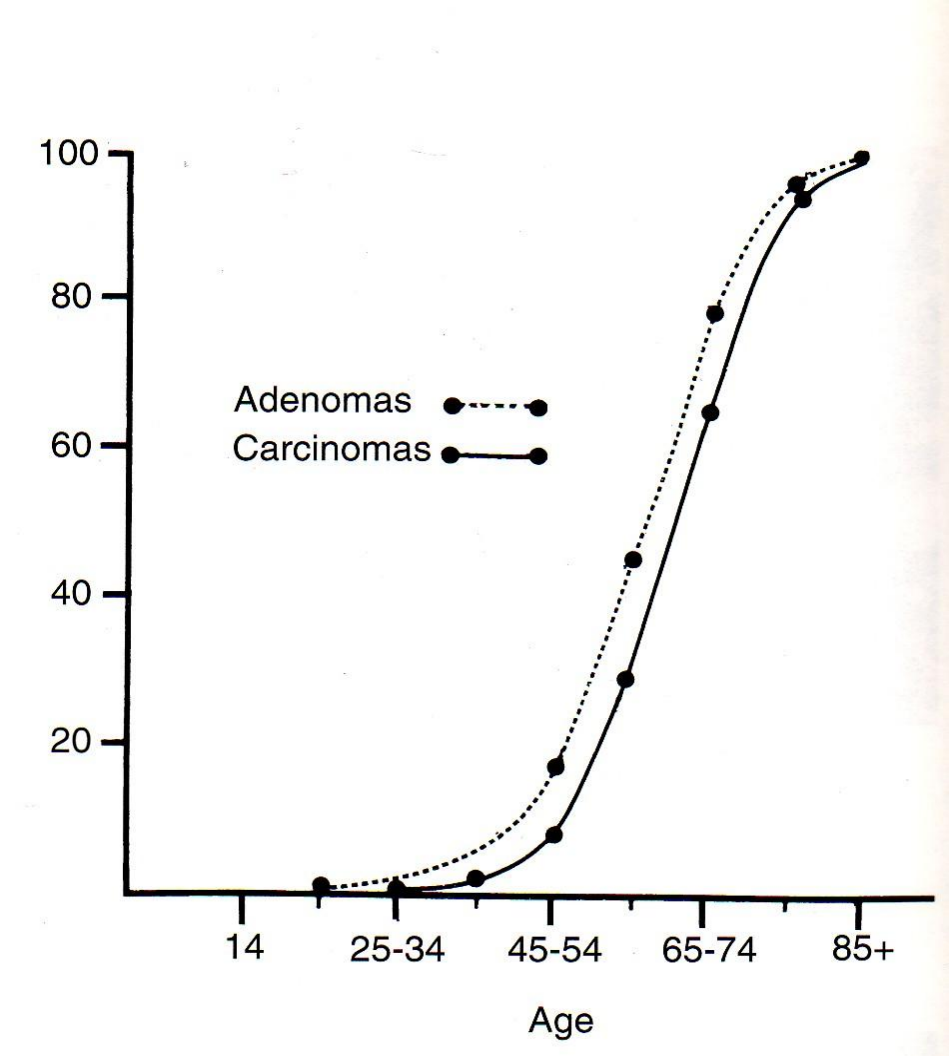
1
2
3
4


Chromosome 5 – APC
Tumor suppressor
gene inactivation
Chromosome 12 + K-ras
Proto-oncogene
activation
Chromosome 18 – DCC
Chromosome 17 – p53
Other alterations

# The Effect of Age on the Incidence of Colorectal Cancer and Colorectal Polyps



# Removing polyps prevents cancer

## Colonoscopy

# Colorectal Carcinoma

Classification

Adenocarcinoma 95%

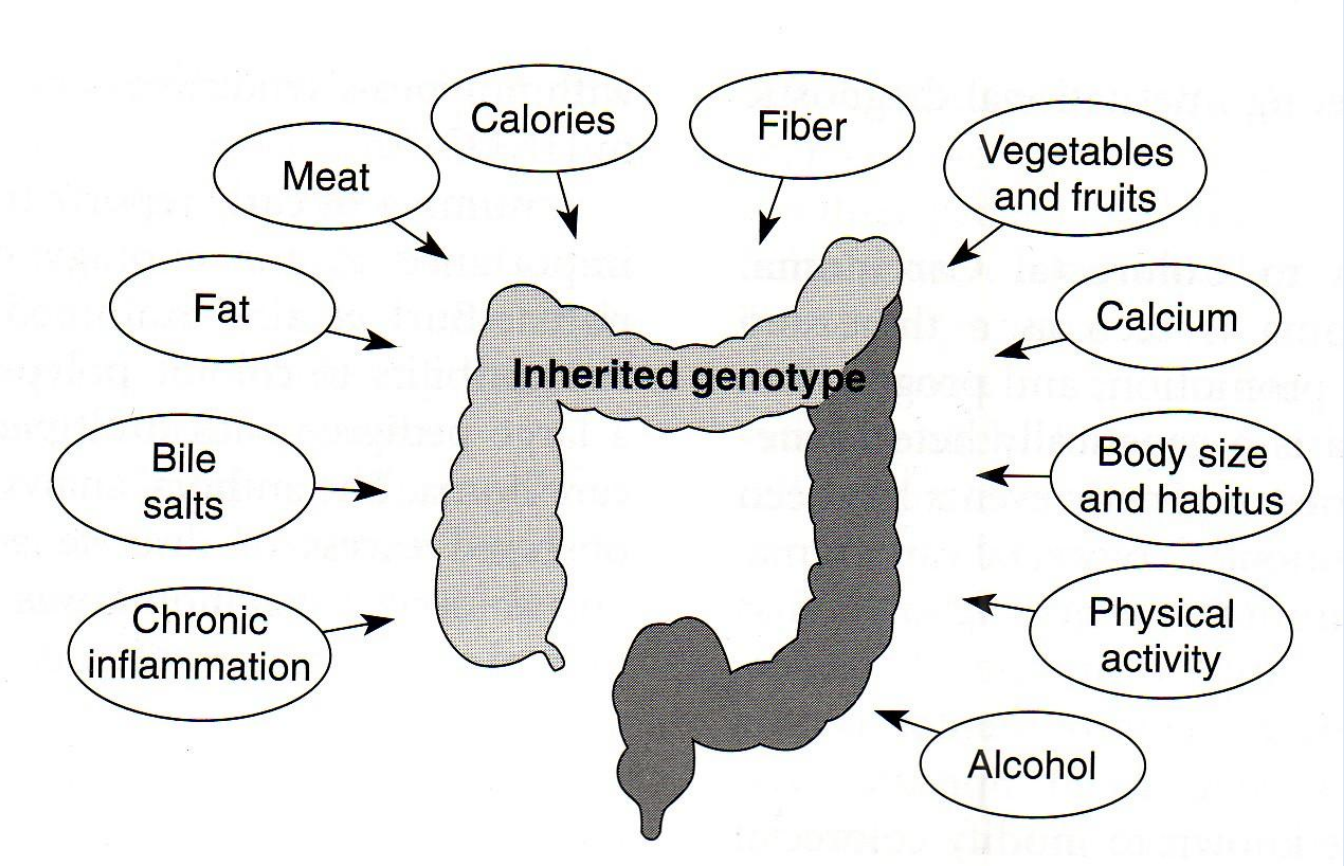
Carcinoid

Lymphoma

Sarcoma

Squamous cell carcinoma

# Etiology of Colorectal Cancer



# Risk Factors

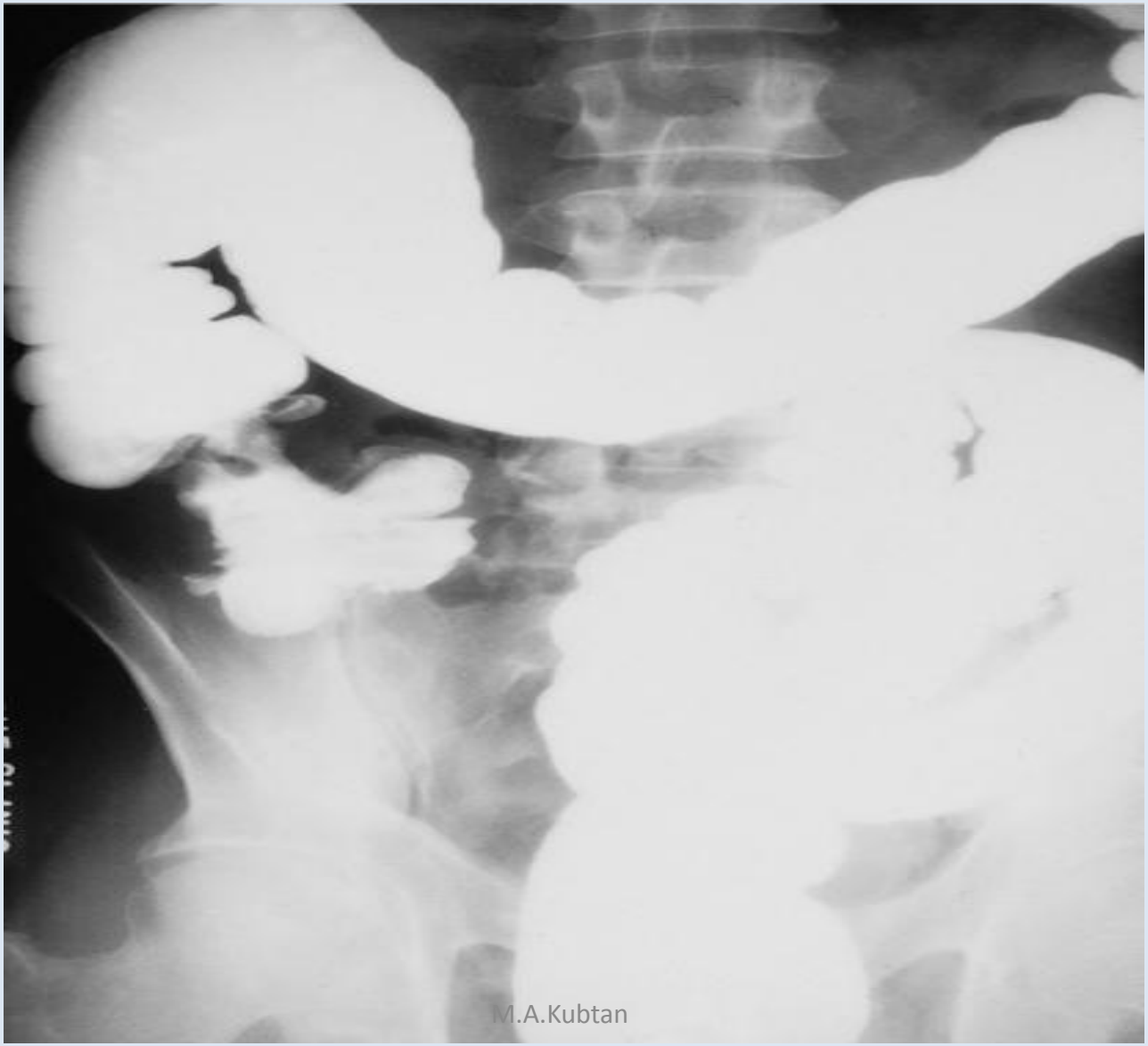
1. Genetics, Family history
   - Personal history
   - One first degree family member doubles risk
   - Hereditary colorectal cancer syndomes
2. Polyps
3. Inflammatory bowel disease
4. Other
   - Diet, nutrients, smoking, ETOH

# Clinical presentation

1. Bleeding - gross, occult, anemia (37%)
2. Change in bowel habit – pain, diarrhea, constipation, alternating pattern
3. Obstruction – more common with left sided lesions most common cause of bowel obstruction in the elderly
4. Vague abdominal pains
5. Change in caliber of the stools
6. Weight loss
7. Abdominal mass
8. Asymptomatic

# Investigations

- General:
  - Complete history and physical (DRE)
- Endoscopic (identify primary, synchronous lesions)
  - Flexible sigmoidoscopy
  - Colonoscopy
- Staging
  - Endorectal ultrasound (rectal cancer)
  - Chest x-ray (metastases)
  - Liver ultrasound (metastases)
  - Abdominal CT scan (metastases)
- Bloodwork
  - CBC electrolytes, CEA (tumour marker)



# Surgical therapy

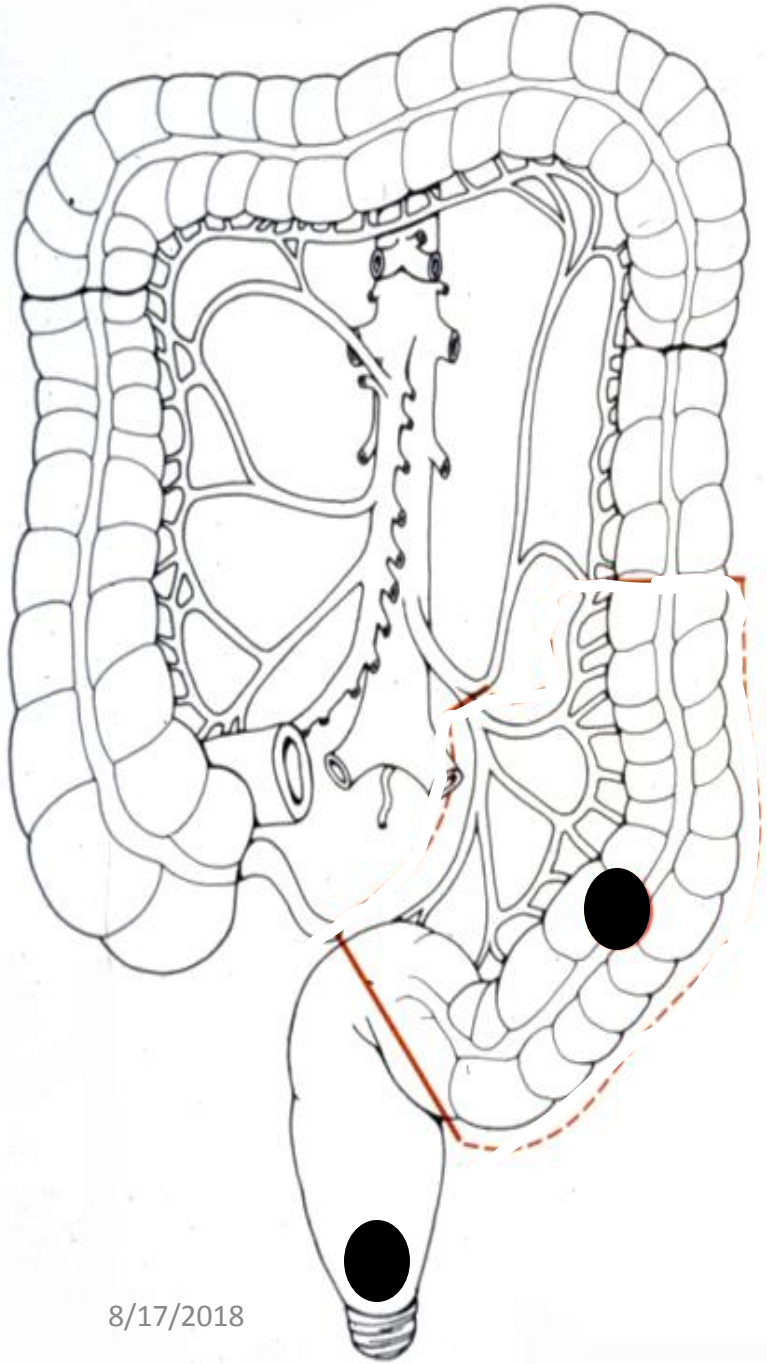
- Surgery is the most important variable in the treatment of colorectal cancer
- Radiation and chemotherapy alone cannot cure any stage of colorectal cancer
- The site of tumour dictates the basic procedure

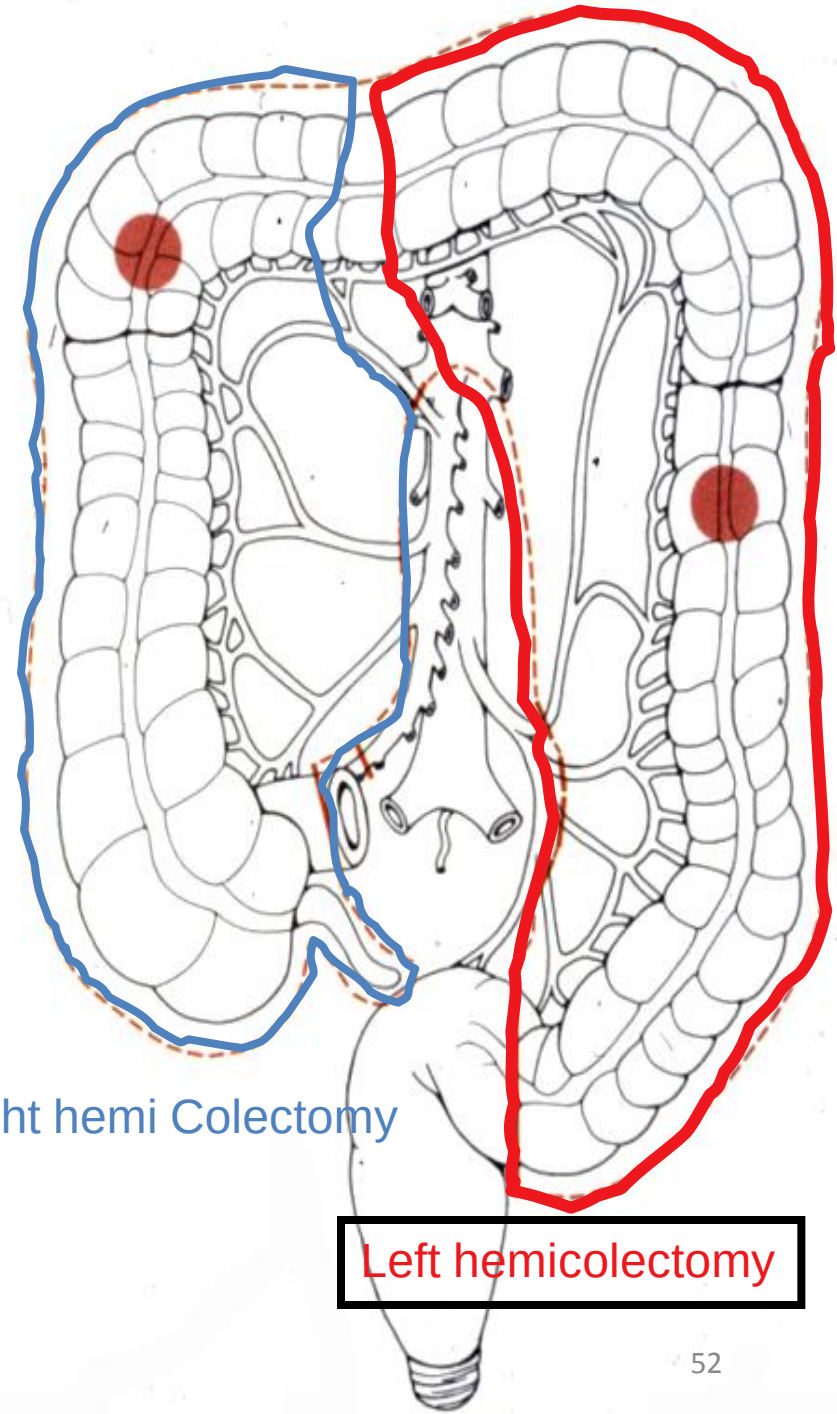
# Preoperative preparation

- Evaluation of medical problems
- Mechanical bowel preparation
  - Colyte , Oral fleet
- IV antibiotics
- DVT prevention ( blood clots in the legs)
  - Heparin shots
  - Compression stockings
- Foley catheter
- Epidural catheter for pain

# Principles of Surgery

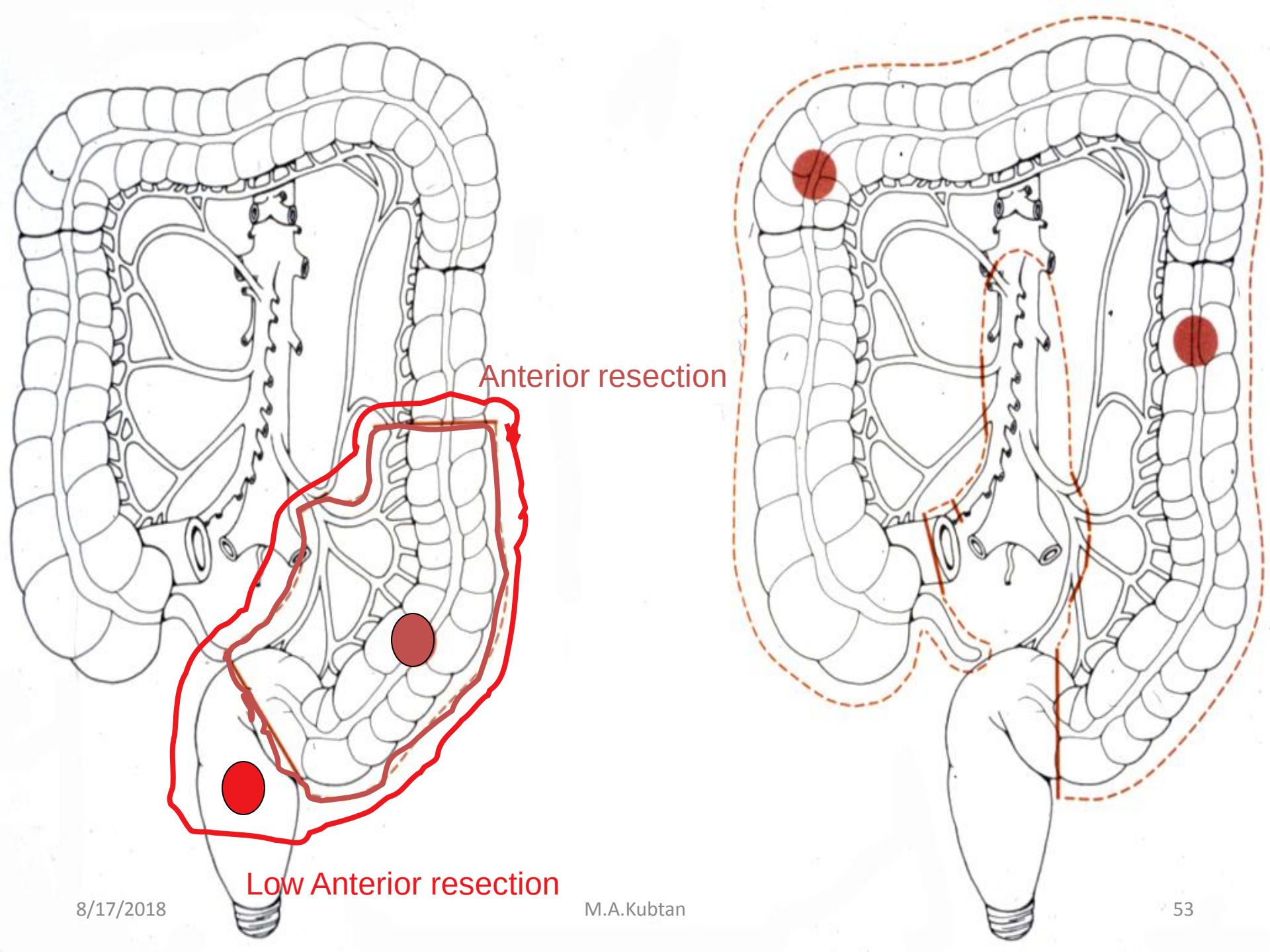
- Examine the entire abdomen
- Remove the appropriate segment of the colon with adequate margins
- Remove the corresponding lymph nodes
- Open vs laparoscopic approach





Right hemi Colectomy

Left hemicolectomy


Anterior resection
Low Anterior resection

# Ostomy

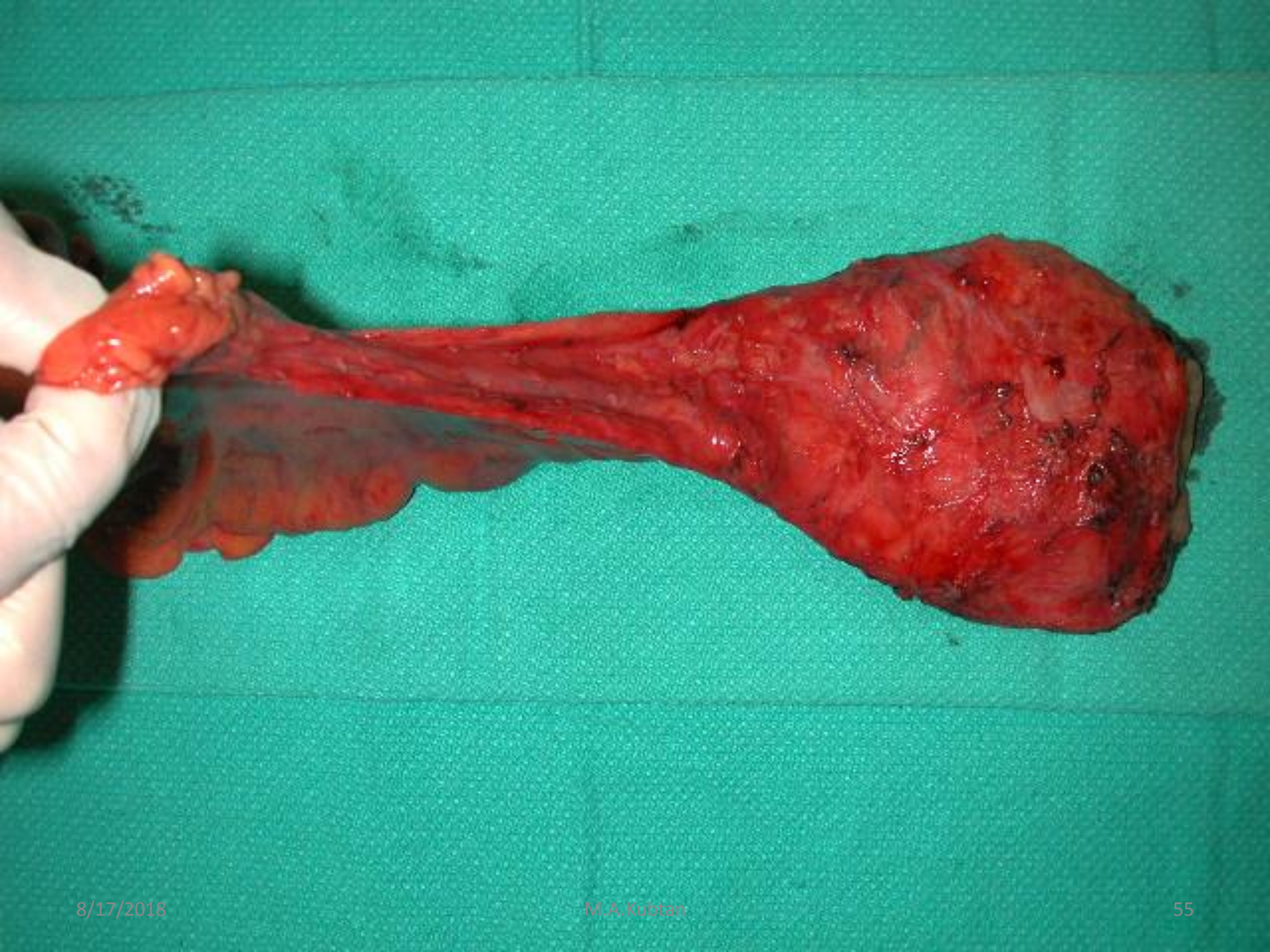
- The intestine is brought out through a hole in the abdominal wall

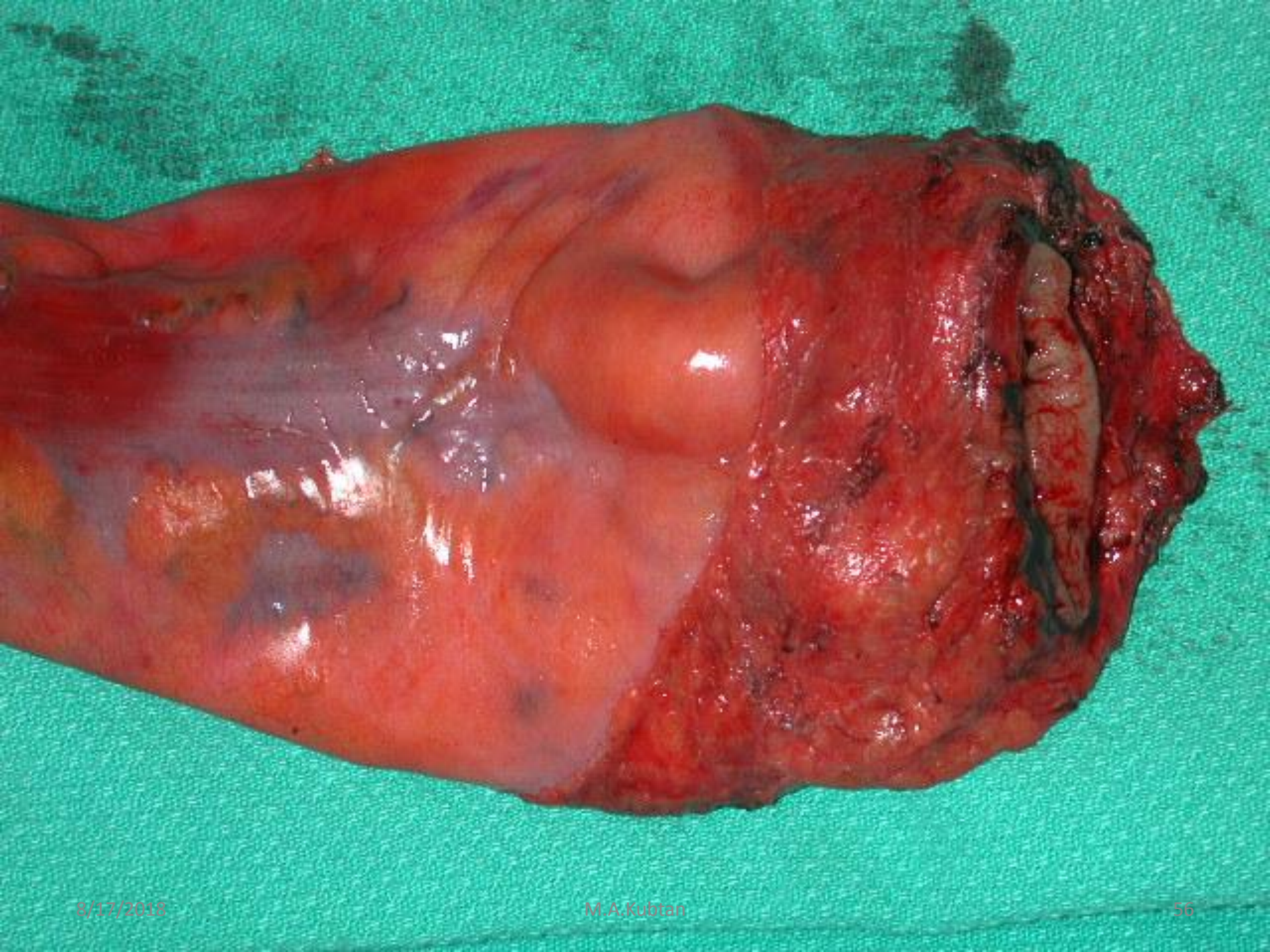
Colostomy ( colon on the skin)

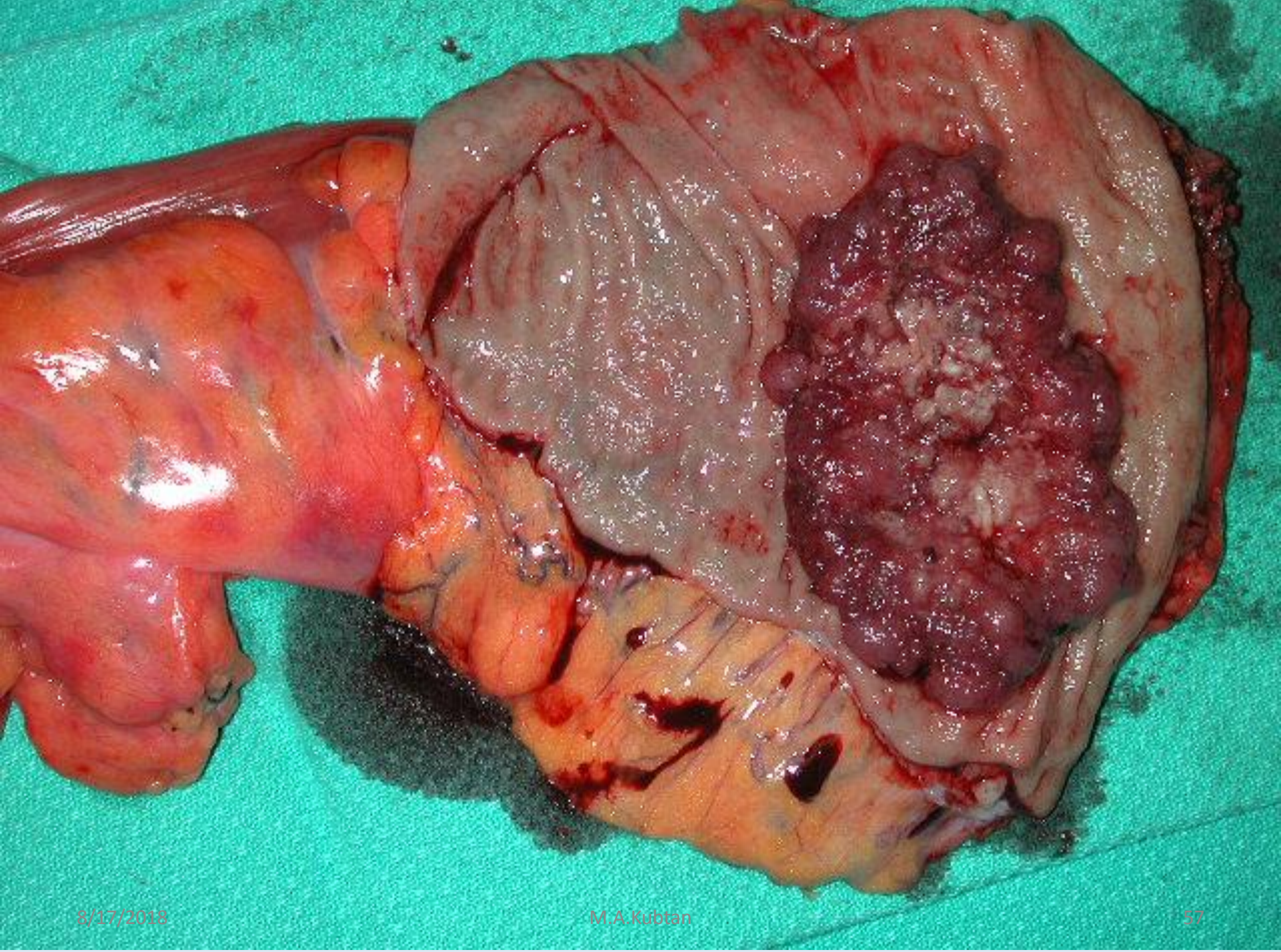
- Permanent  when the rectum is removed
- Temporary when it is unsafe to make a join

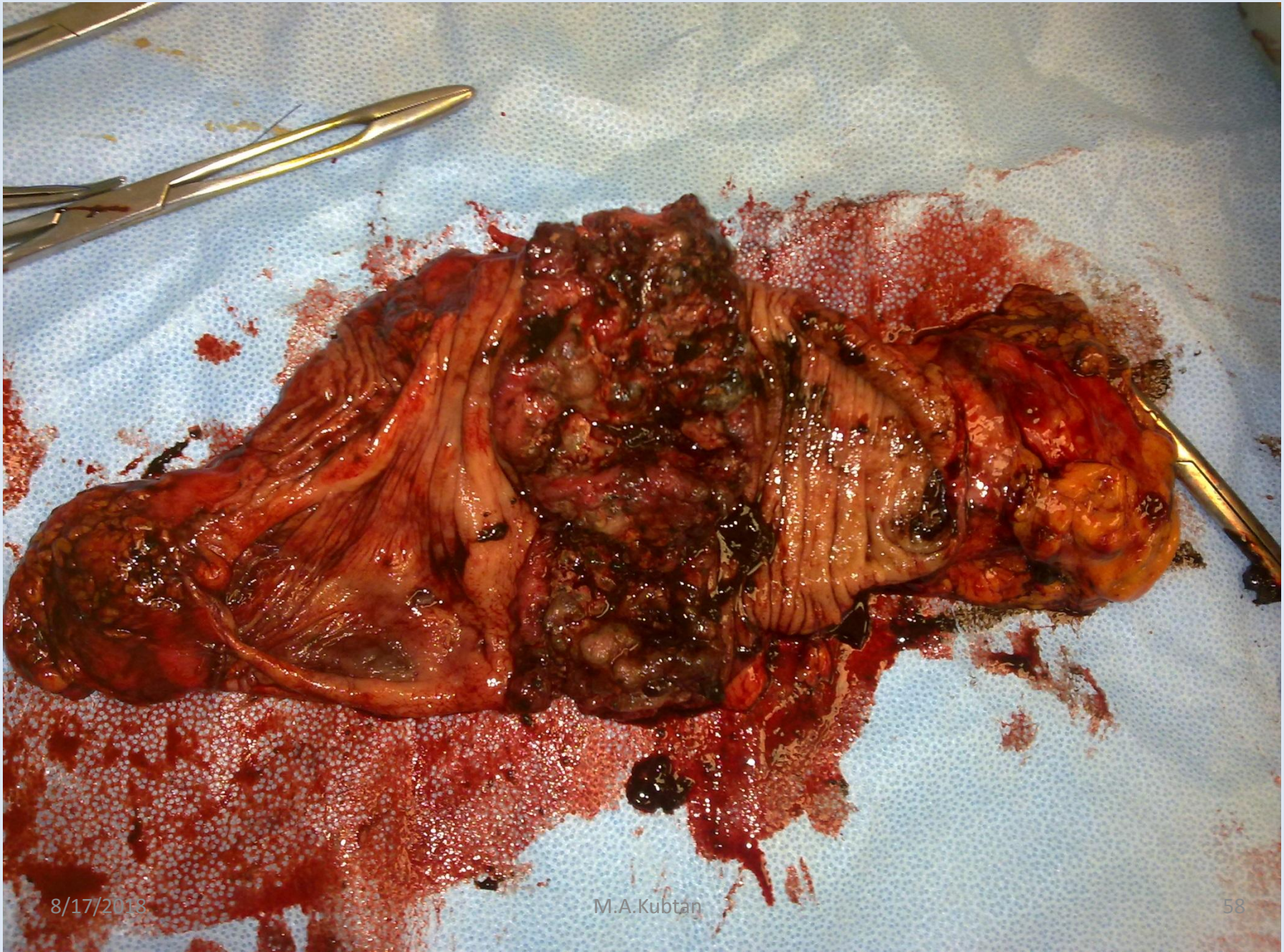
Ileostomy ( ileum on the skin)

- Temporary when the join needs time to heal









# Recovery

- Surgery 2 to 4 hours
- Hospital stay 4 to 10 days
  - IV, urine catheter, compression stockings, intravenous pain killers, blood thinner
  - Discharge when ambulating, eating, bowel function, good pain control
- Recovery 4 weeks

# Follow up

- Office visit every 3 months for two years then every 6 months for 3 years
- Regular blood work (CEA)
- Colonoscopy at year 1 and 4 and every 5 years
- CT scan yearly

# Pathology of Colorectal Cancer

- Macroscopic:
- Microscopic (differentiation):
  - Well
  - Moderately
  - Poorly
- Lymph node involvement

# Staging ( Where is it Growing?)

1. How far into the wall has it grown? T stage

- Tis – invasion of mucosa only
- T1 – Invasion of submucosa
- T2 – Invasion of muscularis propria
- T3 – Full thickness/perirectal fat
- T4 – Invasion into adjacent organs

# Staging ( Where is it Growing?)

2. Is it growing in other places? N stage, M stage

- N1 – 1-3 lymph nodes
- N2 - >4 lymph nodes
- N3 – distant lymph nodes
- M1 – Distant organ ( liver, lung)

# TNM Staging

- Stage 0 – Tis tumors
- Stage 1 – T1 and T2 tumors
- Stage 2 – T3 and T4 tumors
- Stage 3 – Any lymph node involvement
- Stage 4 – Distant metastases

# Who Gets Additional Treatment?

- COLON
  - All stage 3 patients (positive nodes) - chemotherapy
  - ?High risk stage 2 patients

- RECTUM
  - All stage 2 and stage 3 patients should get radiation and chemo

# Survival and TNM Stage

| STAGE | 5-Year Survival |
| --- | --- |
| 1 | 90% |
| 2 | 80%^ |
| 3 | 27-69%* |
| 4 | 8% |

^for T3N0 tumors

*depends on # of nodes involved

# Summary

1. Common Cancer
2. Can be prevented through screening and resection of polyps
3. Surgery is the primary treatment
4. Slow but steady improvement in survival