

MANAGEMENT STRATEGIES FOR ACUTE ABDOMEN

Colonic ischaemia, volvulus and obstruction

Prof. Waleed Omar

Professor of Colorectal Surgery
Mansoura University, Egypt

When managing the acute abdomen, the difficult decision is often not recognising that something is wrong.

The difficult decision is knowing when the window for conservative management has closed.

Today, rather than giving three separate lectures, I want to look at colonic ischaemia, volvulus and intestinal obstruction through one common surgical question:

CAN THIS BOWEL SAFELY WAIT?

Is the bowel threatened?

Three routes to the same surgical endpoint

ISCHAEMIA

perfusion failure

CLOSED LOOP

strangulation

PERFORATION

loss of integrity



PERITONITIS • DETERIORATING PHYSIOLOGY • ORGAN DYSFUNCTION



TIME-CRITICAL DECISION

Observe • Decompress • Reperfuse • Resect

CAN THIS BOWEL SAFELY WAIT?

CT tells me what is happening. The patient tells me when.

THE PATIENT

- Haemodynamics
- Peritonitis
- Trajectory
- Metabolic disturbance
- Organ dysfunction

THE CT

- Transition / closed loop
- Reduced enhancement
- Mesenteric oedema / free fluid
- Pneumatosis
- Free air

THE DECISION

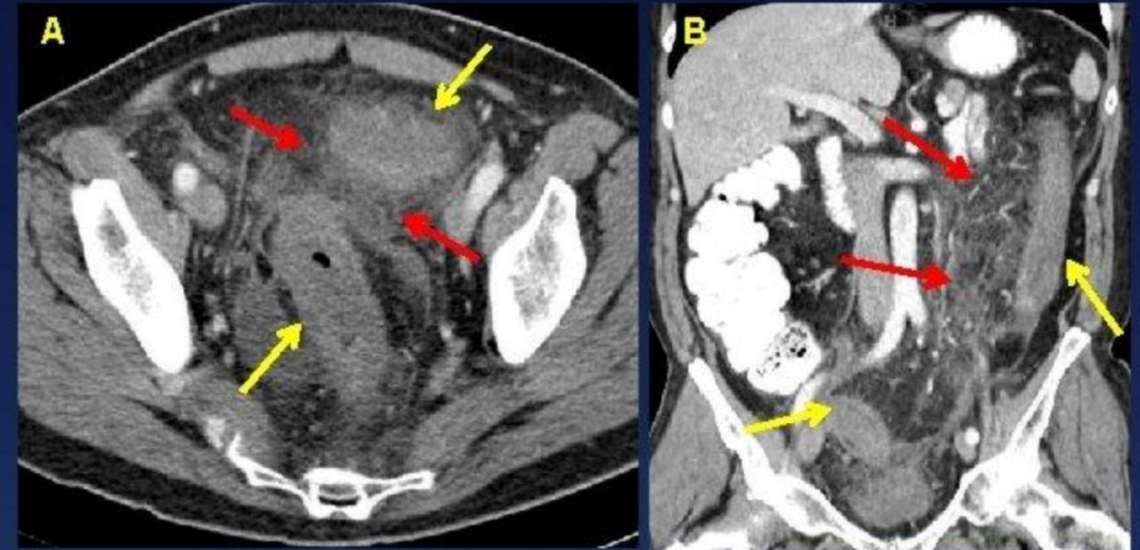
- Can the bowel safely wait?
- Conservative pathway
- Urgent intervention
- Source control

No single laboratory value or radiological sign should be interpreted in isolation.

COLONIC ISCHAEMIA

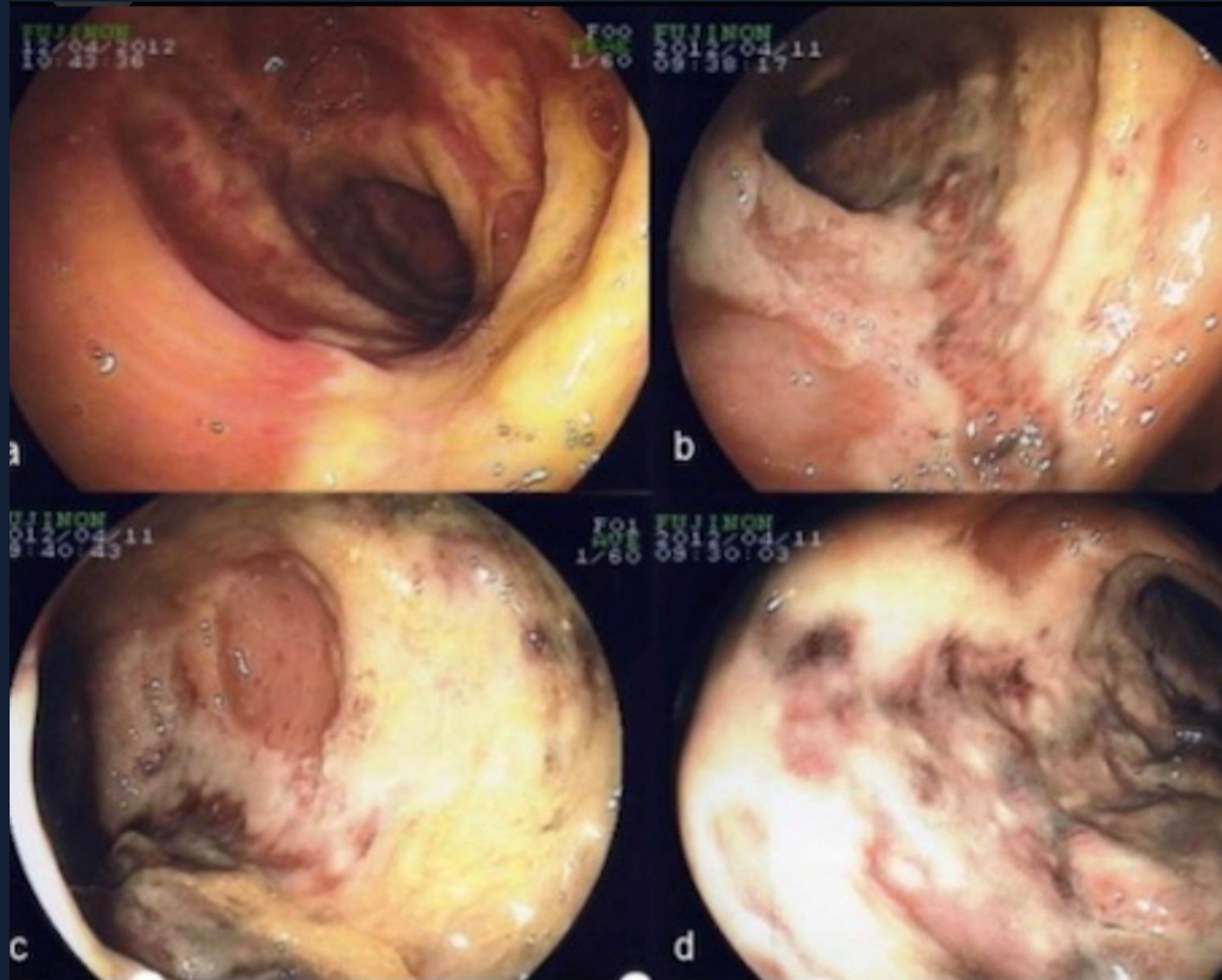
From reversible injury to threatened bowel

Colonic Ischemia– Left Colon



Descending colon ischemic colitis due to pathologically proven mesenteric venoocclusive disease in 53-year-old man. Axial (A) and coronal (B) images from oral and intravenous contrast-enhanced CT show severe descending and sigmoid colon submucosal edema, decreased enhancement and wall thickening (yellow arrows), as well as marked mesenteric inflammation (red arrows).

ENDOSCOPIC APPEARANCE OF COLONIC ISCHAEMIA



Mucosal ischaemic change — interpret with the clinical picture and CT

Colonic ischaemia: when does it become surgical?

REVERSIBLE



Supportive pathway

Stable physiology
No peritonitis
No transmural necrosis
Endoscopic confirmation when appropriate

RISK RISING



Reassess aggressively

Worsening pain / physiology
Right-sided or extensive disease
Metabolic disturbance
Concerning CT / endoscopy

IRREVERSIBLE



Surgical pathway

Peritoneal signs
Gangrene / transmural necrosis
Pneumatosis / portal venous gas*
Deteriorating clinical condition

TRAJECTORY MATTERS MORE THAN A SINGLE MARKER

*Interpret imaging signs in the full clinical context.

Colonic ischaemia: diagnosis and severity

1 SUSPECT

Sudden abdominal pain
± rectal bleeding
Risk factors / low-flow state
Right-sided pain may be higher risk

2 DEFINE

Contrast CT first
Distribution + severity
Look for another cause
CTA if right-sided disease or AMI is a concern

3 CONFIRM

Early colonoscopy in stable patients
Use minimal insufflation
Avoid colonoscopy with peritonitis or gangrene

DIAGNOSIS = CLINICAL PICTURE + CT ± ENDOSCOPY

Colonic ischaemia: who can be treated conservatively?

NO PERITONITIS / NO GANGRENE

- IV fluids and correct the trigger
- Bowel rest
- Review medicines / low-flow causes
- Antibiotics for moderate–severe disease
- Close clinical and laboratory review

WATCH FOR FAILURE

- Increasing pain or tenderness
- New peritoneal signs
- Worsening physiology / organ dysfunction
- Persistent bleeding or ileus
- Progressive CT / endoscopic severity

CONSERVATIVE MANAGEMENT NEEDS ACTIVE REASSESSMENT

Colonic ischaemia: when should the surgeon operate?

CLINICAL

Peritonitis
Haemodynamic deterioration
Sepsis / organ failure
Failure of conservative treatment

IMAGING / ENDOSCOPY

Gangrene / transmural disease
Pneumatosis or portal venous gas*
Perforation
Extensive severe disease

HIGH-RISK PATTERN

Isolated right-colon ischaemia
Pan-colonic disease
No bleeding + severe pain
Concern for acute mesenteric ischaemia

OPERATE FOR THE PATIENT'S TRAJECTORY — NOT FOR ONE MARKER

*Interpret in the full clinical context.

The operation: what are we trying to achieve?

- 1 SOURCE CONTROL** Remove non-viable / perforated bowel
- 2 ASSESS VIABILITY** Define the extent of ischaemia
- 3 PRESERVE BOWEL** Avoid unnecessary resection
- 4 RECONSTRUCT** Anastomosis • Stoma • Damage control / second look

Viable bowel + source control + a reconstruction the patient can tolerate.

SIGMOID VOLVULUS

Obstruction can become a vascular emergency



SIGMOID VOLVULUS — OPERATIVE APPEARANCE



A massively distended, viable sigmoid loop at laparotomy

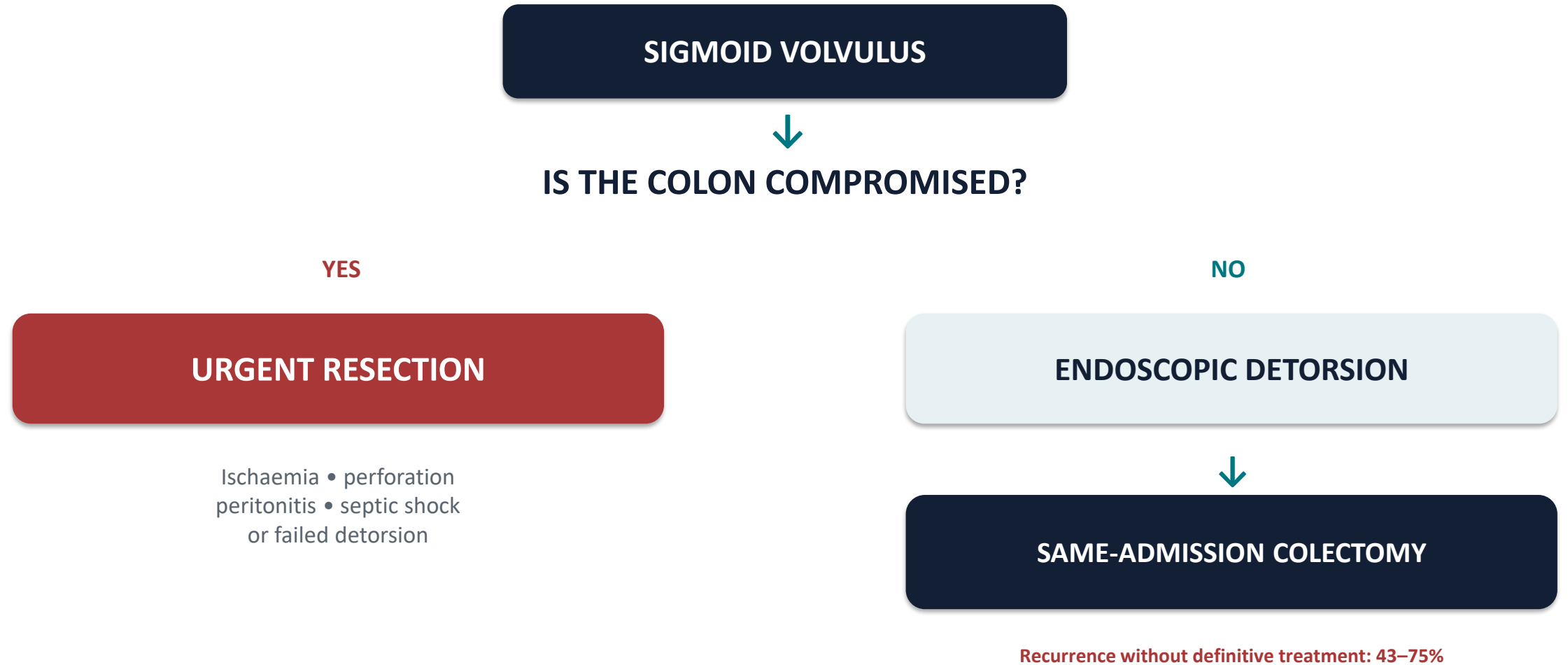
Volvulus: an obstruction that becomes a vascular emergency



The management question is not simply “Can I decompress it?”

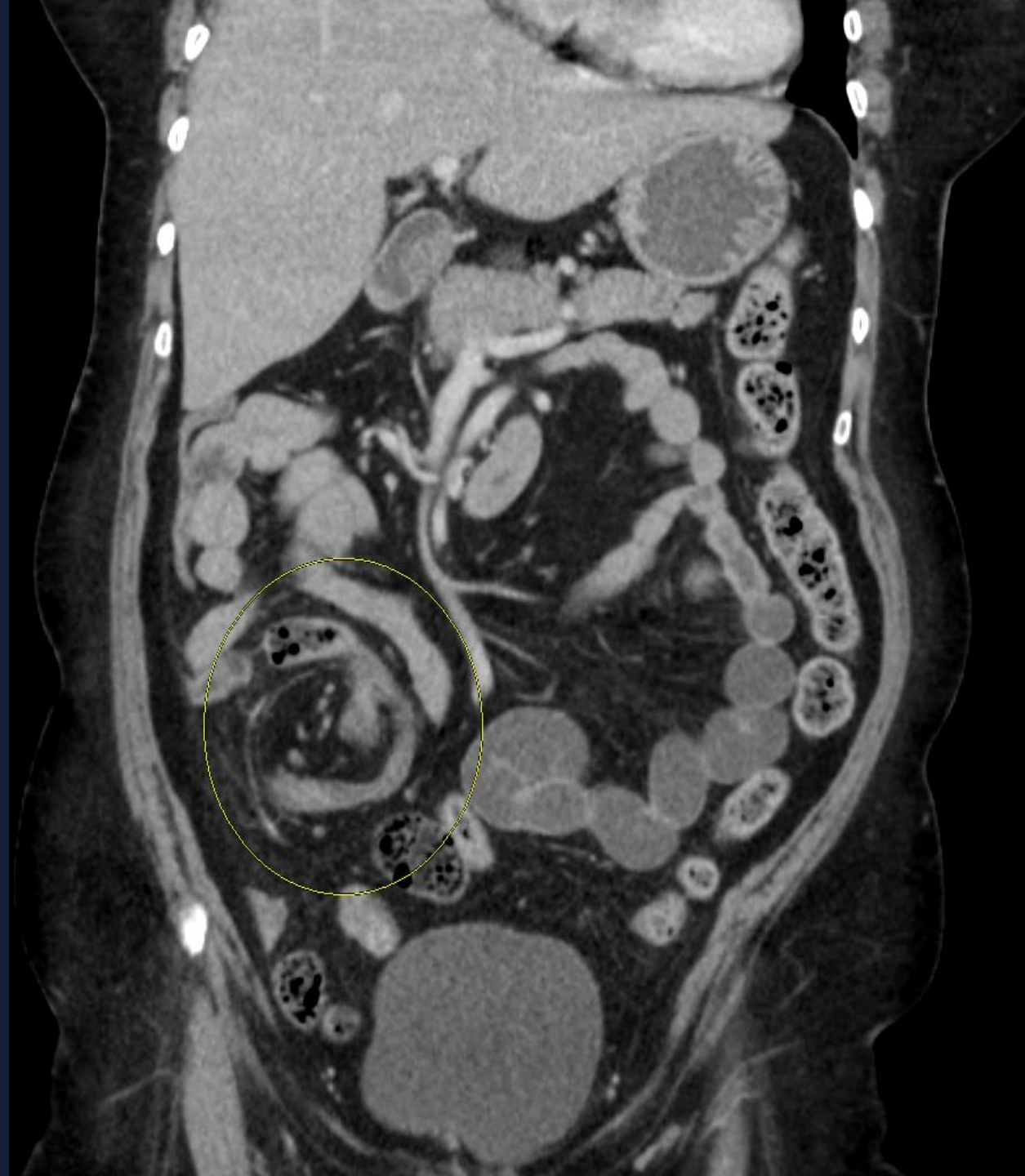
It is: IS THE COLON STILL VIABLE?

Sigmoid volvulus: decompress — then decide

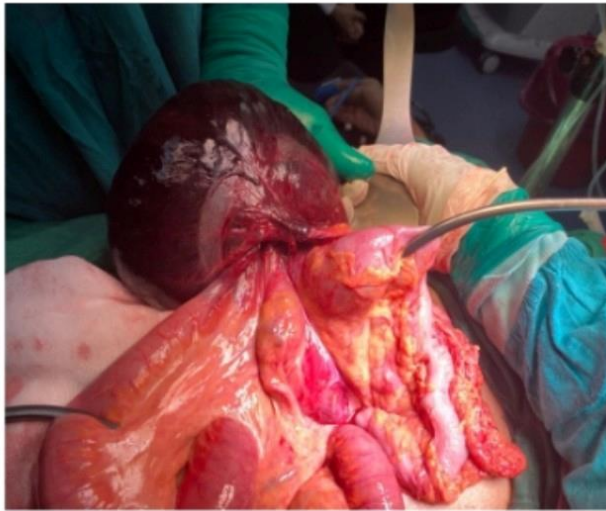
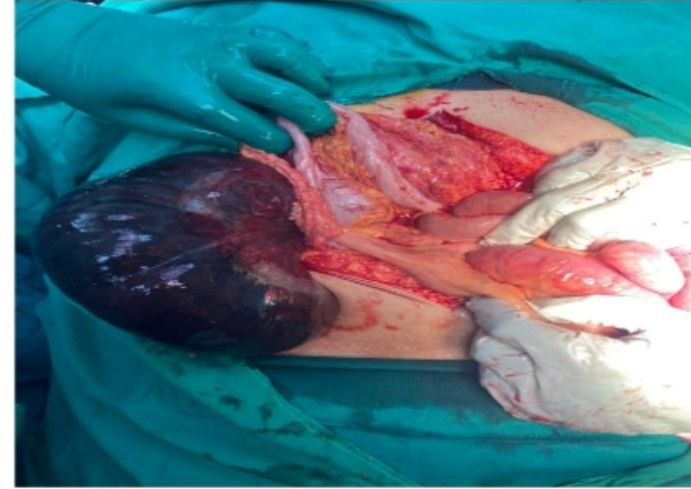


CAECAL VOLVULUS

A different pathway — usually a surgical problem



CAECAL VOLVULUS — OPERATIVE APPEARANCE



Congested / ischaemic caecum demonstrating the vascular consequence of torsion

Caecal volvulus: why the pathway is different

SIGMOID VOLVULUS

Endoscopic detorsion
can be effective initially



Definitive sigmoid colectomy
usually during index admission

CAECAL VOLVULUS

Endoscopic reduction
is generally NOT recommended

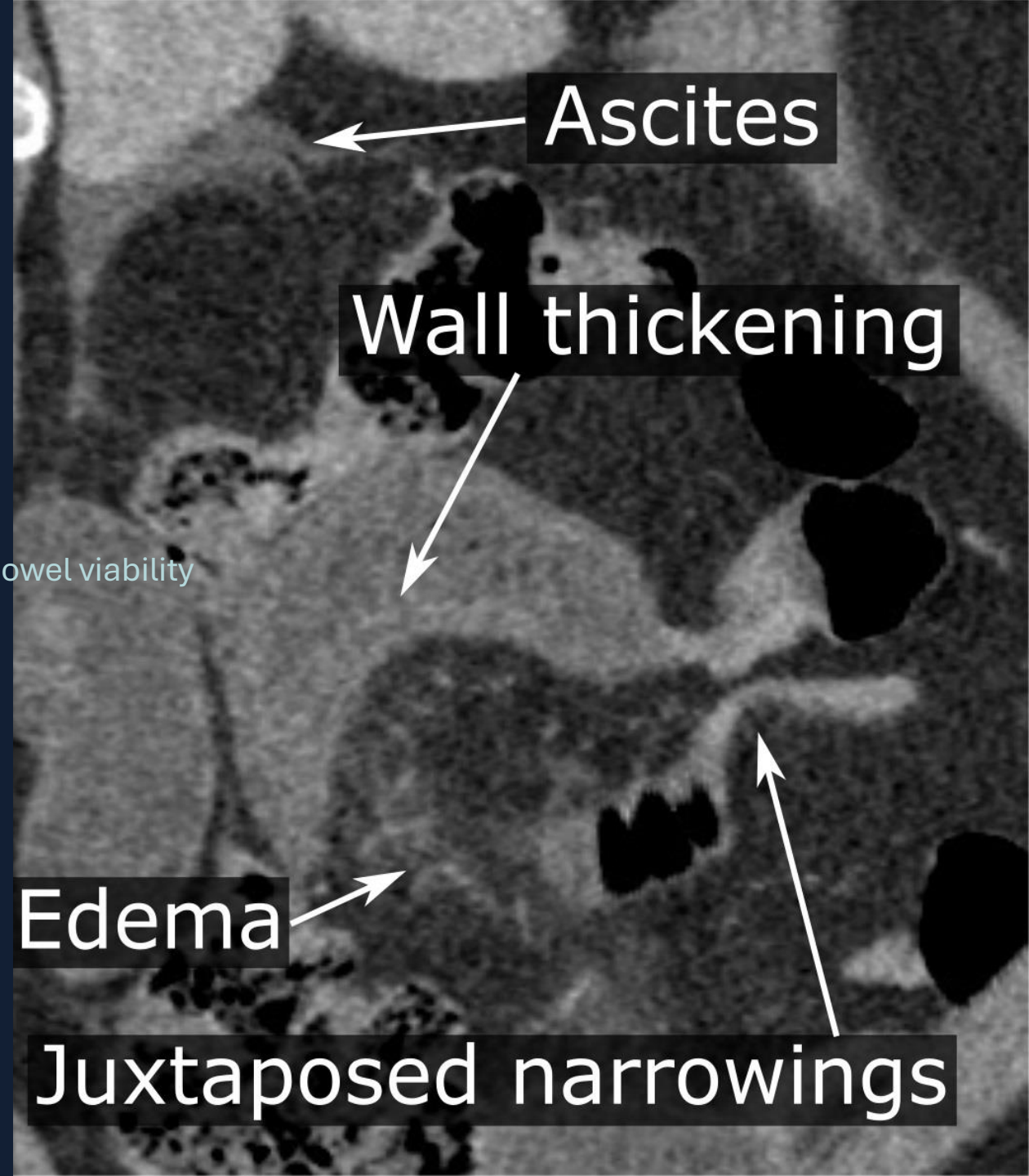


SEGMENTAL RESECTION
preferred treatment

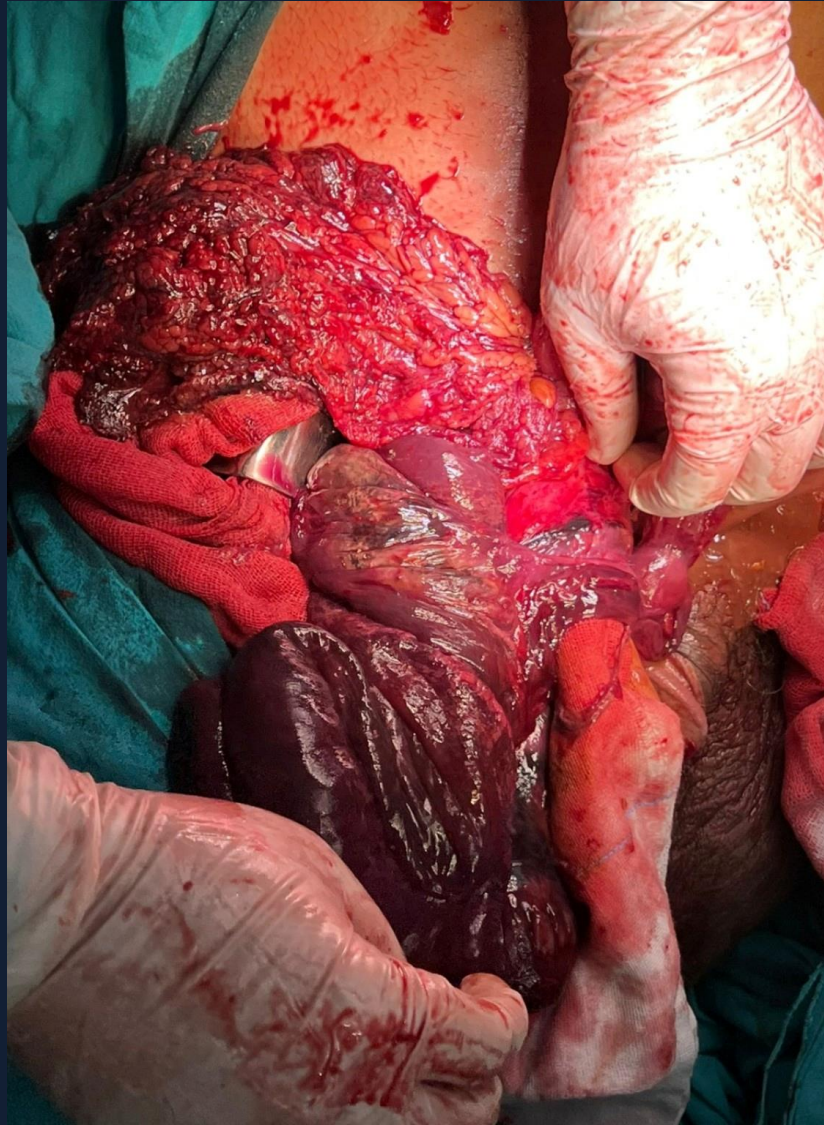
Viability + physiology determine
anastomosis versus stoma.

CLOSED-LOOP OBSTRUCTION

The obstruction pattern that should make us think about bowel viability



CLOSED-LOOP SBO — STRANGULATED BOWEL



The operative consequence of vascular compromise

Adhesive SBO: who gets a conservative trial?

ADHESIVE SBO



PERITONITIS • STRANGULATION • BOWEL ISCHAEMIA?

YES

OPERATIVE PATHWAY

Closed loop
Ischaemic features
Free fluid in context
Clinical deterioration

NO

ACTIVE NON-OPERATIVE TRIAL

NPO + resuscitation
Decompression as appropriate
Water-soluble contrast pathway
Serial reassessment

CONSERVATIVE ≠ PASSIVE WAITING

When has conservative management failed?

72 hours is a framework — not a stopwatch.

DETERIORATION

New peritonism • worsening physiology • organ dysfunction

THREATENED BOWEL

Closed loop • ischaemic CT features • free fluid in context

NO PROGRESSION

Contrast fails to reach colon at 24 h → predicts failure of NOM

TIME

In uncomplicated ASBO, a 72-h trial is generally considered safe

REASSESS THE OPERATIVE THRESHOLD

Malignant colonic obstruction: first decisions

**CT-CONFIRMED MALIGNANT
OBSTRUCTION**



PERFORATION • PERITONITIS • ISCHAEMIA • UNSTABLE?

YES

EMERGENCY SURGERY

Resuscitate
Control sepsis / threatened bowel
Oncologic resection where feasible

NO

DEFINE INTENT + SITE

Right vs left colon
Curative vs palliative
Surgical risk + local stent expertise

Malignant obstruction: right colon vs left colon

RIGHT-SIDED OBSTRUCTION

**RIGHT COLECTOMY + PRIMARY
ANASTOMOSIS**

Preferred when the patient and bowel are suitable.

If anastomosis is unsafe: resection with diversion is an option.

LEFT-SIDED OBSTRUCTION

RESECTION / STENT / DIVERSION

Choice depends on physiology, tumour stage, curative intent and expertise.

Primary anastomosis is reasonable in selected stable patients.

THE EMERGENCY PLAN MUST STILL RESPECT ONCOLOGIC PRINCIPLES

Left-sided malignant obstruction: where does a stent fit?

CURATIVE INTENT

PALLIATION

NOT SUITABLE FOR SEMS

MS can be discussed as a bridge to elective surgery in carefully selected patients. SEMS is generally preferred for palliation when there is no perforation and expertise is available.

Balance short-term benefit against oncologic considerations.

Perforation
Unstable / threatened bowel
Technical or anatomical limitations
No experienced operator

STENTING IS A PATIENT-SELECTION DECISION — NOT A DEFAULT

After resection: what reconstruction can this patient tolerate?

FAVOURABLE

PRIMARY ANASTOMOSIS

Stable physiology
Healthy bowel ends
Limited contamination
Acceptable leak consequence

HIGH RISK

STOMA

Poor bowel quality
Sepsis / acidosis
Major comorbidity / frailty
High consequence of leak

PROFOUNDLY UNWELL

DAMAGE CONTROL

Severe derangement
Uncertain viability
Ongoing resuscitation
Planned second look

MATCH THE OPERATION TO THE PHYSIOLOGY — NOT JUST THE ANATOMY

The difficult patient: would you wait?

82 YEARS OLD

HR	118
BP	94/58
LACTATE	3.8 mmol/L
CT	Closed-loop SBO
BOWEL	Reduced enhancement + free fluid

**WOULD YOU GIVE
THIS PATIENT MORE TIME?**



THREATENED-BOWEL PATTERN

Resuscitation and operative source control
should proceed in parallel.

CAN THIS BOWEL SAFELY WAIT?

Five messages to take back to the emergency theatre

- Resuscitation and diagnosis happen simultaneously.
- CT defines anatomy; physiology and trajectory define urgency.
- Closed-loop obstruction requires active assessment for threatened bowel.
- Successful volvulus decompression is usually a bridge to definitive management — not the endpoint.
- When bowel viability is threatened, avoid therapeutic delay.

CAN THIS BOWEL SAFELY WAIT?

THANK YOU

Can this bowel safely wait?

Prof. Waleed Omar | Mansoura University, Egypt