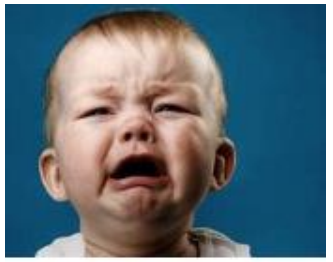
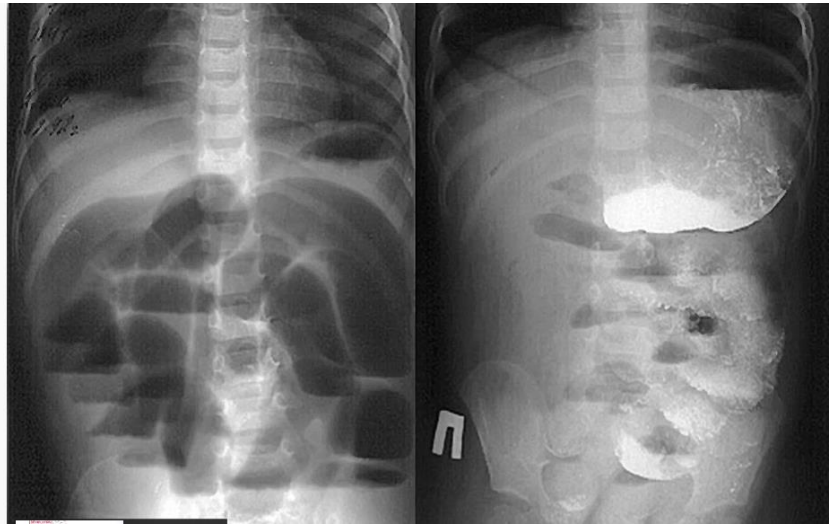
生病的故事(3)



PGY and NP必修課程 (2025)

Intestinal Obstruction

Causes and assessment

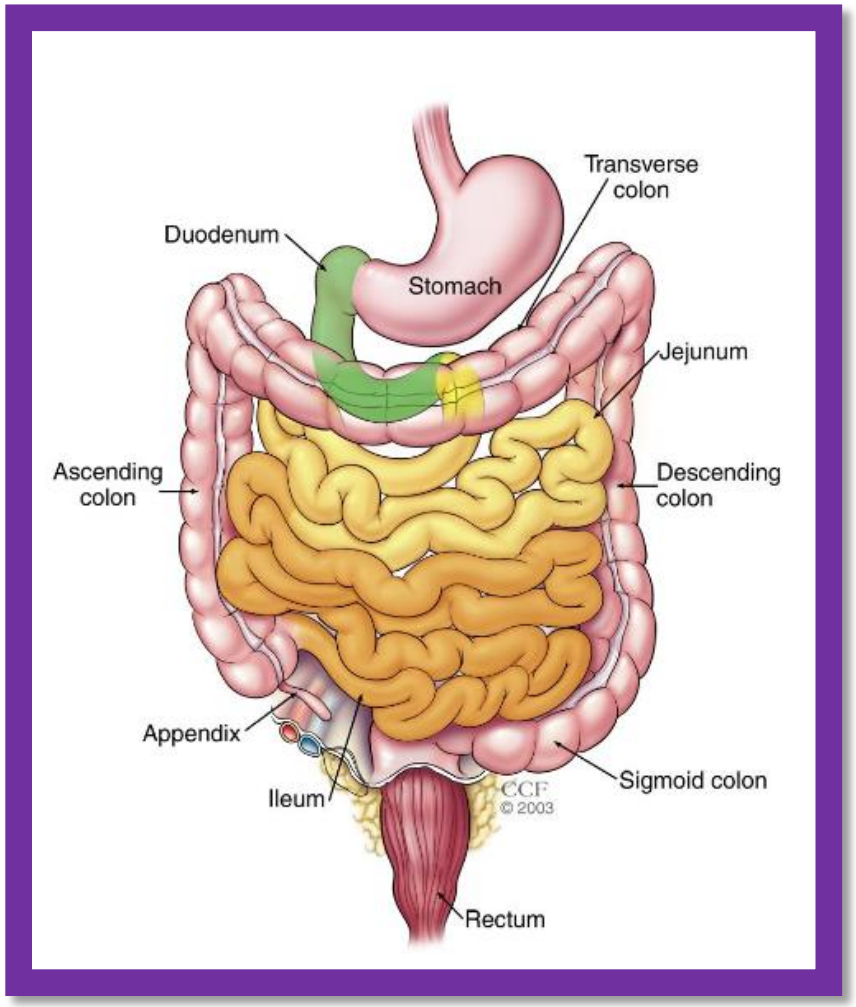


Cheng-Yi WANG

2025.11.14

病人之照顧-
patient-centered care
及時的處置

Problems in the Gi Tract



- **Obstruction after prolonged constipation**
- Bleeding, due to ulcer, necrosis and tumors
- Neoplastic change– cancer and benign
- Ischemic change—edema, erosion, ulcers and necrosis
- Perforation
- Inflammation and infection. UC, CD, CMV colitis, amebic, Tbc.----
- Dysfunction—paralytic,
- ---

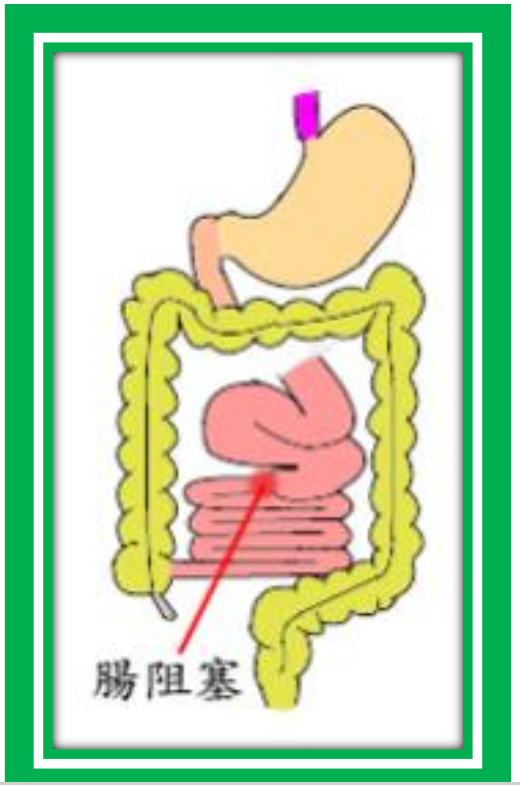
腸阻塞、腸道不通→無排便、腸脹、腹絞痛

Definition

Bowel obstruction occurs when the normal propulsion and passage of intestinal contents does not occur.

Intestinal obstruction

Mechanical obstruction **Paralytic Ileus**



Small bowel
Large bowel,
Both, general

Strangulated ileus
Necrosis-ulcer and bleeding
Peroration-peritonitis
Sepsis
Death,

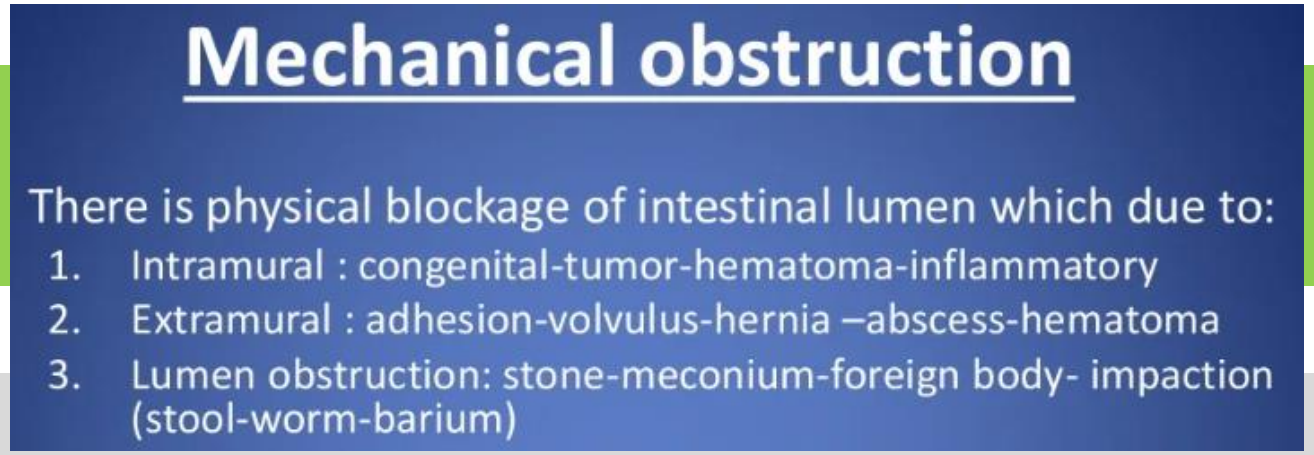
無排便、
腸脹大->腹脹不適
腹絞痛(想要排解開)

Dynamic
Adynamic

從平常的症狀、便秘發展到危及生命的腸梗塞只要5天.

- 便秘結,是常見的普通的問題.-→
- 腹部脹
- 疼痛、就醫-→ 腸阻塞
- 未改善3天後Fever > 38 degrees
- WBC : increased to 15,000 or more
- CRP became abnormal >12
- Abdominal distension : much increased
- Bowel sound: increased then reduced the absent
- Abdominal tenderness and rebound .→ peritonitis, peroration due to necrosis of bowel..

原因:多項



- 原因:多項
- 1.腸子蠕動延緩,用藥麻醉 sedatives, anticholinergic
- 2.腸子不通暢:much feces, tumor, inflammatory stricture, operative
- problems. **Gall stone ileus**.
- 3. External compression,
- 4. Intussusception.
- 5. Hernia and volvulus,
- 6, General weakness, Others.
- 7. Post-op. adhesion ileus

ACUTE OBSTRUCTION :

- IT USUALLY OCCUR IN SMALL BOWEL OBSTRUCTION WITH SUDDEN ONSET OF SEVERE COLICKY CENTRAL ABDOMINAL PAIN,DISTENTION AND EARLY VOMITING AND CONSTIPATION.

Sudden onset
Colic pain, midline pain
Abdominal distension,
Small bowel lesion?

https://www.slideshare.net › syedubaid4
Access on 2022.09.30

- Gradually, 逐步發生
- Lower abdominal DISCOMFORT (+)
- COLIC Nature.
- Associated with constipation.
- Abdominal distension(+)

Clinical progress

- 1. Mechanical
- 2. -→colic pain
- 3.--→ Constipation (large bowel)
- 4. Abdominal distension.,
- 5. Bowel lumen obstructed.
- 6. Strangulation—ischemic change-→erosion, ulcer, bleeding
- → necrosis, perforation.

思考原因。由遠而近

- 1.由外而內 adhesion ileus,
- external compression.
- volvulus. 腸扭結
- hernia
- 腸壁上的變化**intramural origin**-Polyp, tumor (cancer)
- Stricture (due to inflammatory change.—Crohn’s disease
- 腸內腔之變化 -feces-(fecal mass,) Stone (gall stone ileus)-
- 腸套疊

症狀之演變

- 便祕-----→腹脹----→腹部绞痛----→肚子膨大--→

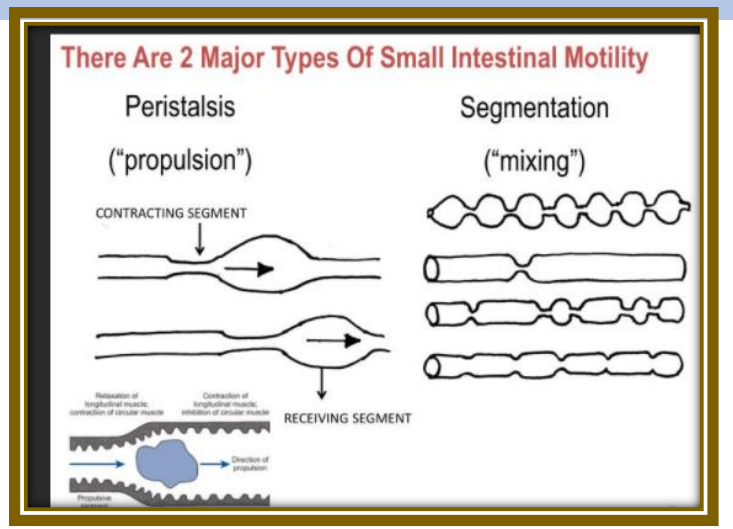
- Causes: 運動量減少, sedative 加量,排便乏力
- 減少fiber
- 減少水分
- 高脂肪食物增加
- Depression,不想動
- 血中Sodium減少(<130) 鉀減少< 3.0 M Eq/L.)
- Drug related _Imodium, anticholinergics.

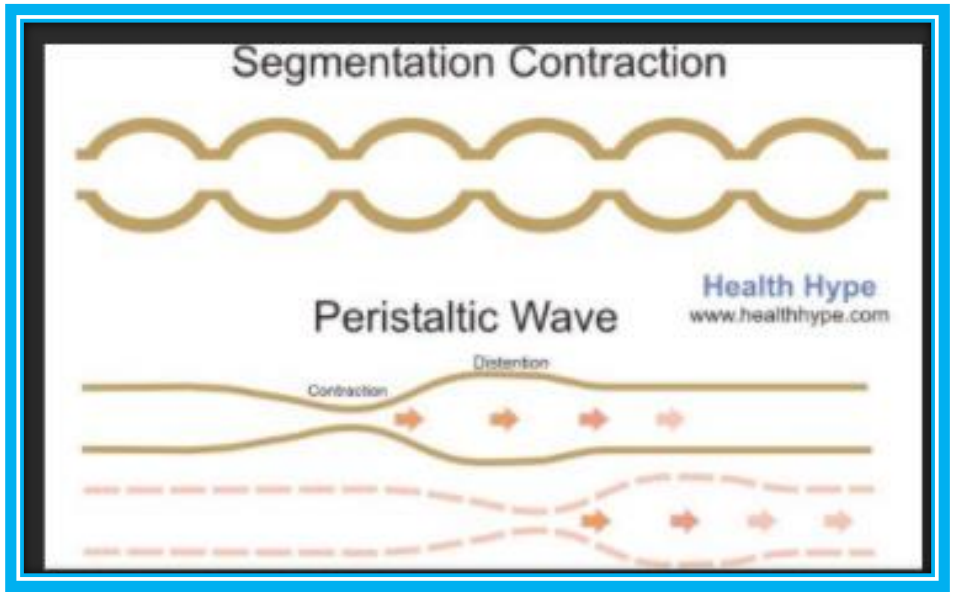
Colon motility and constipation

- 大腸運動(Motility in Colon)
- 1.大腸前半段吸收水分及電解質
  後半段儲存大便直到排出為止.
- 2.Segmentation (結腸袋運動
- haustration)：主要功能為混合，主要於升結腸(ascending colon)類似小腸的分節運動，但比較慢，盲腸至橫結腸時間約 8~15小時

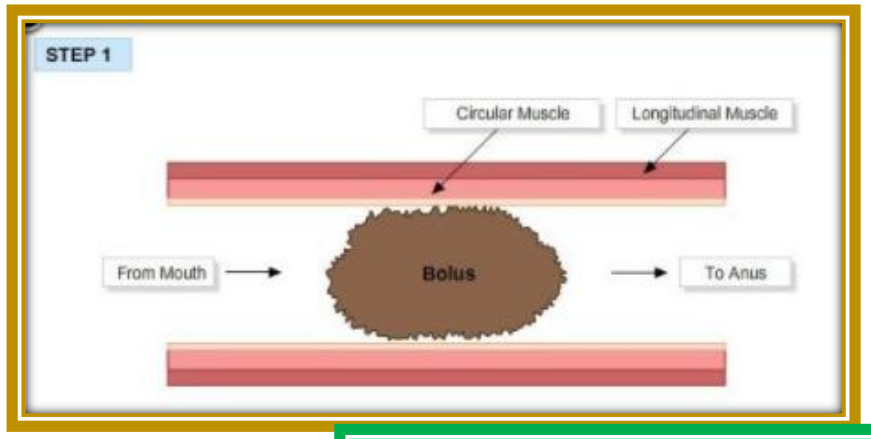
3. mass movement：主要功能為推進，作用於橫結腸(transverse colon)和乙狀結腸(sigmoid colon),一次以一大段約20公分的結腸同時收縮，將大便往下推至直腸，收縮一次完成到下一次約2~3分鐘.

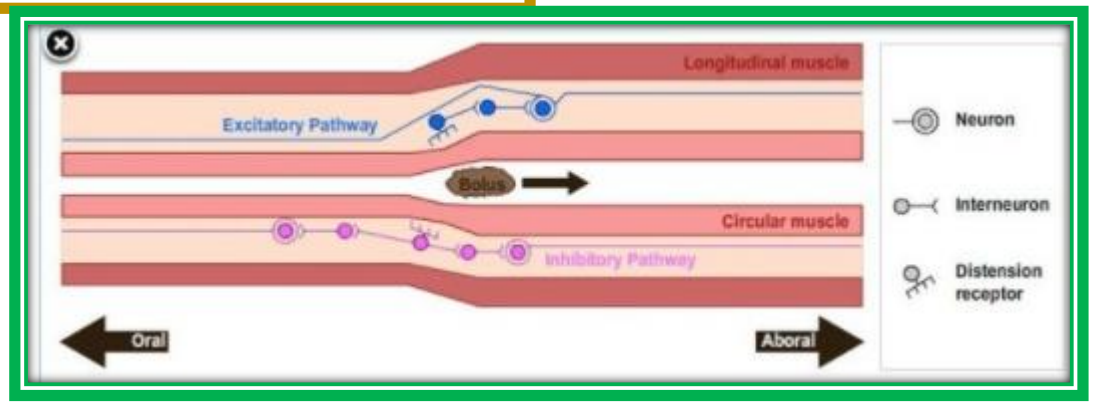
4. Defecation：



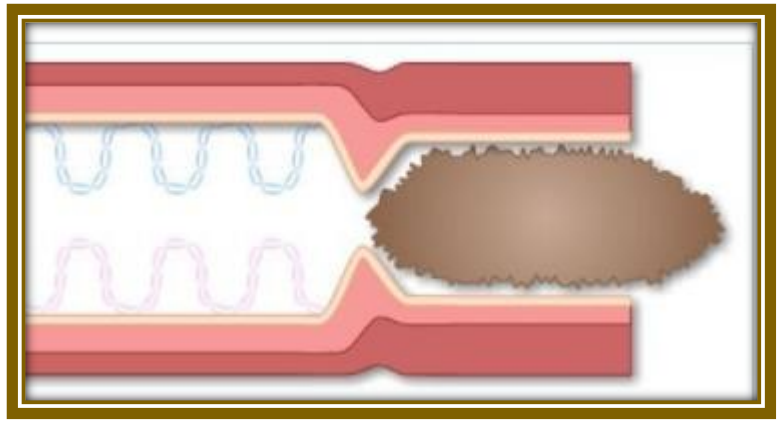


Intestinal movement





[Simulates Experiments Performed on an Isolated Preparation of Rat Colon](msmedia.com.au) msmedia.com.au, 2020.12.19.



Haripriya Uppala
, Tutor in Department of Pharmacology at Sri Venkateswara Medical Colleg

Colonic Motility

- Exhibits circadian rhythm
  - Decreased activity at night
  - Increase in activity after waking and after meals (HAPCs)
- Regional differences in pressure activity
  - Transverse and descending have more activity during the day
  - Rectosigmoid most active at night
  - Women have less activity in transverse and descending colon
- Stress influences function
  - Induces prolonged propagated contractions

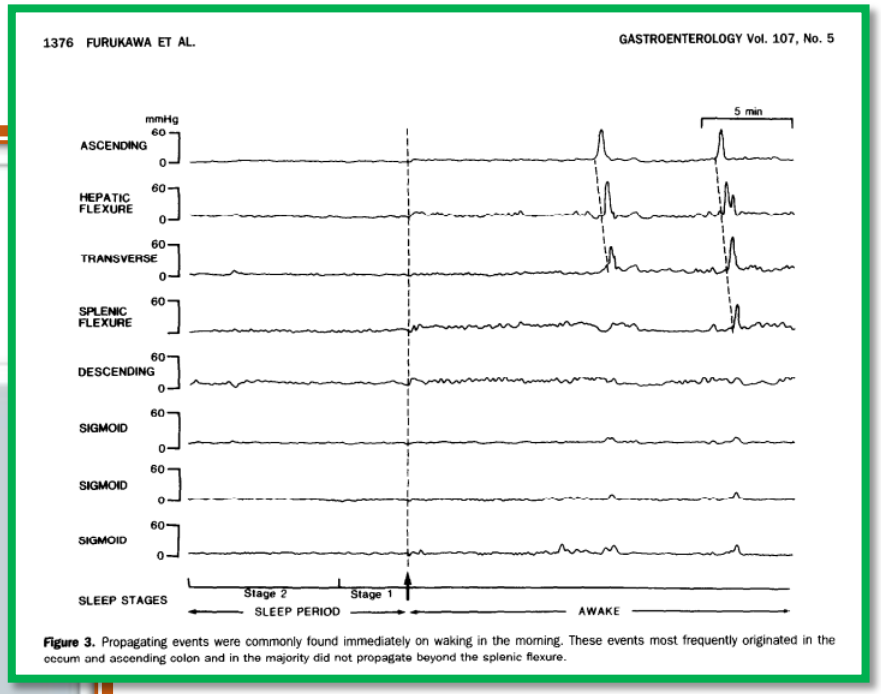


Figure 3. Propagating events were commonly found immediately on waking in the morning. These events most frequently originated in the cecum and ascending colon and in the majority did not propagate beyond the splenic flexure.

L486, Clinical Trial

Gastroenterology . 1994 Nov;107(5):1372-81.
doi: 10.1016/0016-5085(94)90539-8.

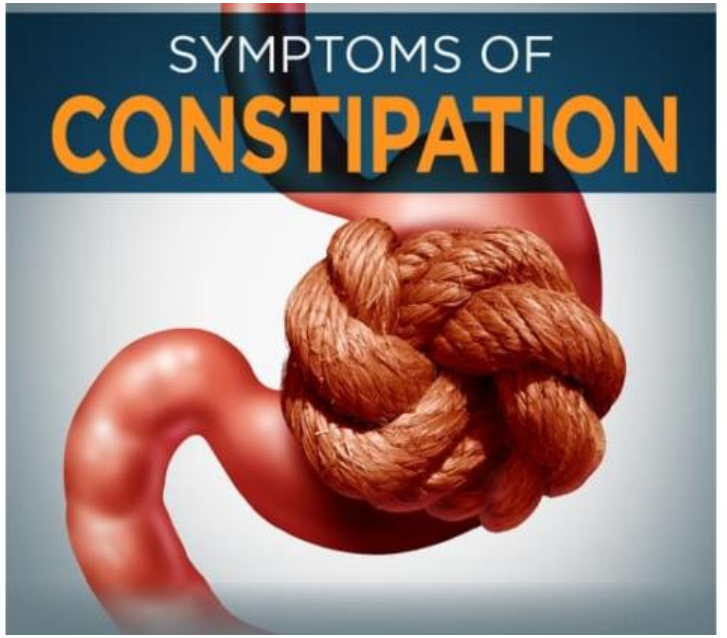
Relationship between sleep patterns and human colonic motor patterns

Y Furukawa [1], I J Cook, V Panagopoulos, et al

Constipation : two bowel movements or less per week.

- Constipation can be most often defined as having three or fewer bowel movements per week. Not everyone has the same schedule when it comes to their colon and passing waste. Some people go once a day, some three times a day, and then others only three times a week. However, passing stool less than three times a week has become the universal number among medical professionals qualifying a mild case of constipation.
- Normal Bowel passages : 3 times a day ~once/3 days.

Constipation Symptoms



- Less than three bowel movements per week
- Difficult and maybe painful passing of stool
- Hard or lumpy stool
- The feeling of still having to "go" after a bowel movement
- A feeling of blockage in the rectum
- **The need of assistance** to produce a bowel movement by massaging the abdomen
- **Lower abdomen discomfort** and bloating
- Rectal bleeding caused by hard and/or difficult bowel movements

Constipation Causes

- Sudden dietary changes,. Lack of fiber
- Dehydration
- Stress, Lack of activity and movement
- Overuse of laxatives
- Some medications (narcotics, antidepressants and iron pills being the most common)
- Pregnancy
- Irritable bowl syndrome
- Eating disorders
- An under active thyroid and other hormonal disorders
- Blockages in the rectum or colon (usually involving colon cancer)
- Neurological problems (Parkinson's, multiple sclerosis, spinal/neck injuries)

Constipation Treatment

- The easiest way to remedy constipation is through the pursuit of a healthy and consistent lifestyle. When eating whole foods and being active, you allow your body to function properly. Still, sometimes stress or underlying conditions can complicate and bind up our bowels. It is important to know ways to combat constipation in the early stages to avoid a chronic case.
- If you are suffering from a mild case of constipation, you will likely be able to solve the problem yourself.

Natural laxatives, stool **softener**s

- Some natural laxatives to keep in mind:
- Apples
- Chia seed奇亞籽
- Citrus fruits柑橘類
- Flaxseeds亞蘇子
- Kiwis
- Oat bran
- Prune juice
- Rhubarb大黃根

- The more commonly recommended natural stool softeners include dried prunes, **leafy greens and apples.** All fruits and vegetables are high in dietary fiber necessary for a healthy, regular digestive tract.

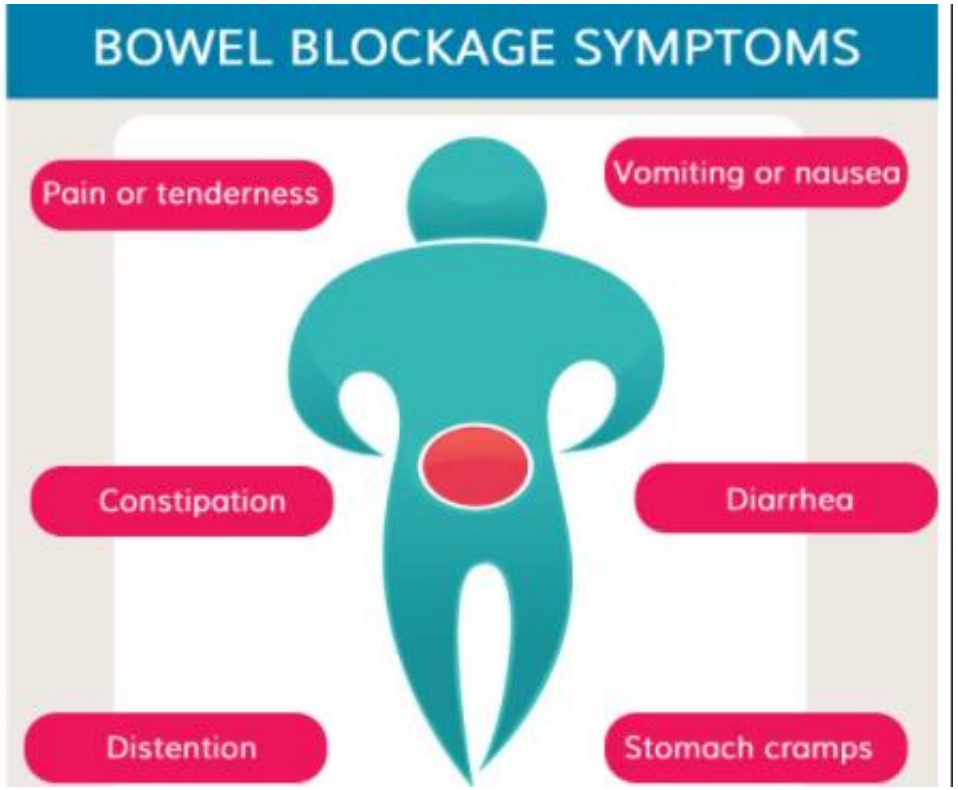
不要靠瀉藥

- Despite the commonality of constipation, it is a completely preventable disorder in most cases. There are certain things that can make individuals more susceptible to constipation. But with the help of a healthy diet and an active lifestyle, you may not have to experience it again, if at all. Keep in mind that you should always consult a trusted medical professional when altering your dietary lifestyle, especially if you’ re adding supplements.

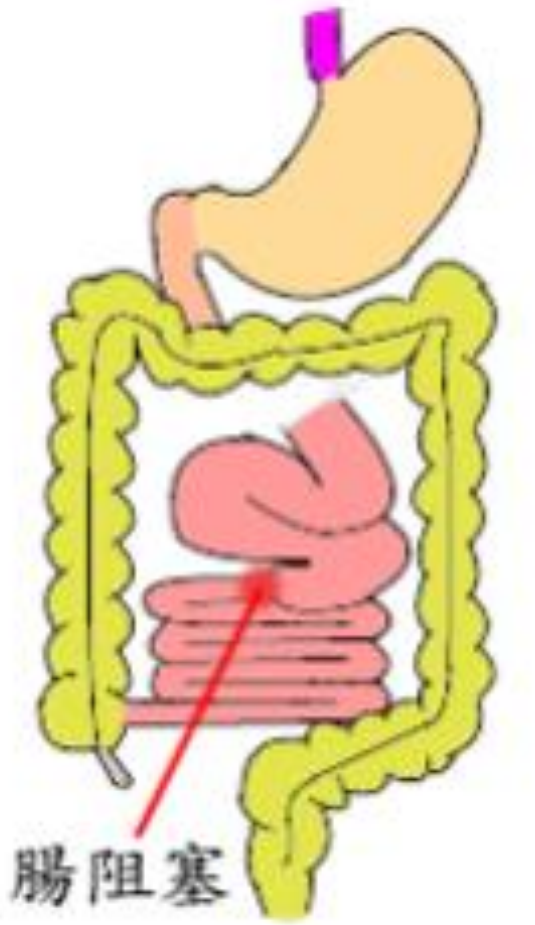
- @@Diet, healthy diet
- @@Active life styles
  @@Exercise
- @@Water intake, adequate
- @@No sedatives or sleeping pills.
- Medications by professional physicians.

Intestinal obstruction

- Digested wastes are constantly in motion. However, intestinal obstruction can put a stop to this. An intestinal obstruction occurs when your small or large intestine is blocked.
- The blockage can be partial or total, and it prevents passage of fluids and digested food.
- **If intestinal obstruction happens, food, fluids, gastric acids, and gas build up behind the site of the blockage.** If enough pressure builds up, your intestine can rupture, leaking harmful intestinal contents and bacteria into your abdominal cavity. This is a life-threatening complication.



Ileus=intestinal obstruction



腸（大,或小腸).
內容物增加

↓

腸子脹大,
腸壁加強收縮

↓

腸壁腫脹 edema,
Ischemic change

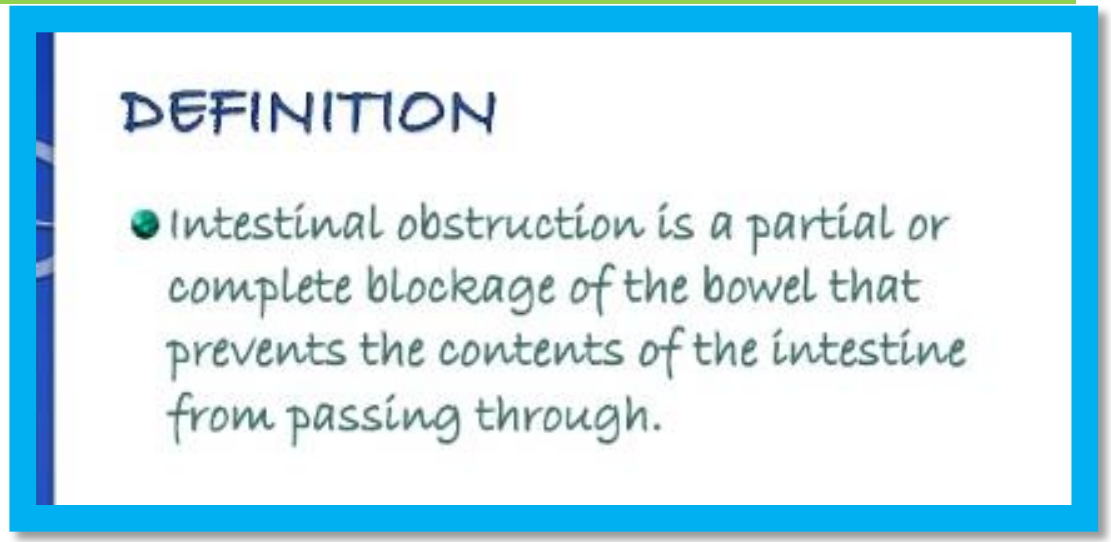
↓

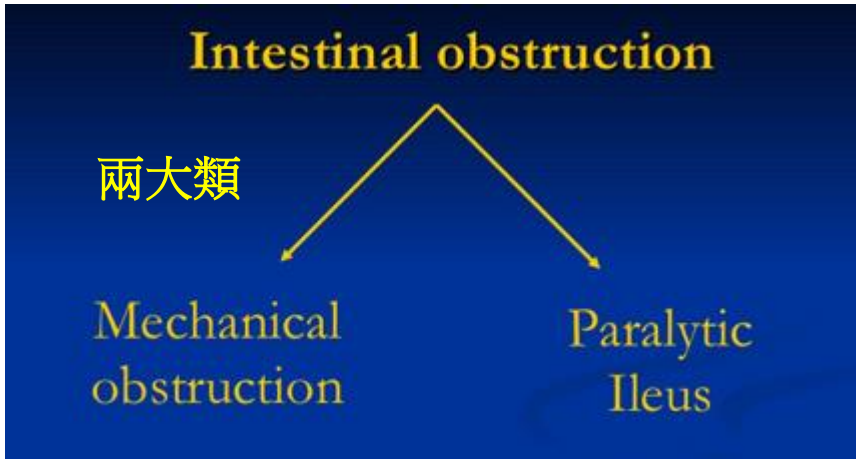
腸壁糜爛erosion,
Ulcer, necrosis,
perforation.--→
peritonitis

- 腸阻塞造成腸子的內容物無法正常的通過消化道，臨床上常見的症狀表現：
- **腹部絞痛**
- 噁心嘔吐
- 腹脹
- 便秘或無排氣、等症狀來表現。

Symptoms of intestinal obstruction: partial or complete

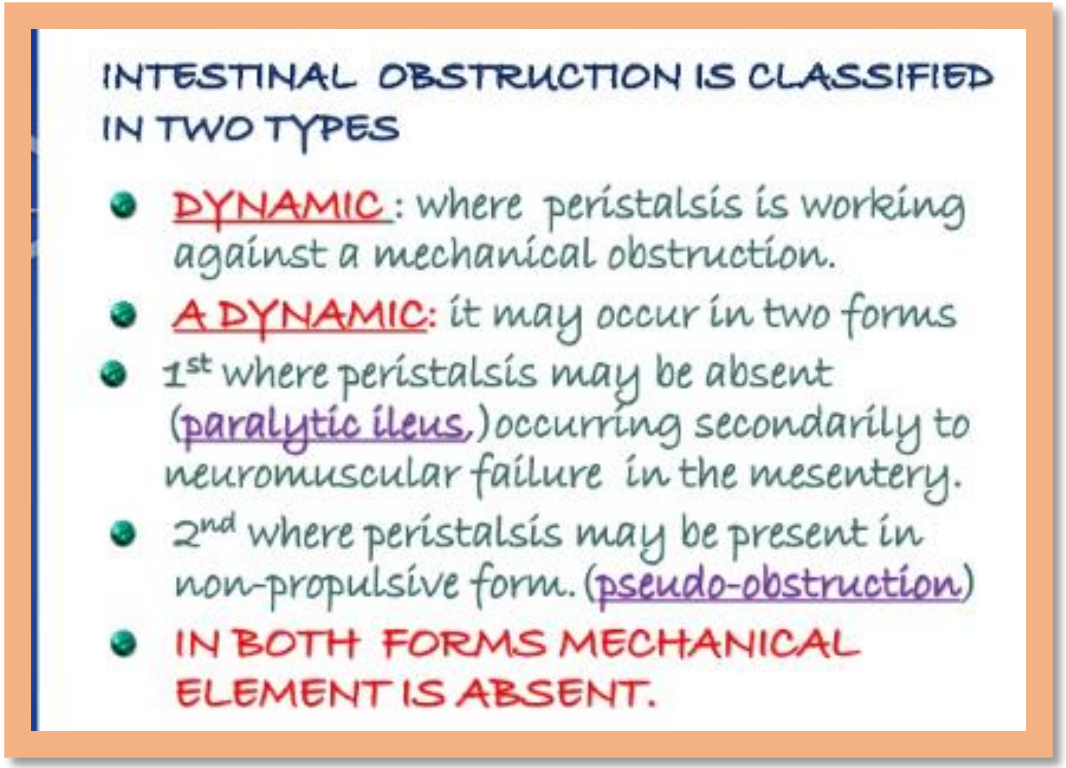
- severe bloating
- abdominal pain
- **@ decreased appetite**
- nausea
- vomiting
- inability to pass gas or stool
- **@constipation**
- @@ diarrhea
- severe abdominal cramps
- abdominal swelling





Types of intestinal obstruction

- **Mechanical obstructions**
  - adhesions, which consist of fibrous tissue that can develop after any abdominal or pelvic surgery or after severe inflammation
  - volvulus, or twisting of the intestines
  - intussusception, a “telescoping,” or pushing, of one segment of intestine into the next section
  - malformations of the intestine, often in newborns, but can also occur in children and teens
  - tumors within your small intestine
  - gallstones, although they rarely cause obstructions
  - swallowed objects, especially in children
  - hernias, which involve a portion of your intestine protruding outside of your body or into another part of your body
  - inflammatory bowel disease, such as Crohn’s disease
  - ------



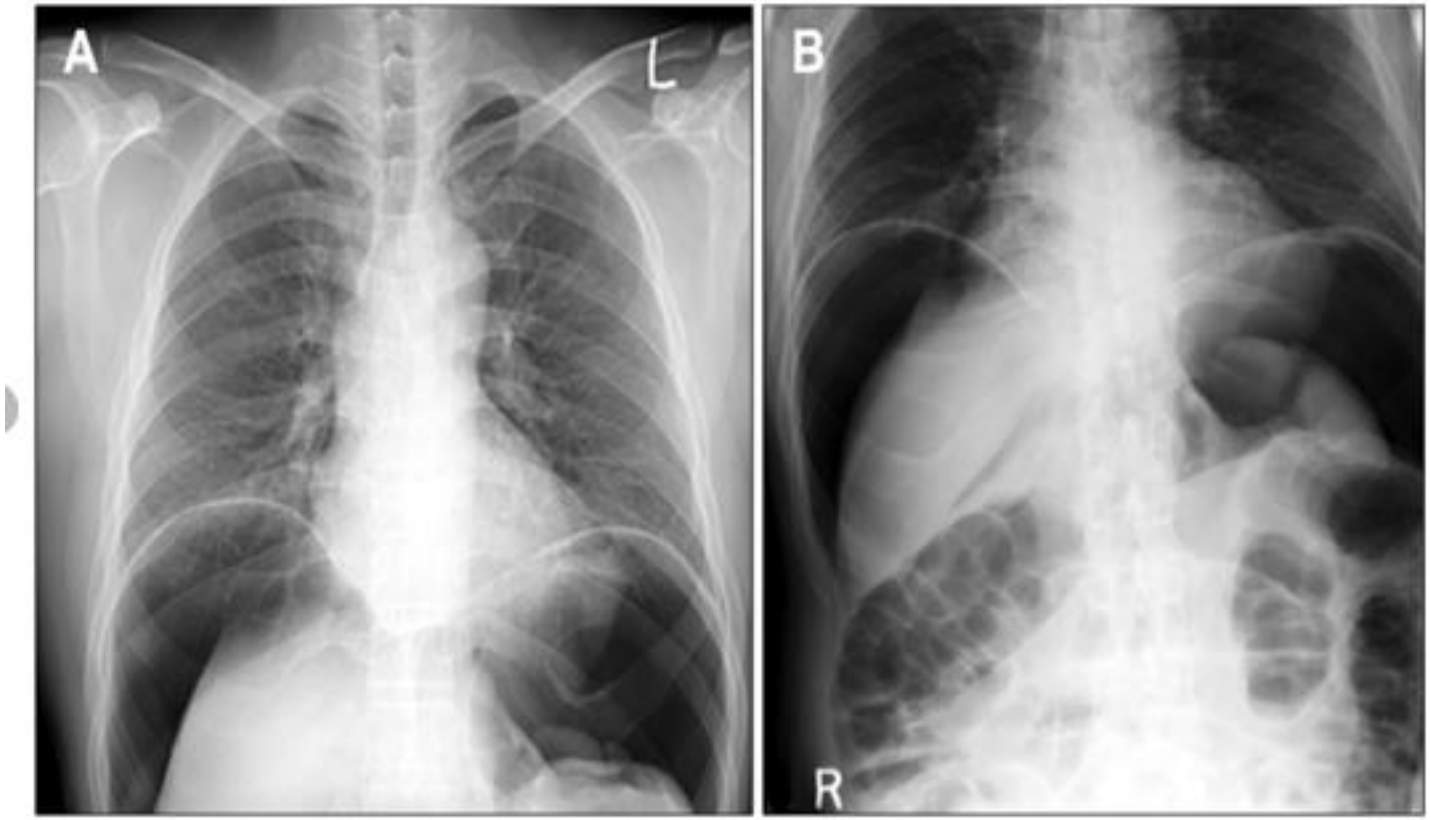
- Non-**Mechanical obstructions**
  - abdominal or pelvic surgery
  - infections, such as gastroenteritis or appendicitis
  - some medications, including opioid pain medications
  - electrolyte imbalances
  - -----

Tools routinely used for diagnosis,

- **1. Basic clinical skill-History taking**
- no stool passage for more than 3 days.
- associated with abdominal fullness, nausea and poor appetite.
- PE: abdominal distension, Bowel sound **active-→ weak—absent**
- **abdominal tenderness -→ rebound tenderness**
- **General appearance : fine-→deteriorated**
- **2. Plane film of abdomen---upright→ air fluid level, free air**
- **KUB----distended loop**
- **3. Advice: No food and no water**
- **Keep close observation**
- **4. Lab. Data: CBC, ESR and CRP, daily or q2d.**

Radiography, abdomen and chest-1

Upright film:
air fluid level



Plain film of the chest X-ray (A) and simple abdomen (B). After colon perforation, free air under the both diaphragm were noted.

Free air under the diaphragm

Radiography of abdomen-2

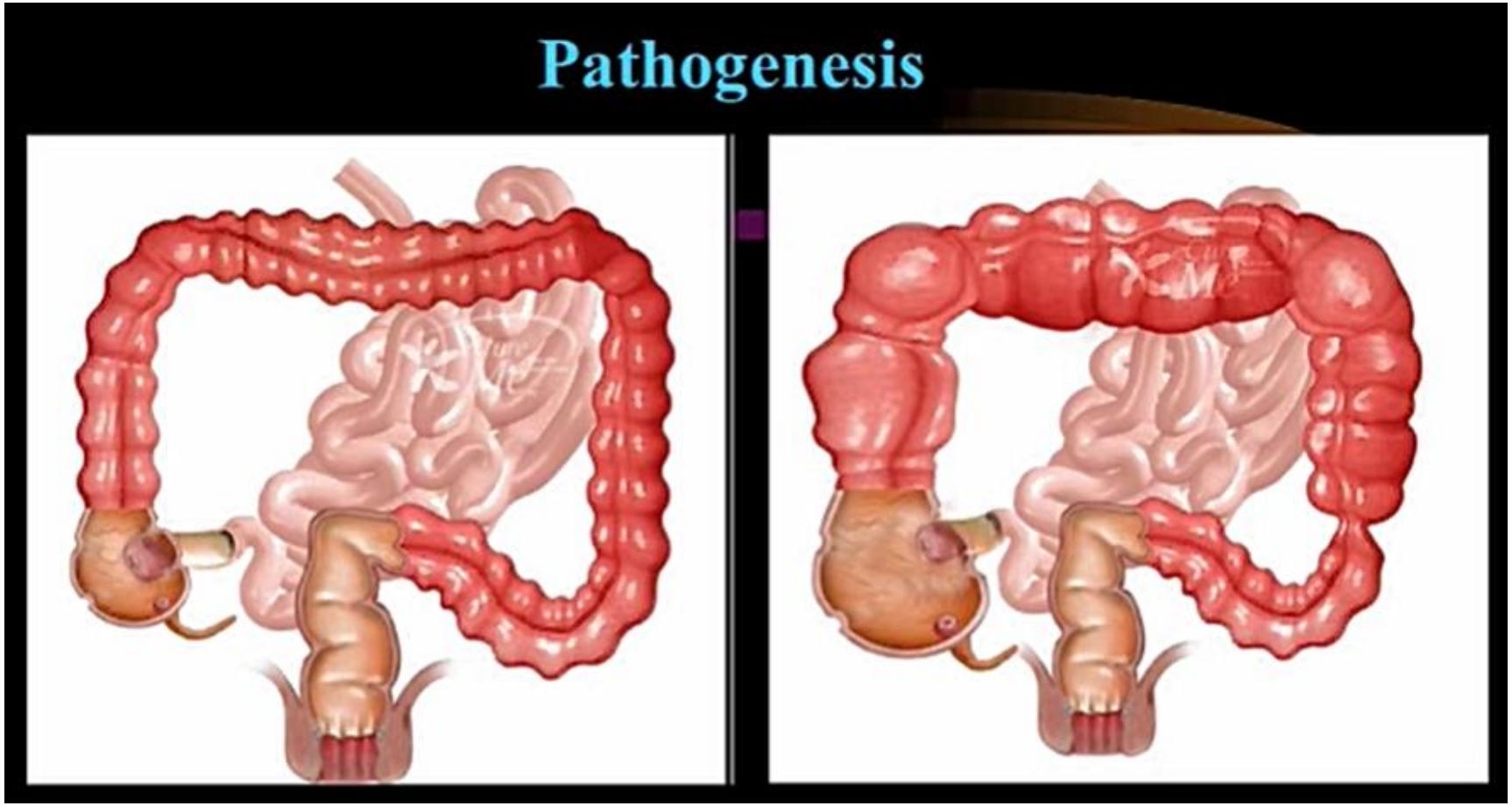
Supine view

Supine view of the abdomen in a patient with intestinal obstruction. Dilated loops of small bowel are visible *(arrows)*.

Lateral decubitus view of the abdomen, showing air-fluid levels consistent with intestinal obstruction *(arrows)*.

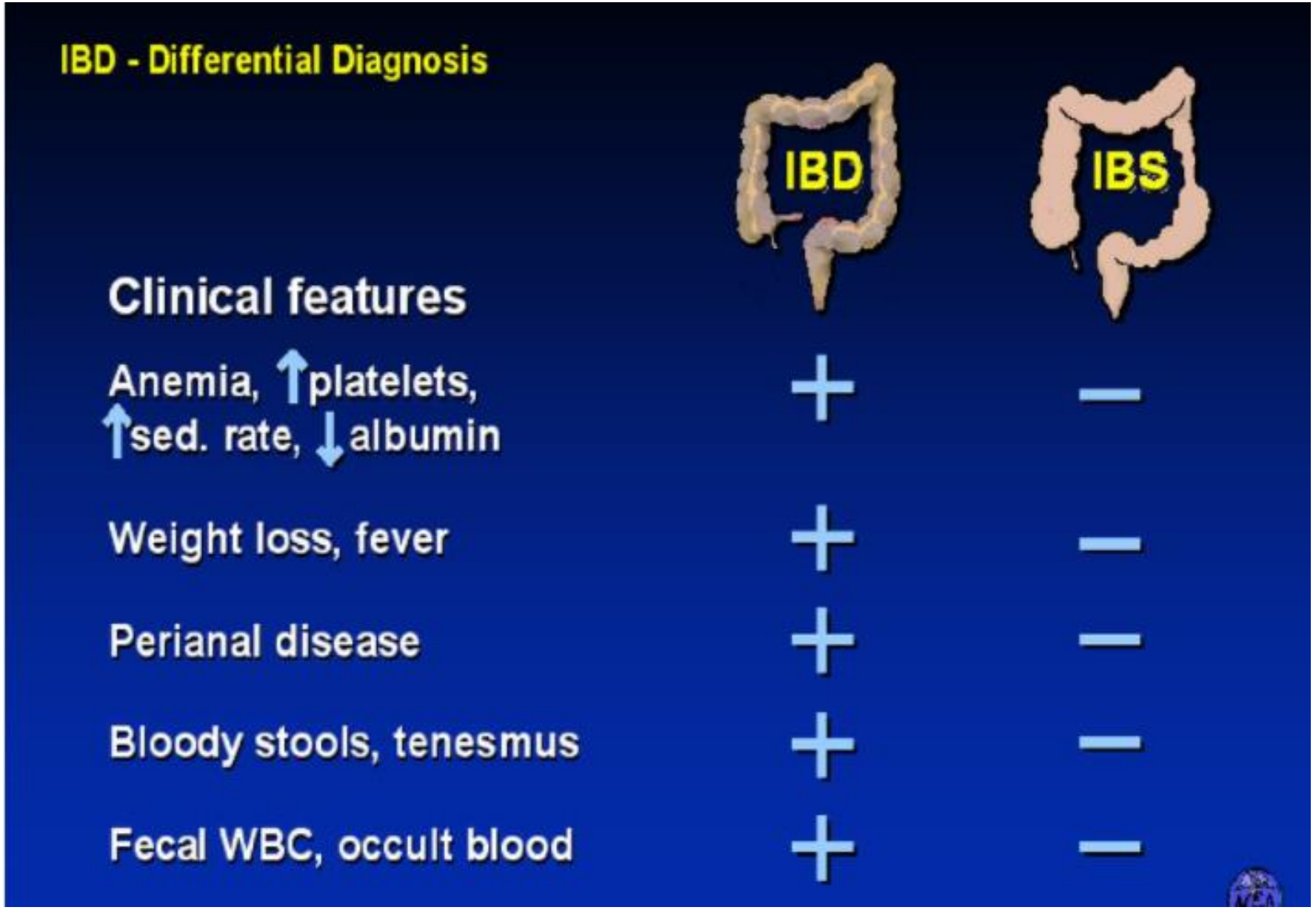
Left lateral decubitus view

Intestinal obstruction



Colon narrowing (stricture) Why ?

- 1. spasm.
- 2. Inflammatory—thickening of wall
- 3. acquired – after radiation therapy
- after procedure
- accumulated food, fluid and fecal material
- 4. Nerve injury—diabetic neuropathy?
- 5. Congenital anomaly
- 6. abnormal intestinal movement—intussusception
- 7. Drug abuse—medication, cathartics
- 8. Neoplastic.



Clinical FEATURES

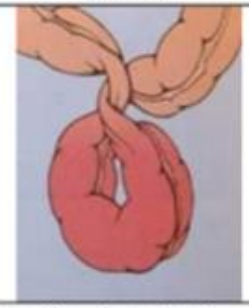
CRP

Pathogenesis of intestinal obstruction, major causes,

- Stenosis
- Obstruction
- Compression
- Invagination
- Torsion
- Angulation
- Strangulation

Intestinal obstruction

Mechanical factors

Herniation	Adhesions	Intussusceptions	Volvulus
			
Inguinal Direct, Indirect Reducible swelling, irreducible swelling Strangulated (blood supply)(gangrene) **Femoral** ↑ Female **Umbilical** ↓ Birth weight infants **Internal** Mesenteric Diaphragmatic Epigastric (extraperitoneal)		**Intussusceptions** **Children**: Common; 80% Ileo-ileal; Peyer patches **Adult**: Tumours • Benign • Malignant Infraction	Twisting of bowel upon itself Location • Small intestine (most common) • Sigmoid colon (2nd common) • Caecum (3rd common) Segments with long mesenteric attachment

Intestinal mechanical obstruction
Etiology

- Large gallstones -- cholecystoenteric fistula – gallstone ileus
- Bezoars (children, mentally retarded, toothless, after gastrectomy)
- Congenital lesions (atresia, stenosis, duplication)
- Neoplasms of small bowel – peritoneal carcinosis
- Inflammation (Chron's disease- diverticulitis- BK- endometriois)
- Fecal impaction (bedridden old patient)
- Meconium
- Foreign bodies
- Iatrogenic strictures (intest. Anastomosis o RT)

Paralytic ileus

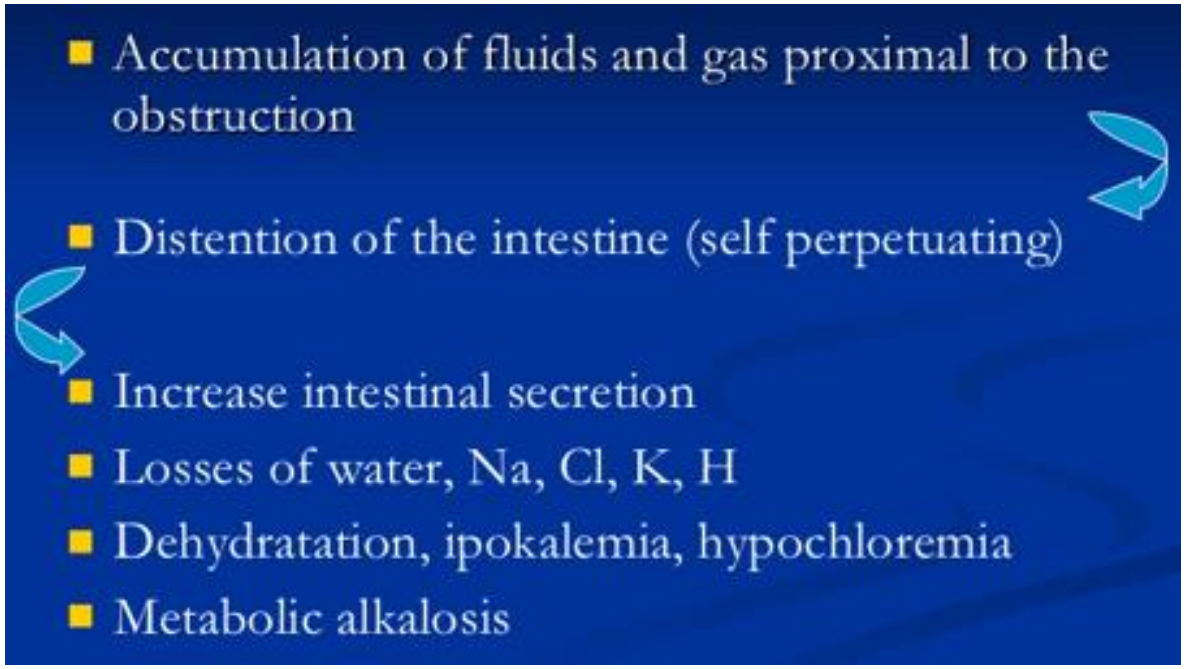
1. Small and large bowels.
2. Air fluid level (+) by upright film.

Causes of paralytic ileus

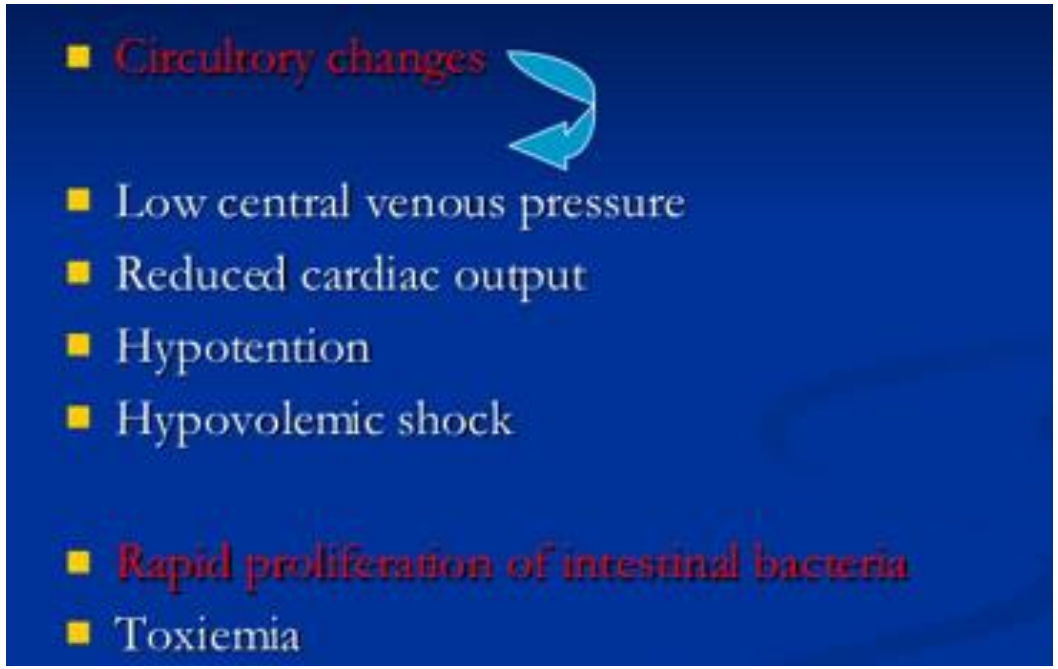
- Medications, especially narcotics
- Intraperitoneal infection
- Mesenteric ischemia Injury to the abdominal blood supply
- Complications of intra-abdominal surgery
- Kidney or thoracic disease
- Metabolic disturbances (such as decreased potassium levels)
- Cranial and cerebral injuries

Mechanical ileus

1. Basic change : accumulation of waste, fluid and gas

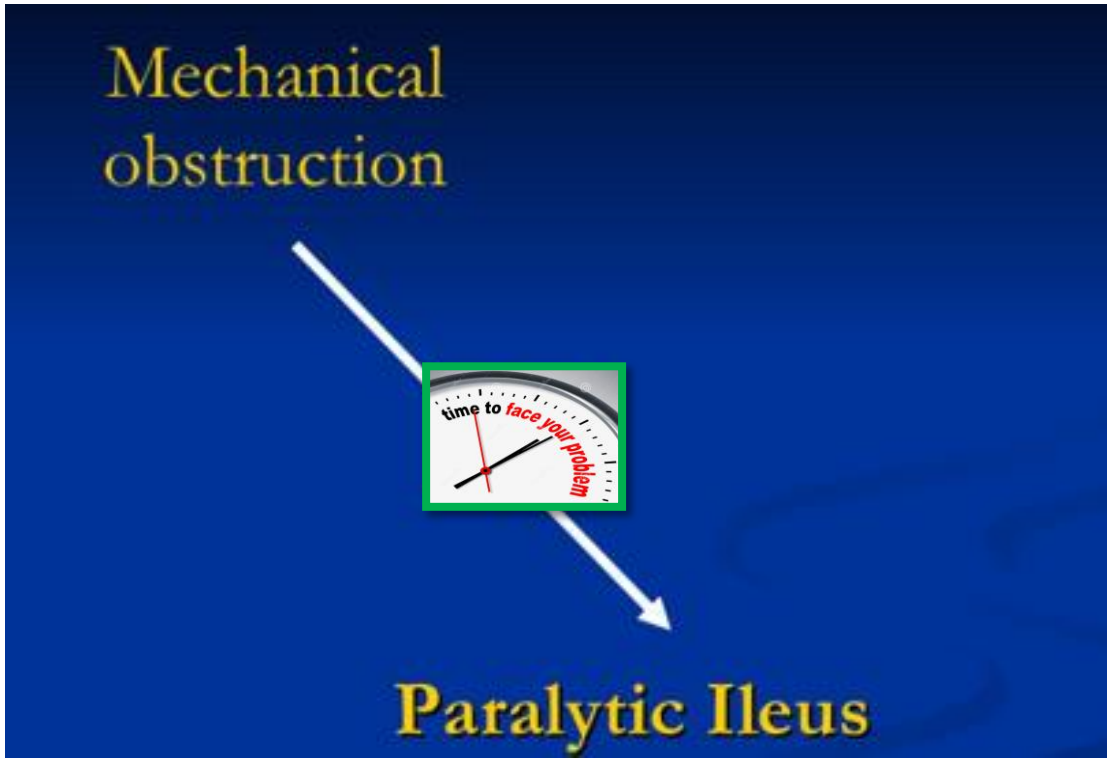


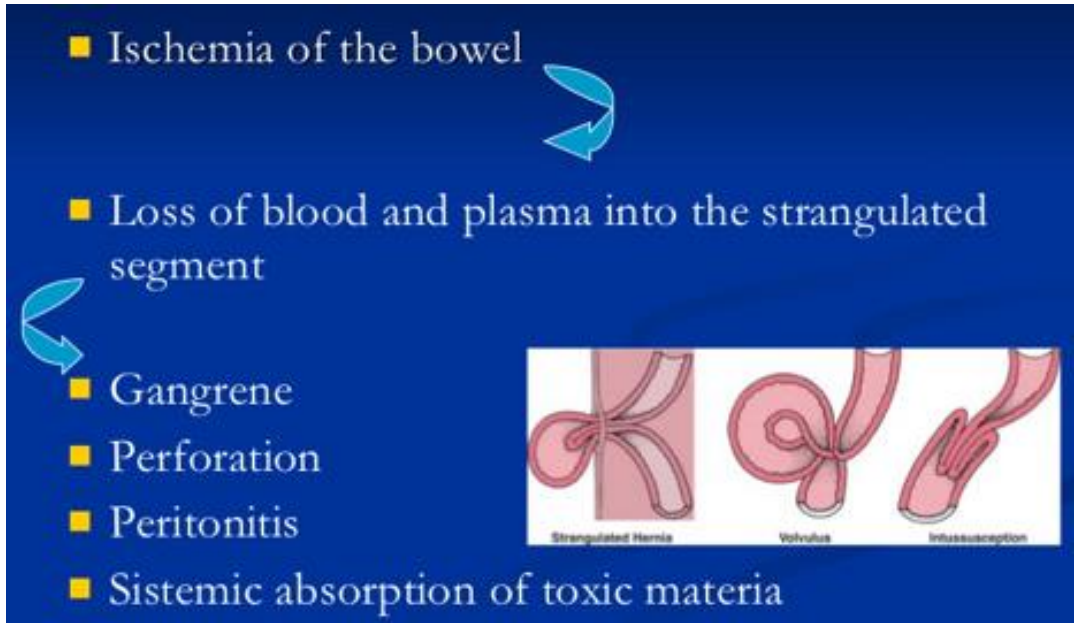
2. Circulatory change



3. Rapid bacterial proliferation →Toximia

From mechanical ileus initially , then changed to paralytic phase.





Ischemic necrosis-→ gangrene-→ perforation --→ peritonitis-→ septic shock.

Mechanical ileus→ reduced or not reduced.

Compensated or decompensated.

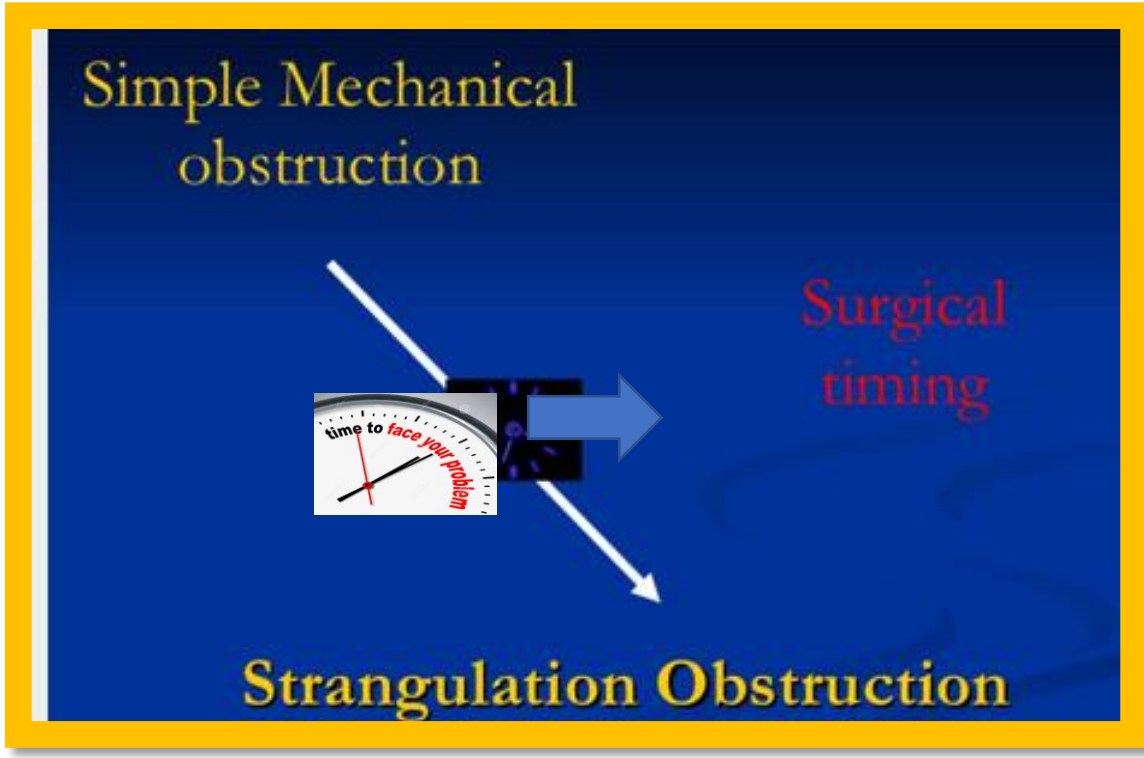
- Compensated
- Subcompensated
- Decompensated

Clinical manifestations and diagnostic studies

- Constant gnawing pain
- repeated vomiting
- symmetric abdominal distention
- reduced or absence of peristalsis
- increasing meteriorism
- constipation
- heavy intoxication

Clinical manifestation: simple obstruction to strangulation.

- Increased abdominal pain-→ Peritonitis
- Fever related to tissue necrosis and or infection
- WBC: increased a lot
- CRP , very high
- Presence of **peritoneal signs**
- Bowel sound: reduced and then became absent.
- **Surgery** is often indicated.
- **tissue necrosis**-> perforation and
- bleeding



Intestinal obstruction
Clinical aspects

- Abdominal pain
- Vomiting
- Obstipation
- Abdominal distention
- Failure to pass flatus

Pain

- Typical crampy pain in paroxysm at 4 to 5 minute intervals in proximal obstruction
- Less frequently in distal occlusion
- After a long period of mechanical obstruction the crampy pain may subside
- A strangulation should be suspected when continuus severe pain replace crampy pain

Fever,
Dehydration,
hypotension

Hypovolemia and **shock,**.

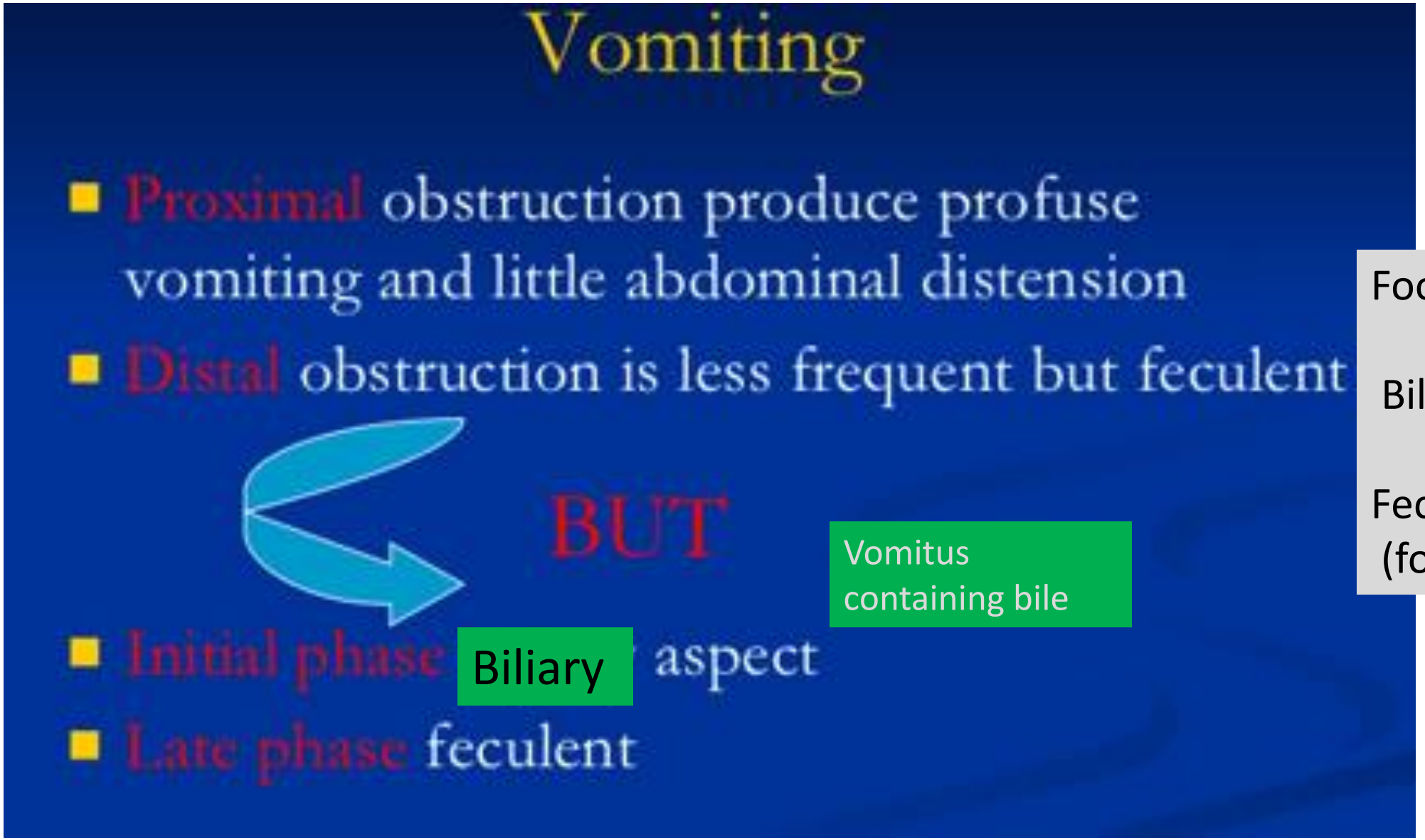
WBC: increased
CRP : abnormal

1. Cramp pain reduced and then subsided.
不是好現象。

2. cramp pain,(intermittent)-

→continuous severe **pain**

Vomiting---proximal obstruction, small bowel.



Vomitus containing bile

Food residue

Bile-staining

Feculernt
(foul and impurity)

Diagnosis

Diagnostic studies

- Physical examination
- Ragiological investigation
- Laboratory tests (hypokalemia)

- 1. History taking---No stool passage followed by abdominal pain and fullness→ vomiting
- 2. PE—abdominal distension, Bowel sound : increased and active, metallic sound→ reduced—absent
- 3. Radiology-bowel dilatation at the proximal site, Air fluid level
- 4. Laboratory : Hypokalemia, WBC,
- CRP

PE: Auscultation

- before: ear on the chest
- Laennec- 1816:
  - rolled up piece of paper in case of an obese female patient with suspicion of heart disease
- the first single ear stethoscope
- later: made of wood and plastic

History

Auscultation

- very important, simple, effective clinical technique to evaluate circulatory and respiratory system
- very useful in examination of arteries and abdomen
- **understanding** of underlying pathomechanisms and **practice!!**

Technique of auscultation

- quiet environment
  - ER, other patients, computers; close the doors
- proper position
  - may need help; ICU
- stethoscope on the bare skin
  - rubbing
- proper size of diaphragm of the stethoscope
  - children; slim, skinny patients

Auscultation of the abdomen

- Bowel motility and abdominal complaints
- Searching for renal stenosis (hypertension)
- How to ...
  - supine position
  - place the stethoscope on the abdomen
  - **bowel sounds**:

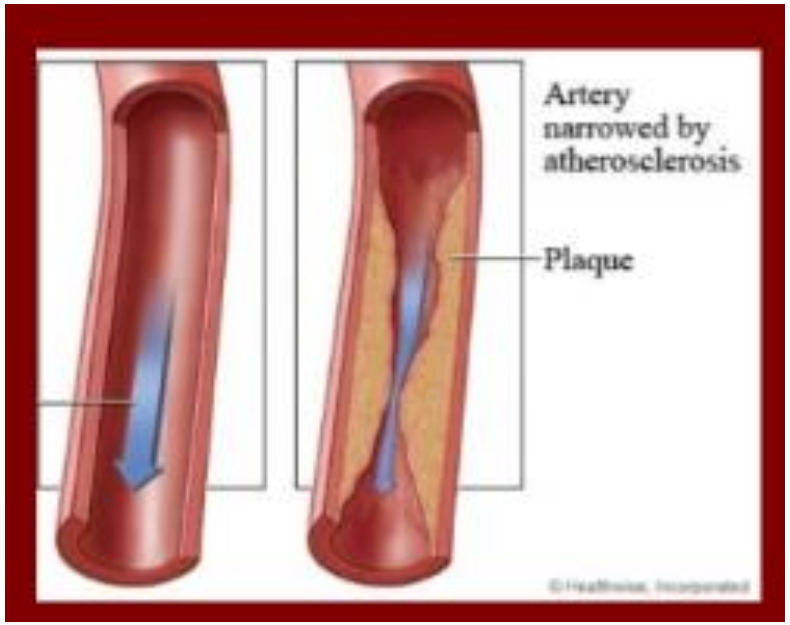
Abnormal bowel sounds

- Increased intensity and frequency:
  - diarrhea
  - intestinal obstruction=obstructive ileus
- Decreased intensity and frequency, or on sounds at all:
  - paralytic ileus (dumb abdomen)
  - peritonitis
- Splash in ileus (lot of air and liquid)

Increased
Decreased
Absent

Sure ?
Follow up, change ?
(time of records.)

PE: Auscultation Bruits



Bruits over the abdomen

- Normally there is no bruit
- for stenosis of the renal artery:
  - listening for **bruits** (vascular sound; like heart murmurs)
  - in each upper quadrant of the epigastrium
  - costovertebral angels

Bruits

- Atherosclerosis--stenosis
- Carotid artery (part of routine exam.)
  - stenosis=bruits (not always)
  - ischaemic stroke, TIA, embolization
  - ask the patient to turn his/her neck back
  - ask the patient to stop breathing momently
- Femoral bruits (above the aorta, iliac arteries)
  - suspicion of insufficient arterial circulation of lower extremities (pain, induced by walking; smoking; HT; DM)

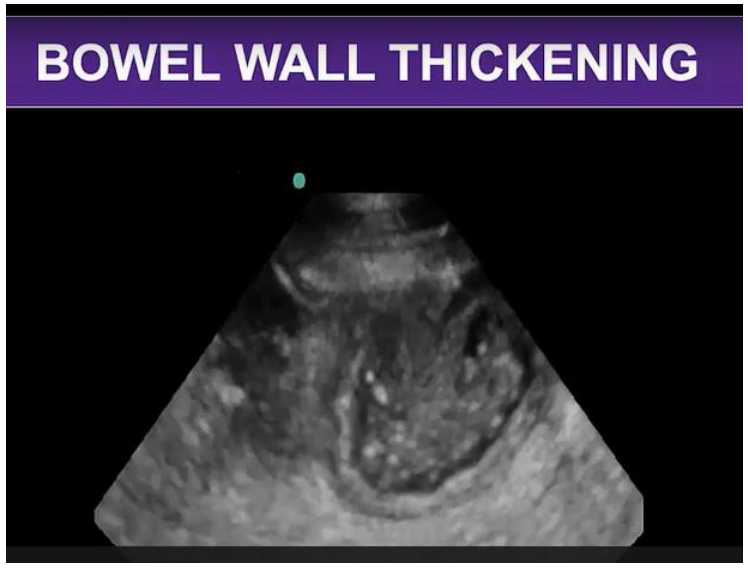
PE: abdominal distension, (Inspection)

PE of abdomen : Auscultation : very important

- Bowel sound
- Bruit

Bowel Obstruction

Different stages,
Follow up,
Necrosis→
perforation
Fever, high CRP, WBC



Radiology

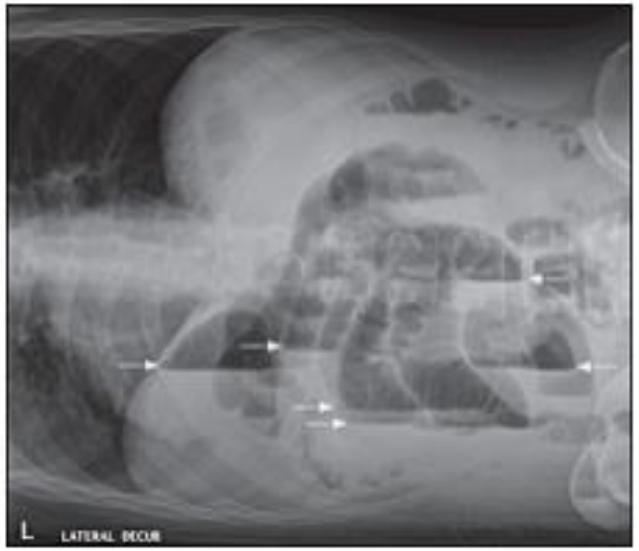


Figure 3.

Lateral decubitus view of the abdomen, showing air-fluid levels consistent with intestinal obstruction *(arrows)*.

Diagnosis : History taking, PE, Radiography
and follow up (symptoms)

Intestinal obstruction
Radiological examination
Small bowel

Gas in the small bowel outlines the valvulae conniventes, which usually occupy the entire trasverse diameter of the bowel image

Abdominal CT

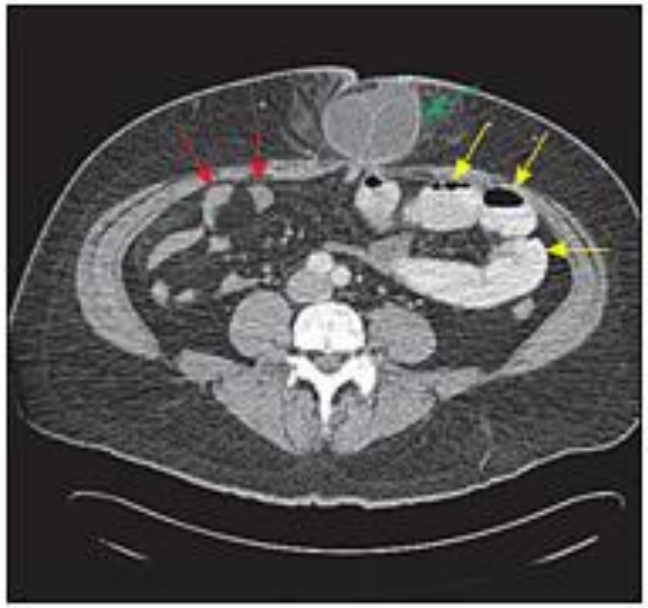


Figure 4.

Axial computed tomography scan showing dilated, contrast-filled loops of bowel on the patient's left *(yellow arrows)*, with decompressed distal small bowel on the patient's right *(red arrows)*. The cause of obstruction, an incarcerated umbilical hernia, can also be seen *(green arrow)*, with proximally dilated bowel entering the hernia and decompressed bowel exiting the hernia.

Although CT is highly sensitive and specific for high-grade obstruction, its value diminishes in patients with partial obstruction. In these patients, oral contrast material may be seen traversing the length of the intestine to the rectum, with no discrete area of transition. Fluoroscopy may be of greater value in confirming the diagnosis.

The American College of Radiology recommends non-contrast CT as the initial imaging modality of choice. However, because most causes of small bowel obstruction will have systemic manifestations or fail to resolve—necessitating operative intervention—the additional diagnostic value of CT compared with radiography is limited. Radiation exposure is also significant. Therefore, in most patients, CT should be ordered when the diagnosis is in doubt, when there is no surgical history or hernias to explain the etiology, or when there is a high index of suspicion for complete or high-grade obstruction.

Symptoms of ileus,
Gradually changed and progressively

- Symptoms usually develop more gradually
- increasing constipation
- abdominal distention
- vomiting (not usually)
- lower abdominal cramps
- unproductive of feces
- distended abdomen
- there is no tenderness
- the rectum is usually empty

Follow up.
最好每4小時查一次

ES暫留的病人
不是放在牆角處
不聞不問.

Obstruction of small bowel

Obstruction of the small bowel

- Abdominal cramps around the umbilicus or in the epigastrium;
- Vomiting starts early
- Obstipation occurs with complete obstruction, but diarrhea may be present with partial obstruction.

@ *Strangulating obstruction occurs in nearly 25% of cases and can progress to gangrene in as little as 6 h*

Obstruction of the large bowel

- Symptoms usually develop more gradually
- increasing constipation
- abdominal distention
- vomiting (not usually)
- lower abdominal cramps
- unproductive of feces
- distended abdomen
- there is no tenderness

@
- the rectum is usually empty

World Society of Emergency Surgery (WSES) Bologna guidelines for small bowel obstruction

- Small bowel obstruction (SBO) is a common surgical emergency associated with substantial morbidity, hospital length of stay (LOS), and healthcare cost. The World Society of Emergency Surgery (WSES) Bologna guidelines provide evidence-informed recommendations for managing adhesive SBO, promoting **timely surgical intervention** (or non-operative management (NOM) when ischaemia, strangulation, or peritonitis are absent).

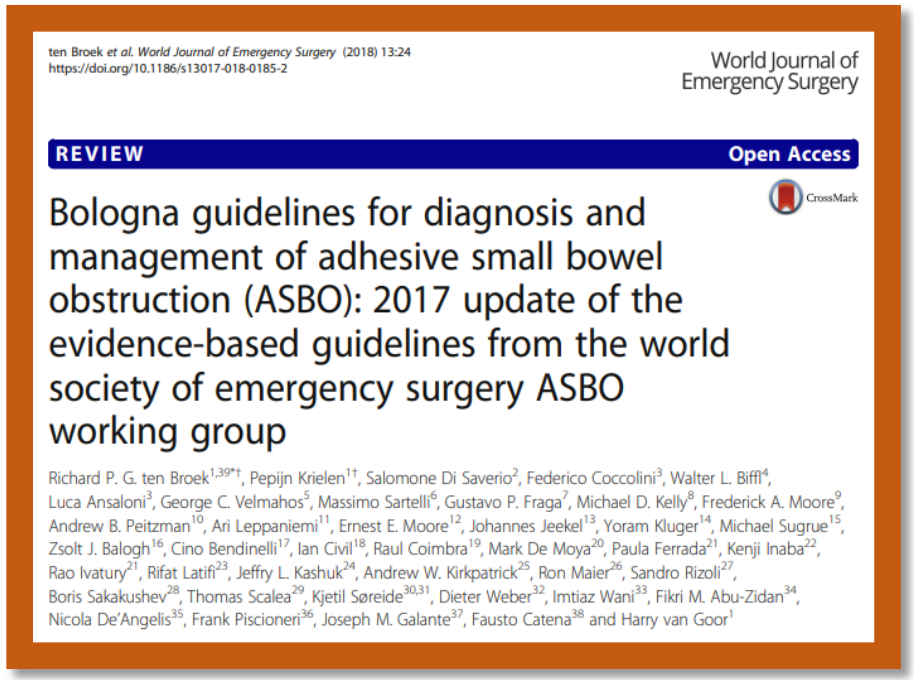
Results: Among 982 patients with adhesive SBO, successful NOM occurred in 561 (57.1%), 224 (22.8%) underwent NOM-T, and 197 (20.1%) proceeded DTS. The mean(s.d.) LOS was 5.3(9.0), 12.9(11.4), and 7.7(8.0) days respectively ($P < 0.001$). Optimal outcomes were achieved in 61.0%, 16.1%, and 37.6% respectively ($P < 0.001$) and full guideline compliance was observed in 17.2%, 10.1%, and 0.4% respectively.

Conclusion: Patients with adhesive SBO whose care was aligned with the Bologna guidelines had a shorter LOS and a greater incidence of optimal outcomes. Addressing evidence-to-practice gaps through implementation strategies that consider contextual factors will enhance guideline adoption and patient outcomes.

Observational Study > Br J Surg. 2025 Mar 28;112(4):znaf080. doi: 10.1093/bjs/znaf080.

Small bowel obstruction outcomes according to compliance with the World Society of Emergency Surgery Bologna guidelines

Lewis J Kaplan [1], Isidro Martinez-Casas [2], Shahin Mohseni [3], Matteo Cimino [4], Hayato Kurihara [4], Matthew J Lee [5], Gary A Bass [1]; SnapSBO Collaborators



ten Broek et al. World Journal of Emergency Surgery (2018) 13:24
https://doi.org/10.1186/s13017-018-0185-2

World Journal of Emergency Surgery

REVIEW Open Access

Bologna guidelines for diagnosis and management of adhesive small bowel obstruction (ASBO): 2017 update of the evidence-based guidelines from the world society of emergency surgery ASBO working group

Richard P. G. ten Broek[1,39*†], Pepijn Krielen[1†], Salomone Di Saverio[2], Federico Coccolini[3], Walter L. Biffl[4], Luca Ansaloni[3], George C. Velmahos[5], Massimo Sartelli[6], Gustavo P. Fraga[7], Michael D. Kelly[8], Frederick A. Moore[9], Andrew B. Peitzman[10], Ari Leppaniemi[11], Ernest E. Moore[12], Johannes Jeekel[13], Yoram Kluger[14], Michael Sugrue[15], Zsolt J. Balogh[16], Cino Bendinelli[17], Ian Civil[18], Raul Coimbra[19], Mark De Moya[20], Paula Ferrada[21], Kenji Inaba[22], Rao Ivatury[21], Rifat Latifi[23], Jeffry L. Kashuk[24], Andrew W. Kirkpatrick[25], Ron Maier[26], Sandro Rizoli[27], Boris Sakakushev[28], Thomas Scalea[29], Kjetil Søreide[30,31], Dieter Weber[32], Imtiaz Wani[33], Fikri M. Abu-Zidan[34], Nicola De'Angelis[35], Frank Piscioneri[36], Joseph M. Galante[37], Fausto Catena[38] and Harry van Goor[1]

微創手術技術和使用防沾黏屏障可以減少沾黏的形成。非手術治療對大多數腸阻塞患者有效。非手術治療的禁忌症包括腹膜炎、絞窄和缺血。當阻塞的沾黏病因不明，或有非手術治療禁忌症時，CT 是首選的診斷方法。非手術治療的原則包括禁食、鼻胃管或長管減壓，以及靜脈補充液體和電解質。當需要手術治療時，對於部分單純性腸阻塞病例，腹腔鏡手術可能更有益。

年輕患者一生中發生復發性ASBO的風險較高，因此可能受益於應用沾黏屏障作為第一級和第二級預防措施。

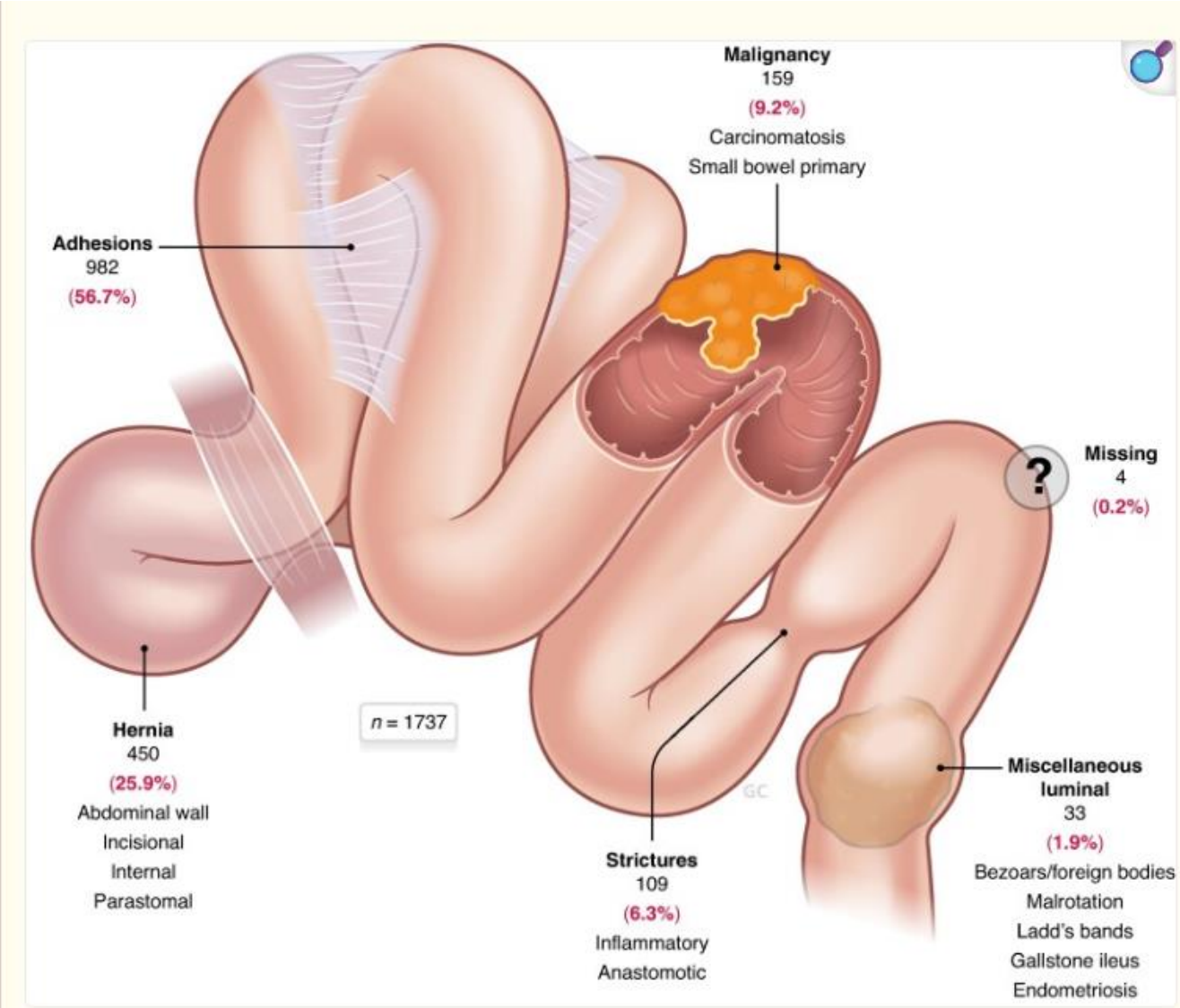
討論

本指南為治療ASBO患者的外科醫師提供了一些建議。目前，ASBO治療某些方面的科學證據尚不充分，尤其是一些針對特殊患者族群的治療方面。一項關於ASBO腹腔鏡手術與開腹手術的隨機對照試驗結果尚待公佈。

(Continued from previous page)

Recommendations: Adhesion formation might be reduced by minimally invasive surgical techniques and the use of adhesion barriers. Non-operative treatment is effective in most patients with ASBO. Contraindications for non-operative treatment include peritonitis, strangulation, and ischemia. When the adhesive etiology of obstruction is unsure, or when contraindications for non-operative management might be present, CT is the diagnostic technique of choice. The principles of non-operative treatment are *nil* per os, naso-gastric, or long-tube decompression, and intravenous supplementation with fluids and electrolytes. When operative treatment is required, a laparoscopic approach may be beneficial for selected cases of simple ASBO.
Younger patients have a higher lifetime risk for recurrent ASBO and might therefore benefit from application of adhesion barriers as both primary and secondary prevention.

Discussion: This guideline presents recommendations that can be used by surgeons who treat patients with ASBO. Scientific evidence for some aspects of ASBO management is scarce, in particular aspects relating to special patient groups. Results of a randomized trial of laparoscopic versus open surgery for ASBO are awaited.



小腸阻塞的病因（*n* = 1737）

Adhesion : 56.7 %
Hernia : 25.9%
Malignancy: 9.2 %
Stricture : 6.3 %
Miscellanoues, luminal 1.9 %
Missing : 0.2 % (4 cases

Observational Study › Br J Surg. 2025 Mar 28;112(4):znaf080. doi: 10.1093/bjs/znaf080.

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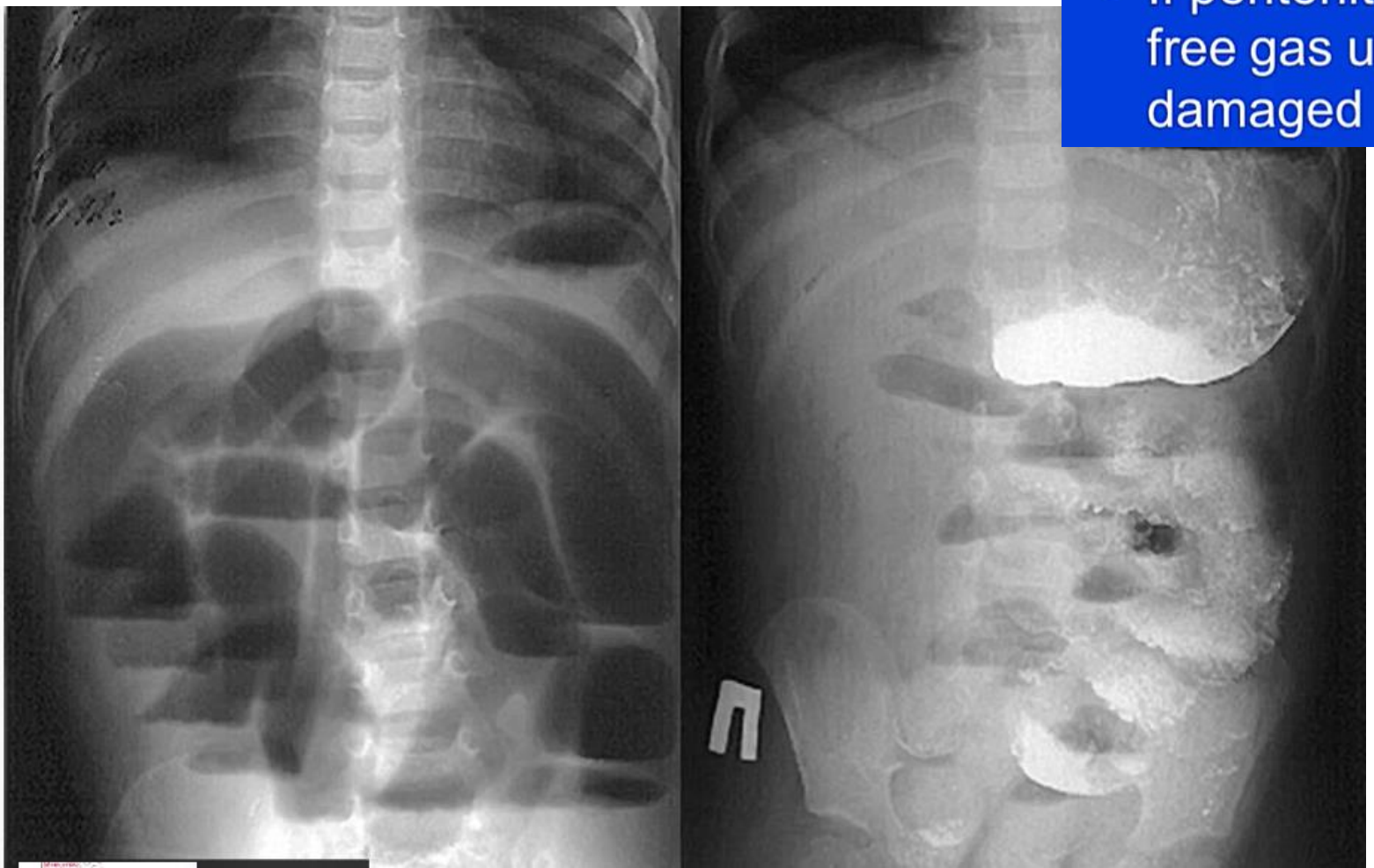
Outcome of adhesive SB obstruction, 982 cases

- The mean(s.d.) LOS was 4.7(8.5) days for successful NOM (561 patients),
- 13.0(11.1) days for NOM-T (224 patients),
- 8.3(7.2) days for DTS (197 patients) ($P < 0.001$).
- _____
- Optimal outcomes were achieved in 342 of 561 NOM patients (60.1%), 36 of 224 NOM-T patients (16.1%), and 74 of 197 DTS patients (37.6%) ($P < 0.001$).

RADIOLOGY

- Sign of reversed **cups of Kloiber**: shows position of air-filled loops of bowel and horizontal levels of the fluid below gas
- Presence of **shady fields** of the large bowel
- If peritonitis has developed, we can see free gas under the liver, because bowel is damaged



What are the Kloiber's cups?
A. None of mentioned
B. Gas sickles under the domes of diaphragm
C. Folds of intestine
D. Gas bubble of the stomach
E. Horizontal air-fluid levels
ANSWER: E

1. 2岁大胖胖的小孩
2. 晚上大哭
3. Some blood passed with stool.
4. Abdominal distension. ,

Intussusception, frequency: 1-4/1,000live births

Frequency. Intussusception is the predominate cause of intestinal obstruction in persons aged 3 months to 6 years. The estimated incidence is 1-4 per 1000 live births.

Sex. Overall, the male-to-female ratio is approximately 3:1.

Baby at 3 months to 9 months old.

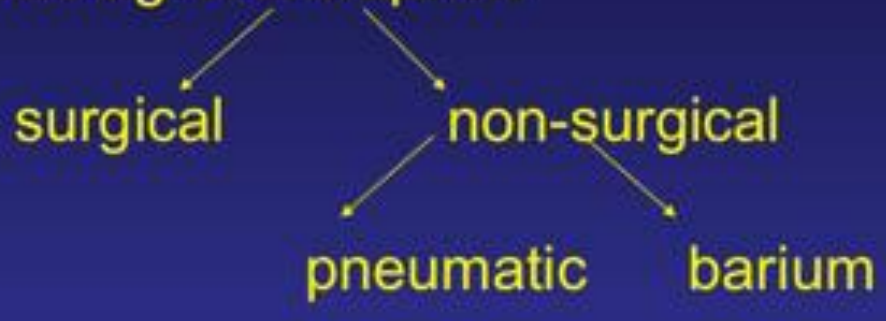
Clinical Presentation

1. vomiting (85%)-initially, vomiting is nonbilious and reflexive, but when the intestinal obstruction occurs, vomiting becomes bilious.
2. abdominal pain (83%)-pain is colicky, severe, and intermittent.
3. passage of blood or bloody mucous per rectum (53%).
4. a palpable abdominal mass
5. lethargy.
6. diarrhea.

The classic triad of pain, vomiting, and bloody mucous stools ("red current jelly") is present in only one third of infants with intussusception. Diarrhea may be present in 10-20% of patients.

MANAGEMENT OPTIONS

- Management option

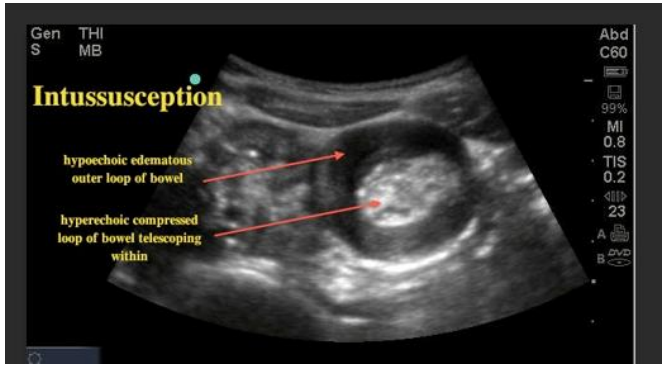


- Non-surgical reduction proves to be superior to surgery

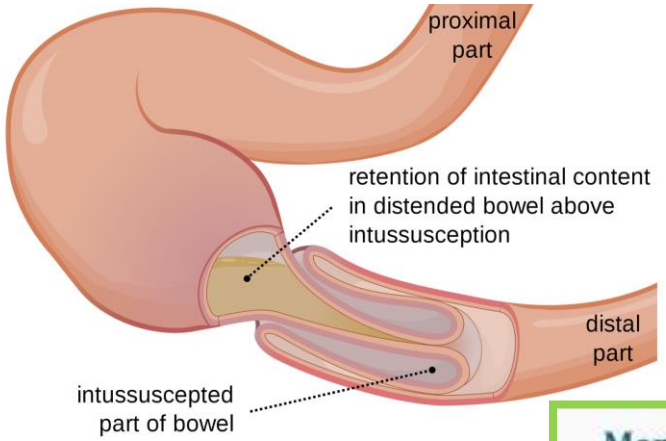
Eur J Pediatr 1999;158:707- 710

- Risk of recurrence is 0-5.4% (post surgery)
- The recurrence may be overlooked by junior or inexperienced doctors

Koh C-C, Sheu J-C, Wang N-L, et al. Pediatr Surg Int 2006 September);22:725- 728



Air contrast enema shows intussusception in the cecum.



Meniscus sign(crescent sign):

Leading points in intussusception,(L103)

- 1.腸套疊有一個引導點(leading point)，通過蠕動活動將近端腸道拉入遠端腸道。最常見的是 Meckel
- 憩室，其次是息肉、重複囊腫(Duplicated cysts)和闌尾。其他血管瘤、類癌瘤、Peutz-Jeghers 綜合
- 徵象的息肉和脂肪瘤很少見。
- 2.Covid 19-→intussusception in infant (L1-03)
- 原發性或特發性腸套疊,指沒有引導點，是最常見的形式（>80% 的病例），尤其是在嬰兒中，它與
- 遠端小腸管腔表面肥大的 Peyer 斑塊有關。[3]由於淋巴組織肥大，此問題可能發生在上呼吸道感染或
- 腸胃炎發作的情況下。最近，它也與 COVID-19 相關聯。[4]
- Case report :一名 7 個月大的男性患者，足月後正常陰道分娩（39 +2週）並且沒有相關病史.他因腹痛、食慾不振、持續腹瀉和嘔吐長達 12,小時（4 次），並伴有嗜睡，被帶到兒科急診科。他曾與 10 天前 COVID-19 呈陽性的祖母接觸。據報導，嬰兒及其母親的 COVID-19 PCR 檢測呈陽性。他沒有發熱，心率為每分鐘 95 次，血氧飽和度為 100%。體檢時，他顯得蒼白、生病、中度脫水和昏昏欲睡。實驗室測試顯示正常的血細胞計數, D-dimer 為 27,891 ng/mL。兩個小時後，他產生了一種混合著血液和粘液的糞便。緊急腹超: 顯示迴結腸腸套疊.照影劑灌腸證實診斷, 採用剖腹手術方法。通過右側臍上橫向切口，證實回結腸,腸套疊並試圖將其恢復到正常位置，但困難重重。因為發現腸道缺血部分，必需進行回結腸切除（3 cm 的末端腸阻塞、盲腸和闌尾以及 20 cm 的升結腸）。
- **3. COVID-19 與腸套疊之間的關聯可能與腸系膜淋巴結腫大和 Peyer 斑肥大有關，誘發局部反應性腸系膜腺炎，導致腸蠕動改變或作為腸套疊的引導點。迄今為止，已有 9 例將 COVID-19 表現為腸套疊。**
- **Noviello, C, et al COVID-19 can cause severe intussusception in infants. : Case Report and Literature Review Pediatr Infect Dis J. 2021;21-22**

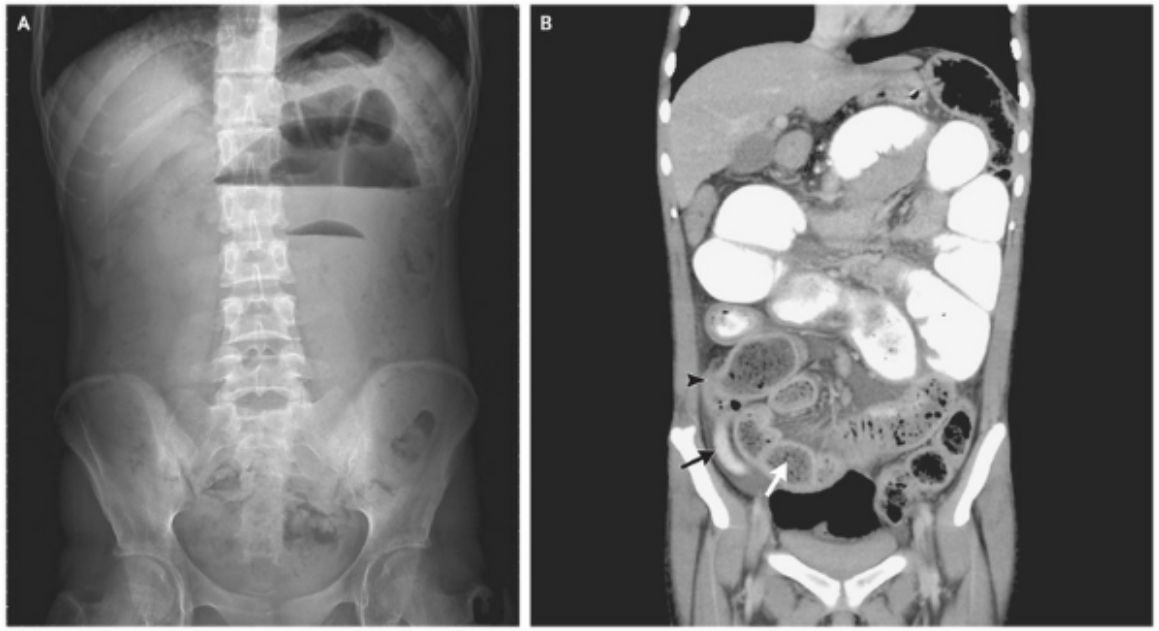
Two leading points → two intussusceptions(L112)

Double simultaneous intussusception caused by Meckel's diverticulum and intestinal duplication (2022.03.18)

- 1名 21 個月大的女孩因陣發性腹痛 1 天被轉診到醫院患者父母否認發熱、嘔吐、腹脹、腹瀉、血尿和糞便。腹部B超顯示左右下腹有兩個同心圓. 這一發現表明可能存在雙同時腸套疊。腹部電腦斷層掃描結果與經腹超聲一致。

手術照片說明。左側黑色箭頭顯示Meckel憩室，長約5cm，寬約1cm一與迴腸相連，無明顯腸系膜血管。右箭頭顯示腸重複，長約 10 厘米，基部寬 2 厘米，與正常腸系膜相連。

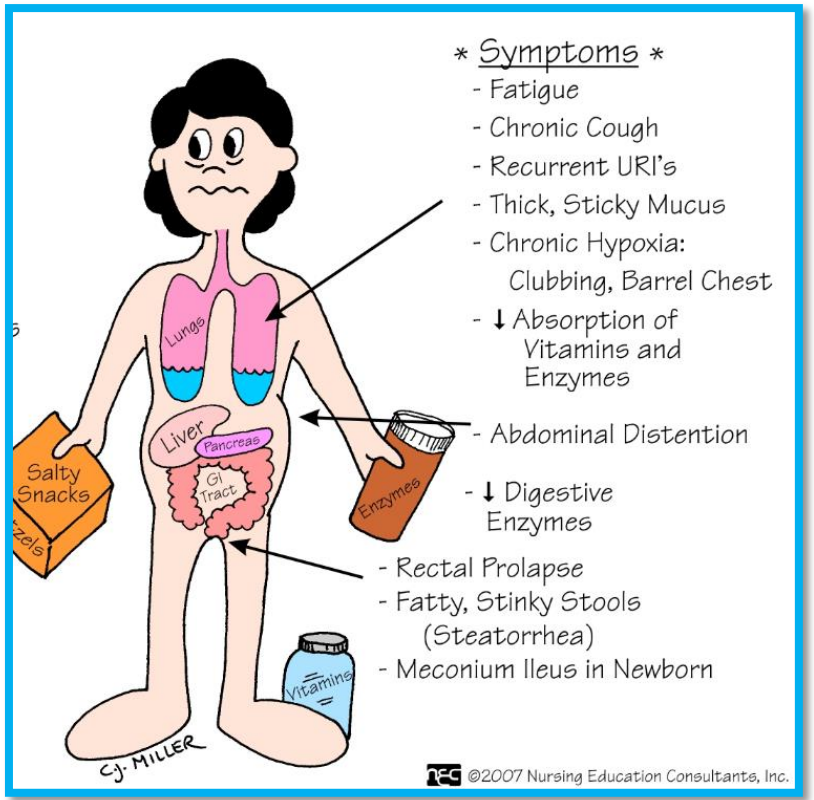
Mingming Yu et al : J Int Med Res. 2018 Aug;46(8):3427-3434.



A 19-year-old woman with type 1 diabetes mellitus and suspected cystic fibrosis presented with a 1-day history of acute abdominal pain. Plain radiography revealed evidence of a mechanical obstruction (Panel A). Abdominal computed tomography with intravenous contrast material showed diffuse dilatation of the small bowel, with fecal material in the terminal ileum (Panel B, white arrow), a swollen appendix (black arrow), and suspected intussusception (arrowhead). There was no evidence of fatty infiltration of the pancreas. Emergency exploratory laparotomy revealed distended small-bowel loops with a swollen appendix (Fig. 1 in the Supplementary Appendix, available with the full text of this article at NEJM.org). A long meconium-like plug in the distal ileum was milked out through a small enterotomy with subsequent relief of the obstruction (Fig. 2 in the Supplementary Appendix). Later, genetic analysis confirmed cystic fibrosis with the identification of one homozygous nonsense mutation and one heterozygous variable site in CFTR. Cystic fibrosis is rare in Taiwan, and sweat testing is not available. The patient was discharged 12 days postoperatively with oral maintenance N-acetylcysteine. She was readmitted 2 weeks later and died of respiratory failure secondary to spontaneous pneumothorax with pneumonia (Fig. 3 in the Supplementary Appendix). Sputum culture identified *Escherichia coli* and *Klebsiella pneumoniae*.

Cystic fibrosis (CF) is a genetic disorder that affects mostly the lungs, but also the pancreas, liver, kidneys, and intestine. Long-term issues include difficulty breathing and coughing up mucus as a result of frequent lung infections. Other signs and symptoms may include sinus infections, poor growth, fatty stool, clubbing of the fingers and toes, and infertility in most males. Different people may have different degrees of symptoms.

Meconium-like Ileus in Cystic Fibrosis
List of authors.
Li-Ying Lin, M.B., Ch.B., and Jia-Uei Wong,
NEJM May 24, 2012 **VOL. 366 NO. 2, 2017**



Paralytic ileus

abdominal radiograph
- best initial test
- supine and upright views
- positive findings may show dilated loops of bowel without a transition zone, air-fluid levels, and air in the colon and rectum
- allows for rule out of other causes of abdominal pain (*e.g.*, perforated viscus)

Post-operative paralytic ileus

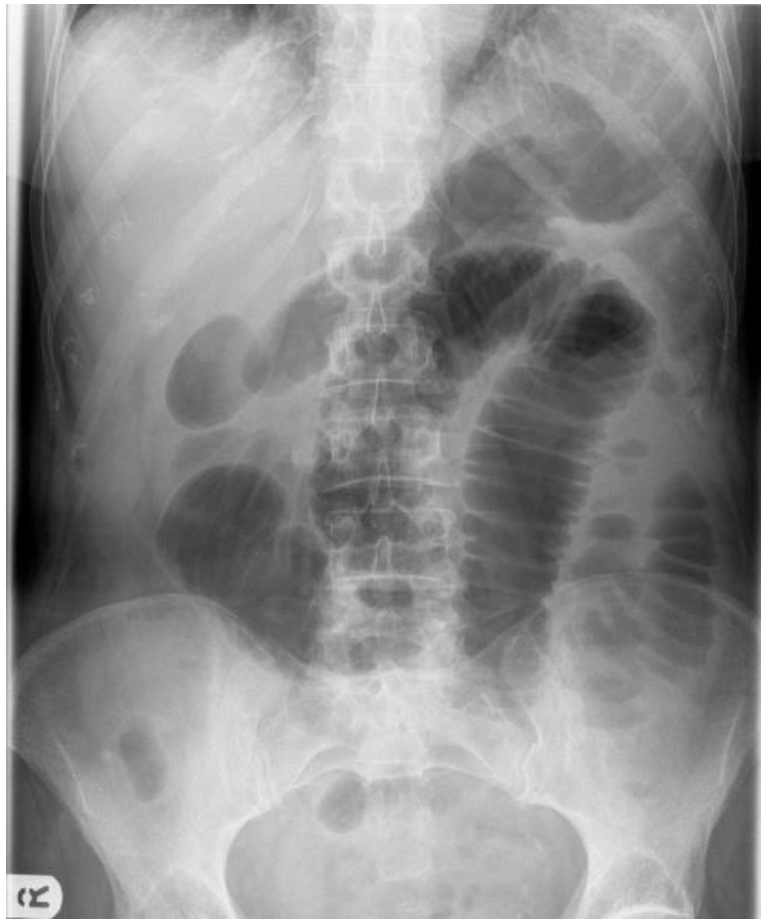
- Ileus occurs from hypomotility of the gastrointestinal tract in the absence of mechanical bowel obstruction. When a similar condition occurs in the stomach (eg, in diabetes or after pancreatoduodenctomy), it is called **gastroparesis** or delayed gastric emptying (DGE). Although the exact pathogenesis of ileus remains multifactorial and complex, the clinical picture appears to be transiently impaired propulsion of intestinal contents. The complex interaction between autonomic and central nervous system function, as well as local and regional substances, may alter the intestinal equilibrium, resulting in **disorganized electrical activity and paralysis of intestinal segments.** This lack of coordinated propulsive action leads to the accumulation of gas and fluids within the bowel.

Acute appendicitis

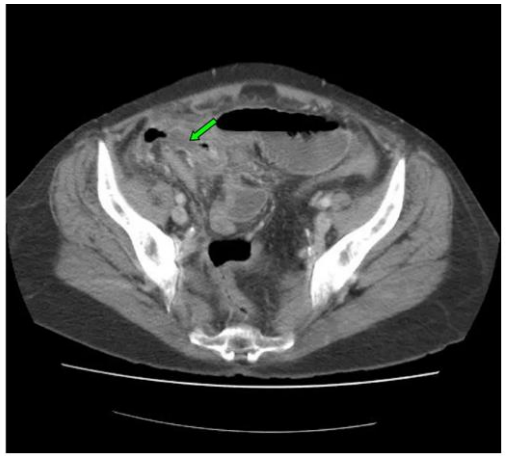
Acute appendicitis presenting as small bowel obstruction: two case reports

Sanjay Harrison, Kamal Mahawar, Dougal Brown, Leslie Boobis & Peter Small

Cases Journal **2**, Article number: 9106 (2009) | Cite this article



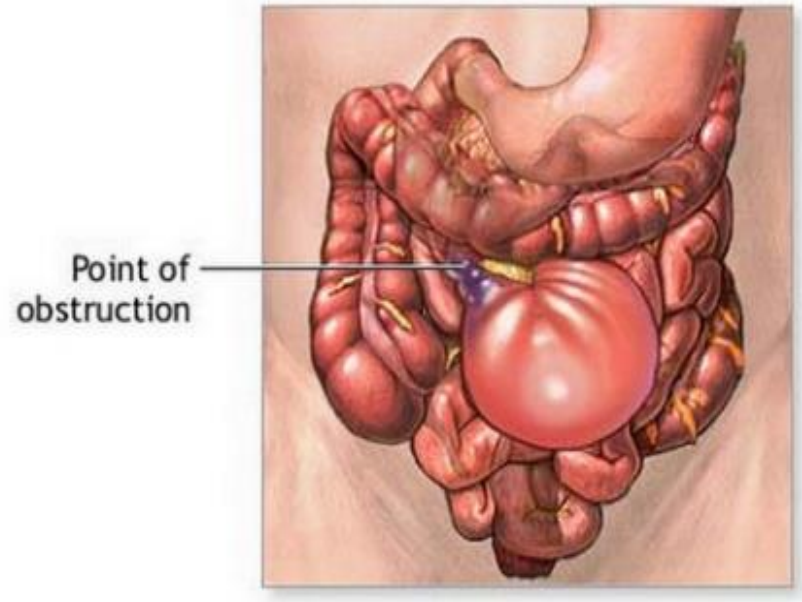
An 83 year old man was admitted with a four day history of worsening right sided abdominal pain associated with vomiting and loose stools. On examination, he was found to have mild abdominal distension and minimal central abdominal tenderness. Bowel sounds were exaggerated. Routine blood investigations revealed a raised white cell count and C-reactive protein levels of 12.83×10^9/L and 275 mg/L respectively. His renal function was abnormal with a creatinine of 137 µmol/L and a urea of 15.8 mmol/L. An abdominal film (Figure 3) revealed prominent small bowel loops.

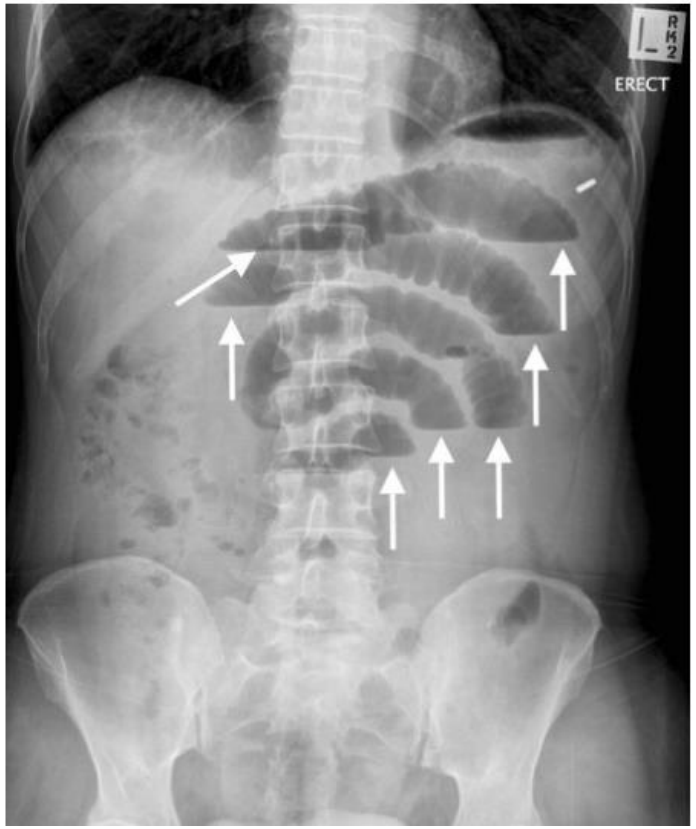


CT of the abdomen of patient 2 showing the inflamed appendix (green arrow).

Small Bowel Obstruction

Small Bowel Obstruction (SBO): just as the name sounds, is a process in which the small intestines are obstructed (it is as simple as that!).





- **Adhesions in the abdomen/bowel lumen:** these most commonly occur after abdominal surgery post surgery.
- **Hernias:** herniated bowels can become obstructed.
- **Volvulus:** this process will cause a mechanical obstruction.
- **Intussusception:** this telescoping can cause the SBO as well.
- **Polyposis:** polyps within the intestinal lumen can also cause mechanical obstruction.
- **Ovarian neoplasms (female patients):** can compress the bowels.
- ***Ascaris lumbricoides*:** this roundworm can sometimes be responsible for cause an SBO.

Small or large bowel obstruction

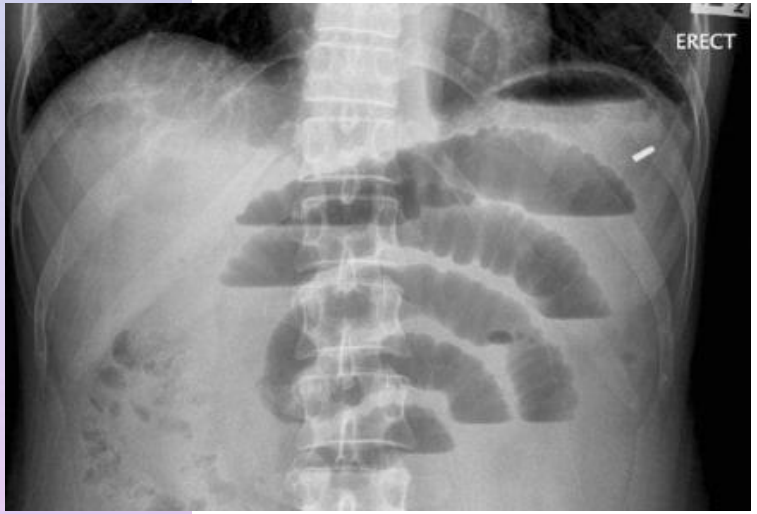
THE DIFFERENCE BETWEEN SMALL AND LARGE BOWEL OBSTRUCTION

Large bowel

- Peripheral (diameter 6 cm max)
- Presence of haustration

Small Bowel

- Central (diameter 3 cm max)
- Vulvulae coniventae
- Ileum: may appear tubeless

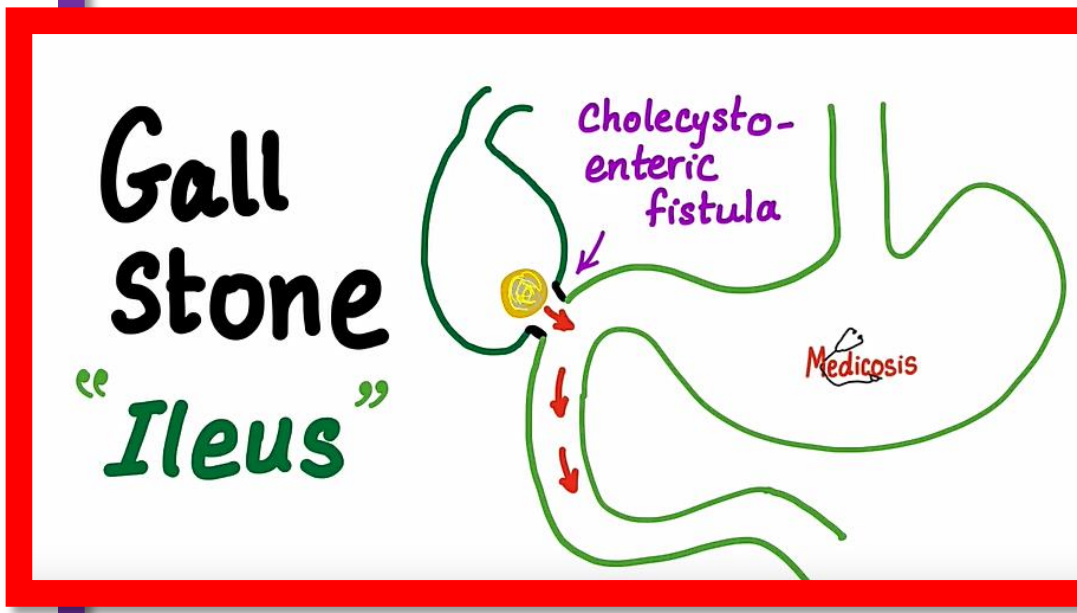


Lab. Tests in ileus.

- laboratory studies are to be ordered given the clinical presentation to determine etiology/cause
- electrolyte panel
  - **hypokalemia and hypercalcemia may worsen ileus**; hypomagnesemia can lead to hypokalemia
- creatinine and blood urea nitrogen
  - **uremia can lead to ileus**
- liver function tests, amylase, and lipase
  - **pancreatitis may lead to ileus**
- thyroid panel
  - **hypothyroidism may lead to ileus**

Leukocytosis and high CRP related to bowel necrosis

Gall stone ileus



Gall stone ileus

> 2.5 cm stone

↓

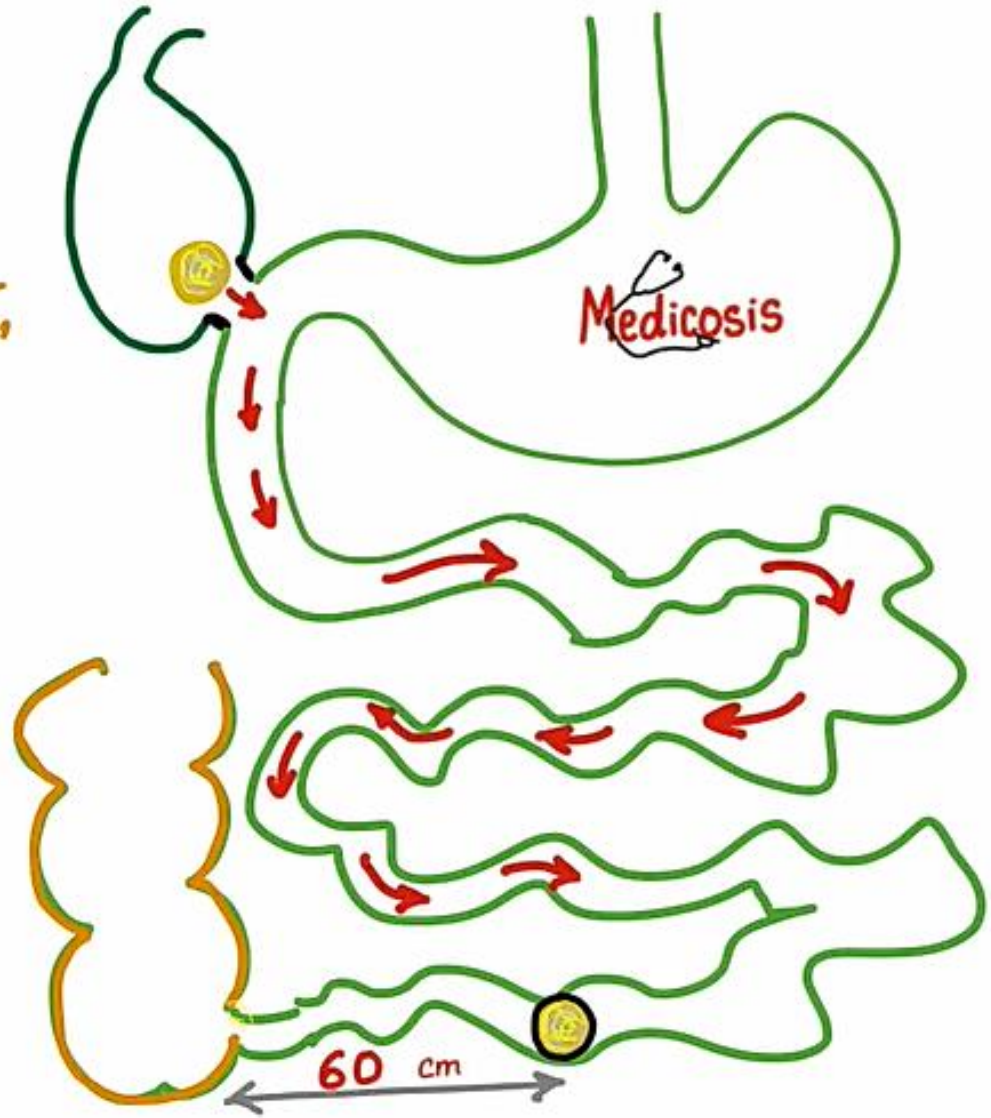
Fistula "cholecysto-enteric"

↓

impaction

↓

Small bowel obstruction



Rigler's triad

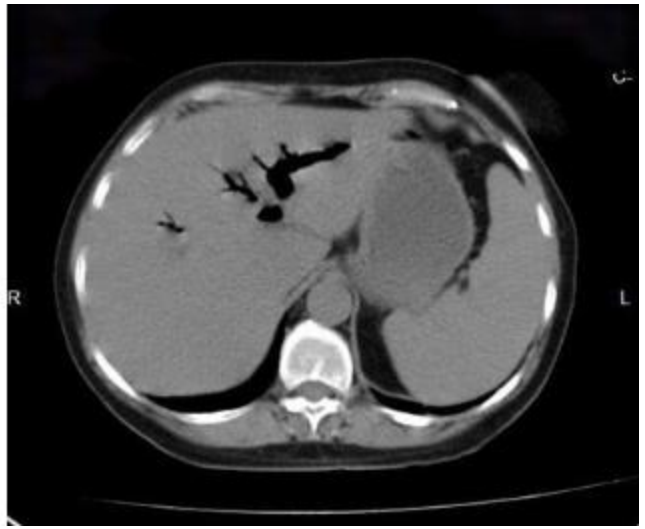
Leo George Rigler (1896–1979), who described it in 1941.

Professor of radiology, at the University of Minnesota in 1927.

RIGLER'S TRIAD

A triad of these findings in gall stone ileus:

- Pneumobilia
- Small bowel obstruction
- Gall stone in right iliac fossa



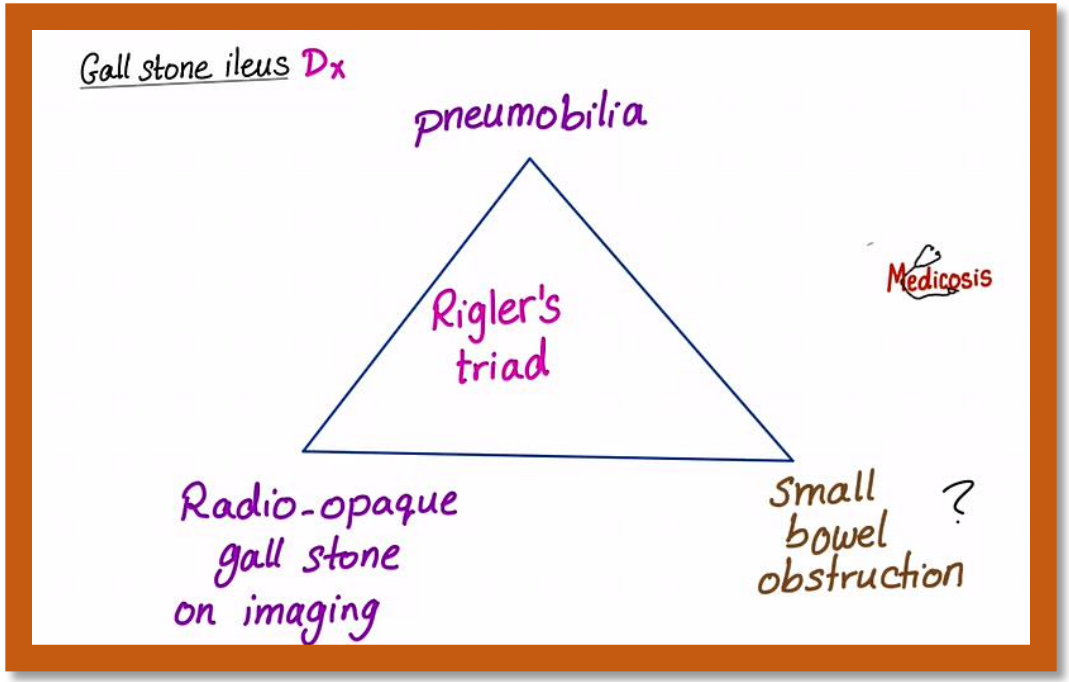
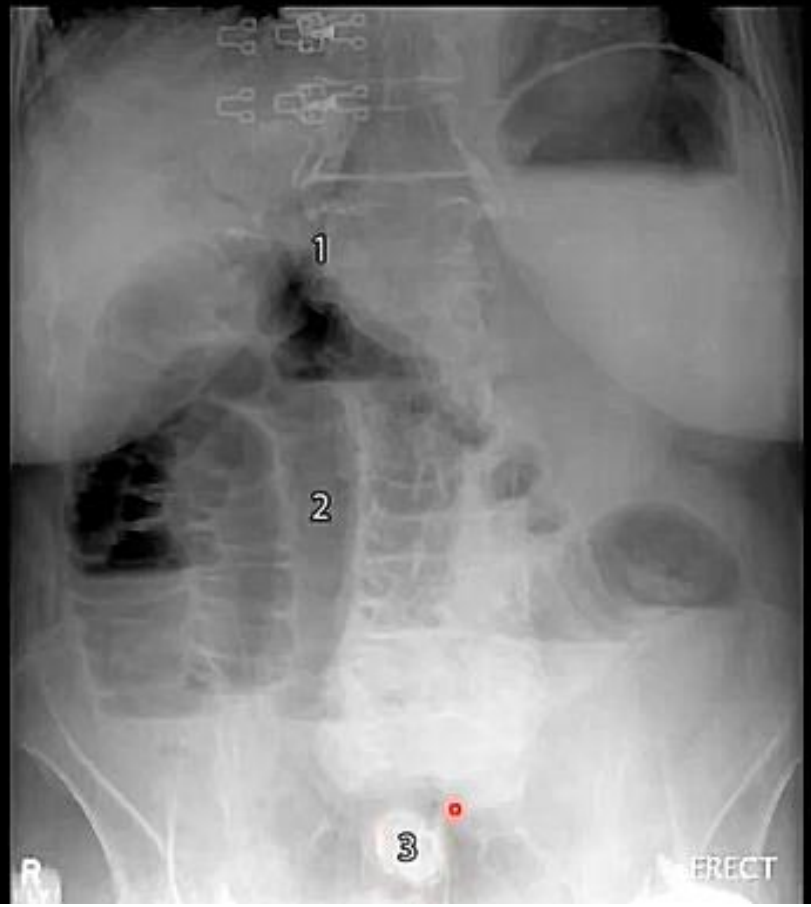


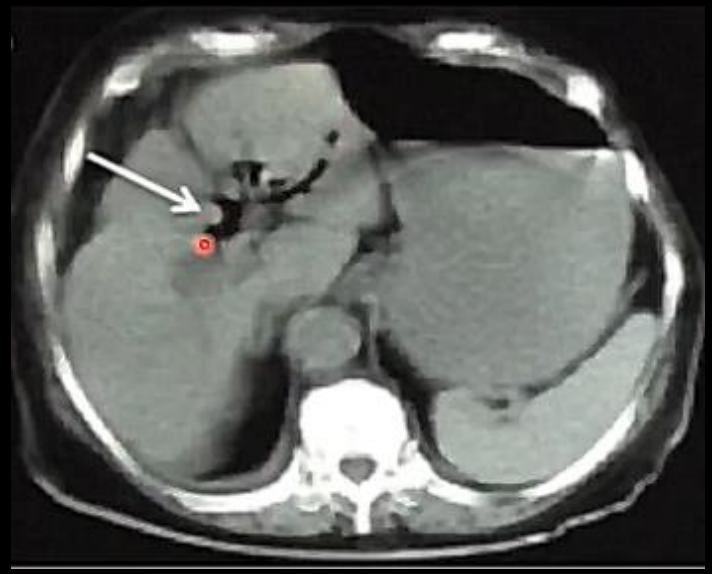
Fig. 1. Rigler triad: aerobilia (black arrow), gallstone in terminal ileum (white arrow) and intestinal obstruction signs (asterisk).

DR.NIKITA's

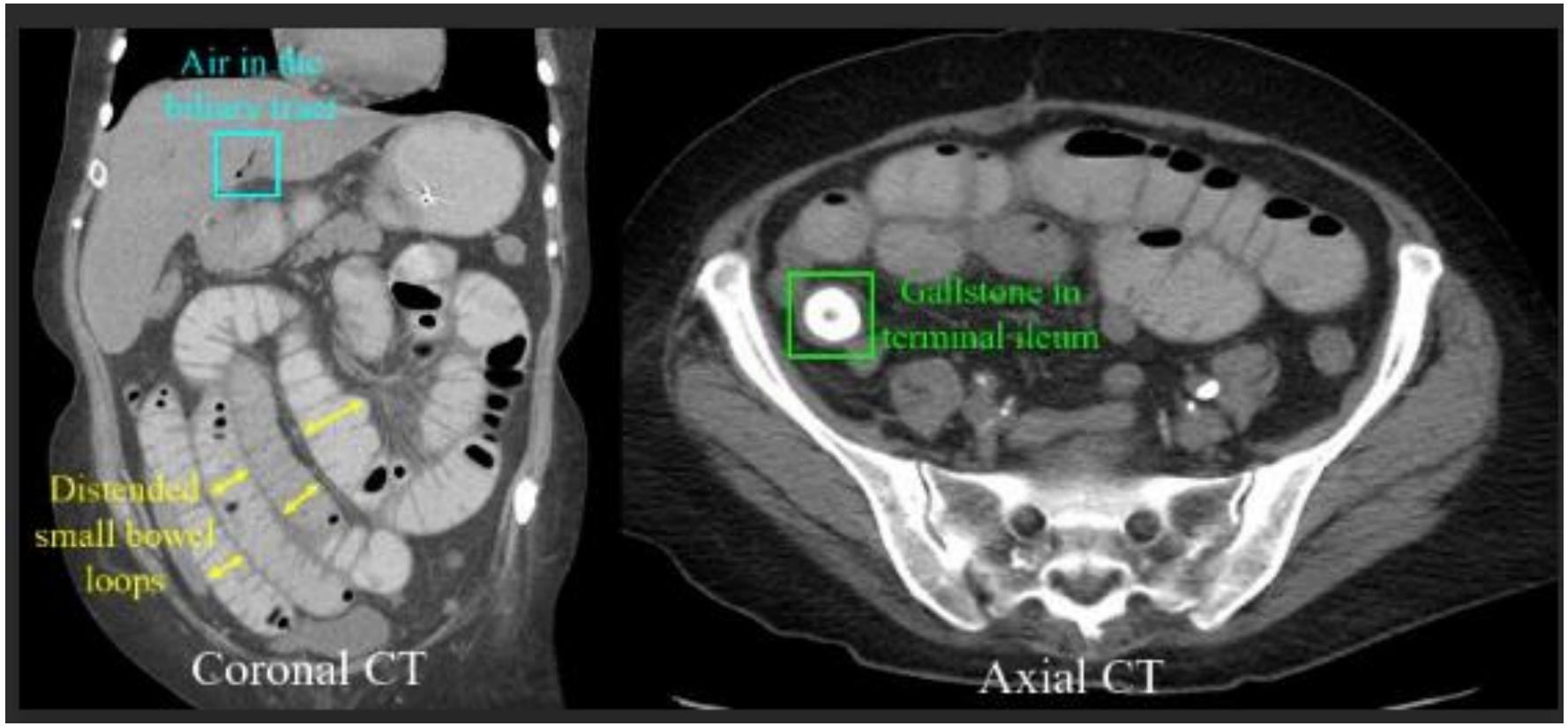
NEET PG RAD SYNAPSE

RIGLER'S TRIAD – GALLSTONE ILEUS

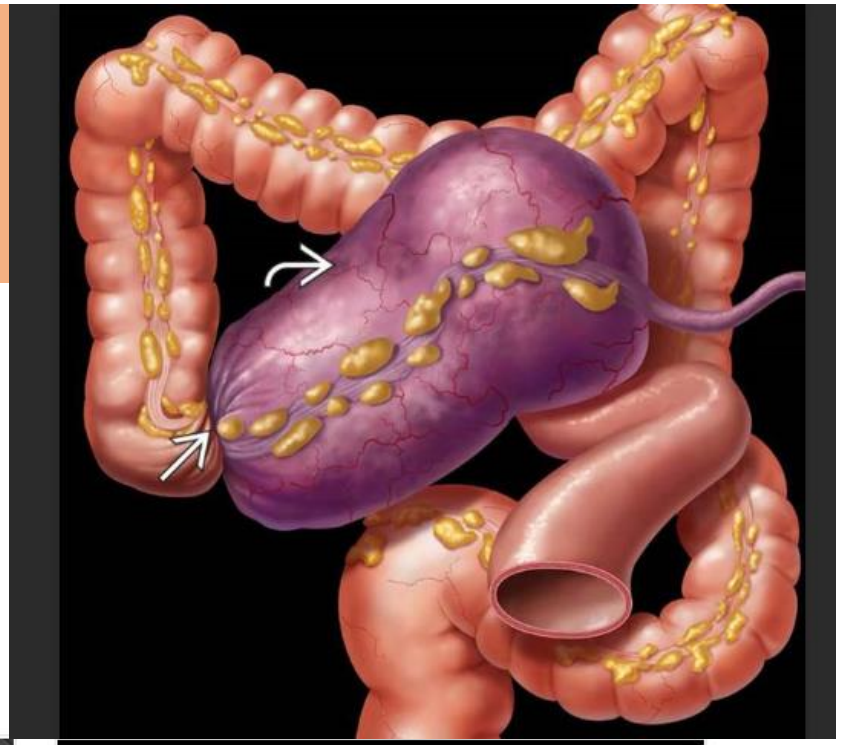


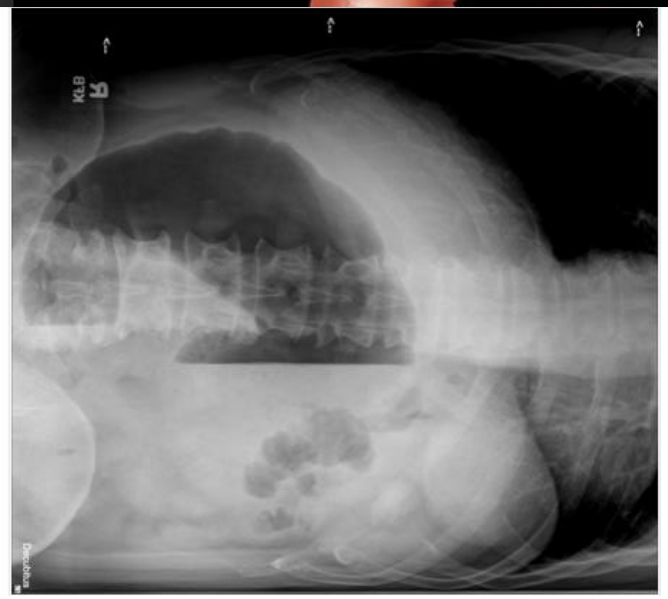


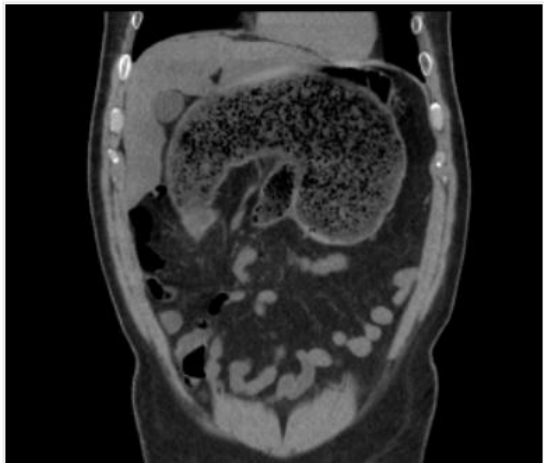
Gallstone ileus



Cecal volvulus







In this CT there is marked dilatation of the cecum with a central location in the abdomen. Usually a cecal volvulus will have visible haustra as opposed to a sigmoid volvulus in which colonic haustra will not be present. Sometimes, as in the above images, the haustra are difficult to see.

Conservative treatment

Conservative treatment is indicated only in:

1. Adhesive obstruction without signs of strangulation.
2. Initial stages of invagination.
3. Initial stages of low obturation

- Gastric decompression
- Siphon enema
- Paranephral procaine block
- Ganglio- and sympatholytics
- Correction of water-electrolyte balance

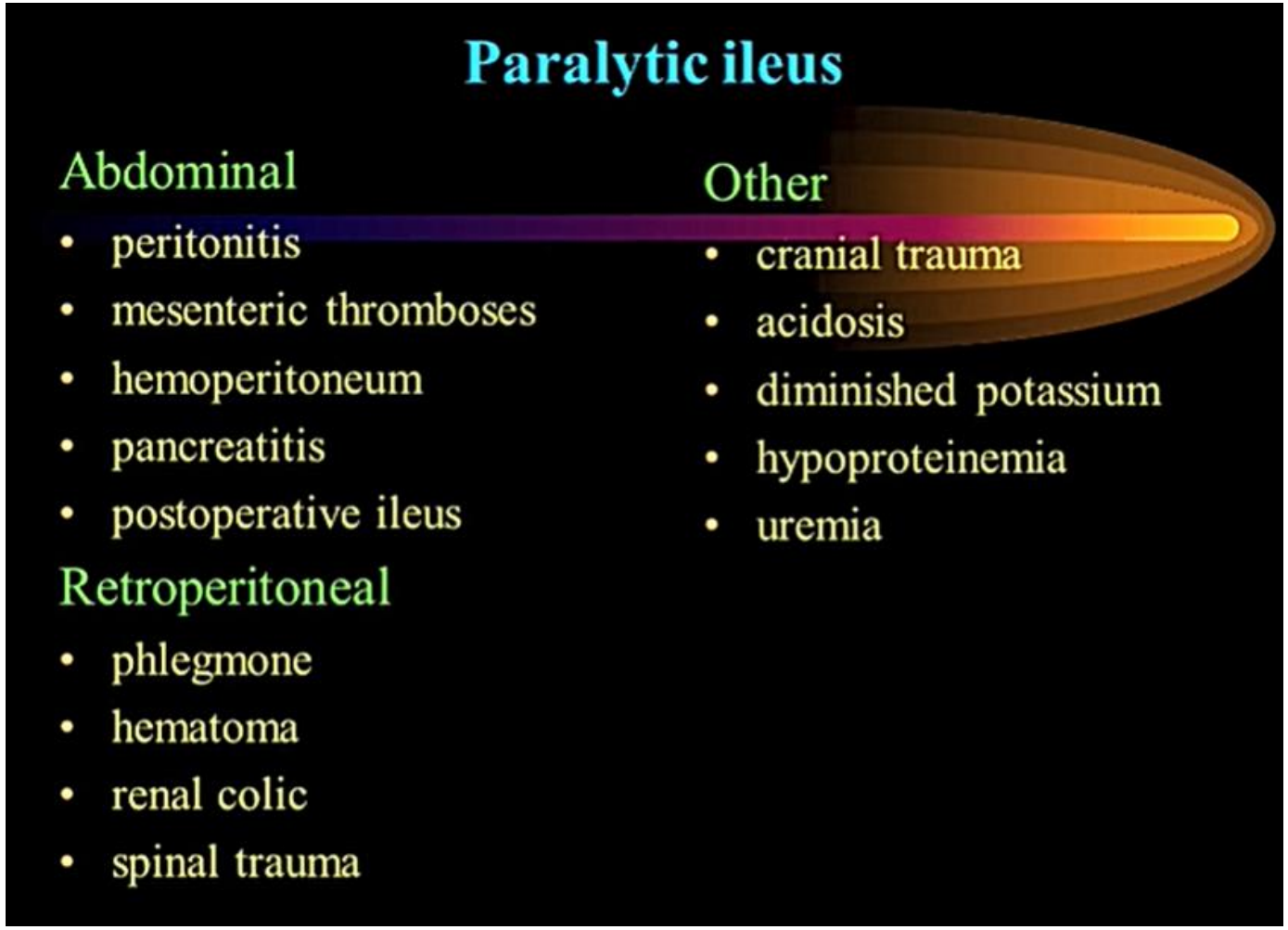
Surgical treatment

is indicated only if no improvement during 3-4 hours of conservative treatment

- Wide laparotomy
- Procaine block of mesenteric root
- Revision of intestine and detecting of the level and cause of obstruction
- Decompression of intestine proximal to the obstruction
- Assessing of viability of the bowel (peristalsis, colour, vascular pulsation)
- Removal of the obstruction (division of adhesions, intestinal resection, collateral anastomosis)
- External drainage of intestine (nasogastrointestinal intubation, rectal tube)

Ileus 要好好觀察及記錄 Q4-6 hours.

PARALYTIC ILEUS



Top 11 Ways on How to Home Treat a Bowel Obstruction.-1

- In most cases, **bowel obstruction** is dealt with in the health center or hospital where medical procedures are performed to relieve the patient of the symptoms immediately. Depending on the patient's case, **bowel obstruction** can be treated in the hospital by using a naso-gastric tube (NGT) to remove the excess gas and fluids in your stomach that relieves you of pain; stents or enemas to open wide or broaden the part where the blockage is located; and surgery on the specific part of the intestines where the blockage is at.
- **1)** ***Drink more water***
- **2)** ***Increase fiber:***Fiber can be obtained from food items like wheat, cereal, oats, rice, leafy vegetables, and fruits. There are also fiber supplements and fiber fortified drinks that may help you get the ideal amount of fiber that you need everyday.
- ***3) Apples***Apples, especially with the skin on, are very high in fiber. If you eat one every morning, then your intestines will have the initial does of fiber before you even start with your regular meals. The fiber that you take from the single apple helps mobilize your bowels. T

Top 11 Ways on How to Home Treat a Bowel Obstruction.-2

- **4)** ***Lemon tea and honey.***
- **5)** ***Water and honey:*** by boiling the water first and then cooling it. Then you add honey to it and drink it. This allows the lining of your GIT to be more lubricated by the honey. This is done before you sleep.
- **6)** ***Orange juice***
- ***7)*** ***Mint, lime, and ginger***
- **8)** ***Liquid diet***
- **9)** ***Cleansing beverages***
- **10)** ***Awareness of pain注意疼痛出現變強-→就醫***
- **11)** ***Be careful with laxatives可用而不濫用。***

Evaluation and Management of Intestinal Obstruction

PDF PRINT COMMENTS SHARE

A more recent article on intestinal obstruction is available.

PATRICK G. JACKSON, MD, and MANISH RAIJI, MD, Georgetown University Hospital, Washington, District of Columbia

Am Fam Physician. 2011 Jan 15;83(2):159-165.

SORT: KEY RECOMMENDATIONS FOR PRACTICE

CLINICAL RECOMMENDATION	EVIDENCE RATING	REFERENCES	COMMENTS
Abdominal radiography is an effective initial examination in patients with suspected intestinal obstruction.	C	6, 7	Radiography has greater sensitivity in high-grade obstruction than in partial obstruction.
Computed tomography is warranted when radiography indicates high-grade intestinal obstruction or is inconclusive.	C	8–10	Computed tomography can reliably determine the cause of obstruction, and whether serious complications are present, in most patients with high-grade obstructions.
Upper gastrointestinal fluoroscopy with small bowel follow-through can determine the need for surgical intervention in patients with partial obstruction.	C	14, 15	Contrast material that passes into the cecum within four hours of oral administration is highly predictive of successful nonoperative management.
Antibiotics can protect against bacterial translocation and subsequent bacteremia in patients with intestinal obstruction.	C	22	Enteric bacteria have been found in cultures from serosal scrapings and mesenteric lymph node biopsy in patients requiring surgery.
Clinically stable patients can be treated conservatively with bowel rest, intubation and decompression, and intravenous fluid resuscitation.	A	22–26	Several randomized controlled trials have shown that surgery can be avoided with conservative management.
Surgery is warranted in patients with intestinal obstruction that does not resolve within 48 hours after conservative therapy is initiated.	B	25	Study found that conservative management beyond 48 hours does not diminish the need for surgery, but increases surgical morbidity.

Abdominal radiography
Abdominal CT.

Upper Gi with small bowel follow-through
Antibiotics
Conservative treatment
Surgery, early

Causes of intestinal obstruction

Table 1.

Causes of Intestinal Obstruction

Adhesive disease (60 percent)
Neoplasm (20 percent)
Herniation (10 percent)
Inflammatory bowel disease (5 percent)
Intussusception (< 5 percent)
Volvulus (< 5 percent)
Other (< 5 percent)

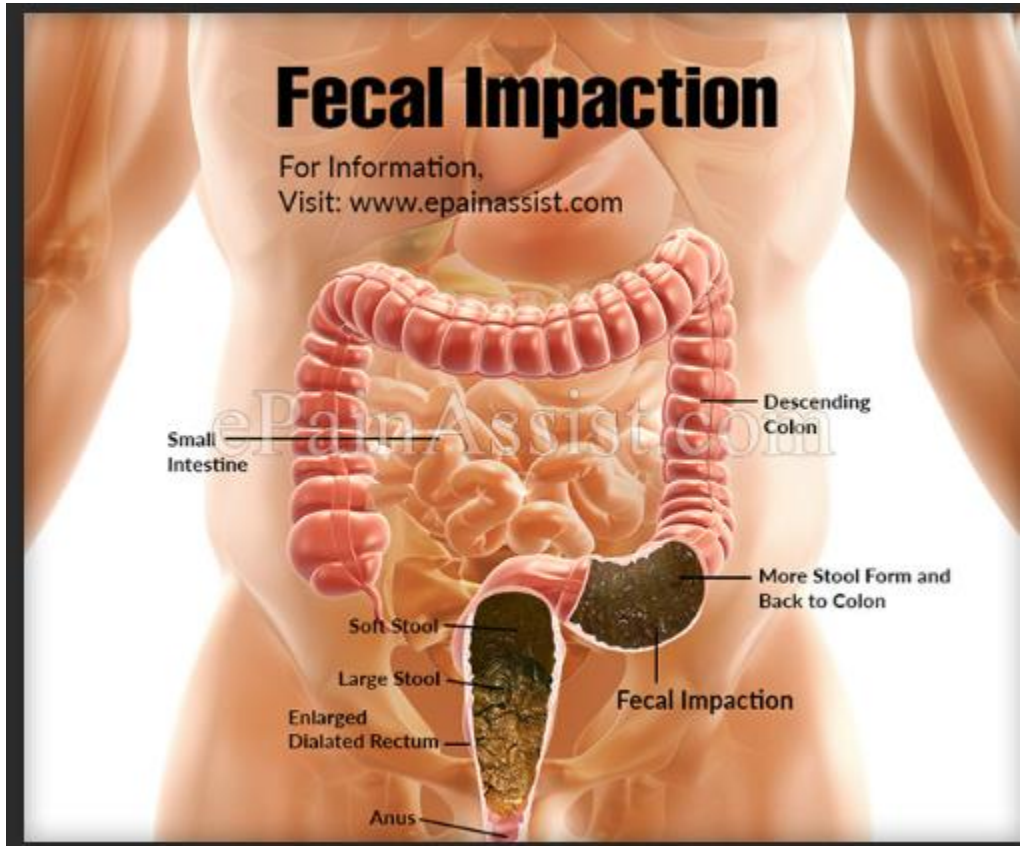
Table 2.

Differential Diagnosis of Abdominal Pain, Distension, Nausea, and Cessation of Flatus and Bowel Movements

ALTERNATE DIAGNOSIS	*CLUES*
Ascites	Acute liver failure, history of hepatitis or alcoholism
Medications (e.g., tricyclic antidepressants, narcotics)	Review of medications; diagnosis of exclusion
Mesenteric ischemia	History of peripheral vascular disease, hypercoagulable state, or postprandial abdominal angina; recent use of vasopressors
Perforated viscus/intra-abdominal sepsis	Fever, leukocytosis, acute abdomen, free air on imaging
Postoperative paralytic ileus	Recent abdominal surgery with no postoperative flatus or bowel movement
Pseudo-obstruction (Ogilvie syndrome)	Acutely dilated large intestine, history of intestinal dysmotility, diabetes mellitus, scleroderma

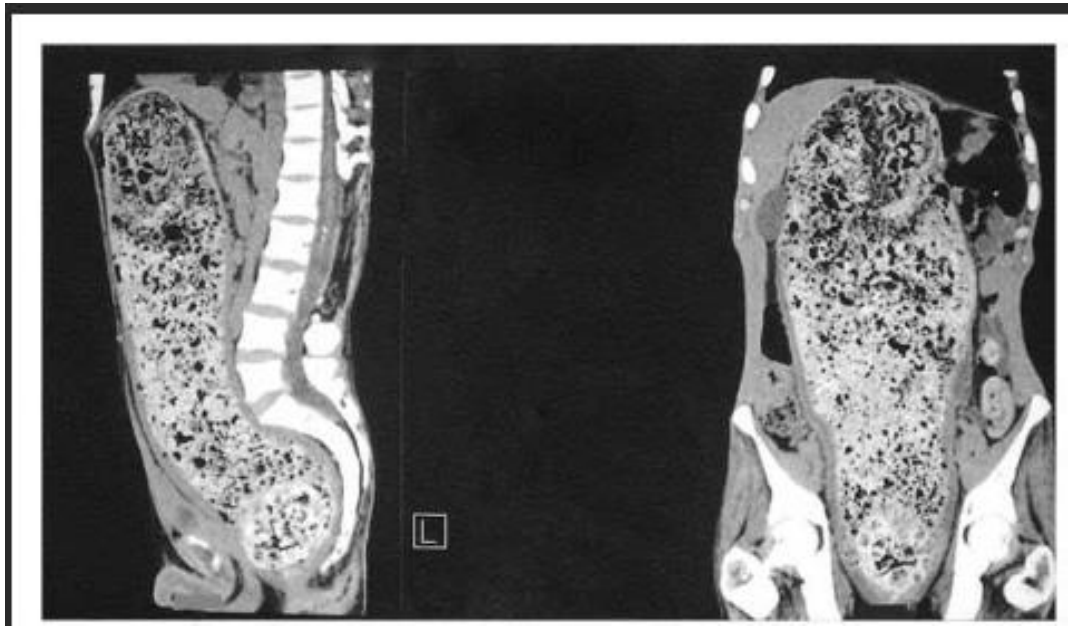
History taking and Physical examination are important in differential dx.

@@高齡者最大的問題: 運動少、水喝少、臥床多.常再發

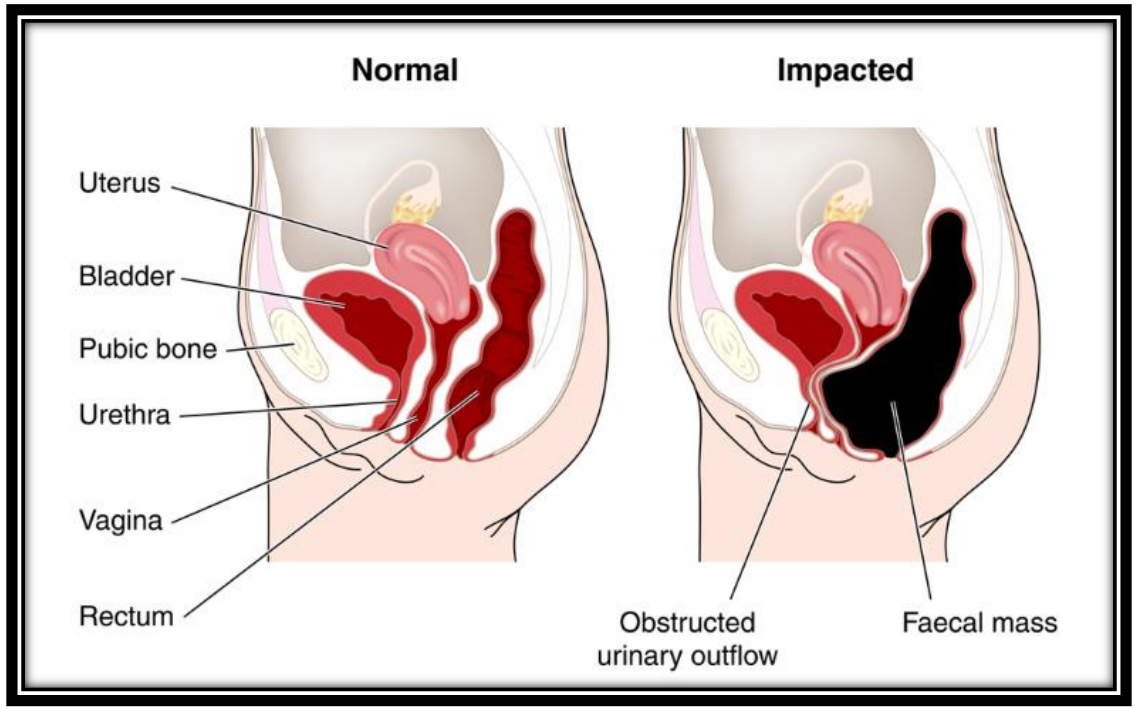


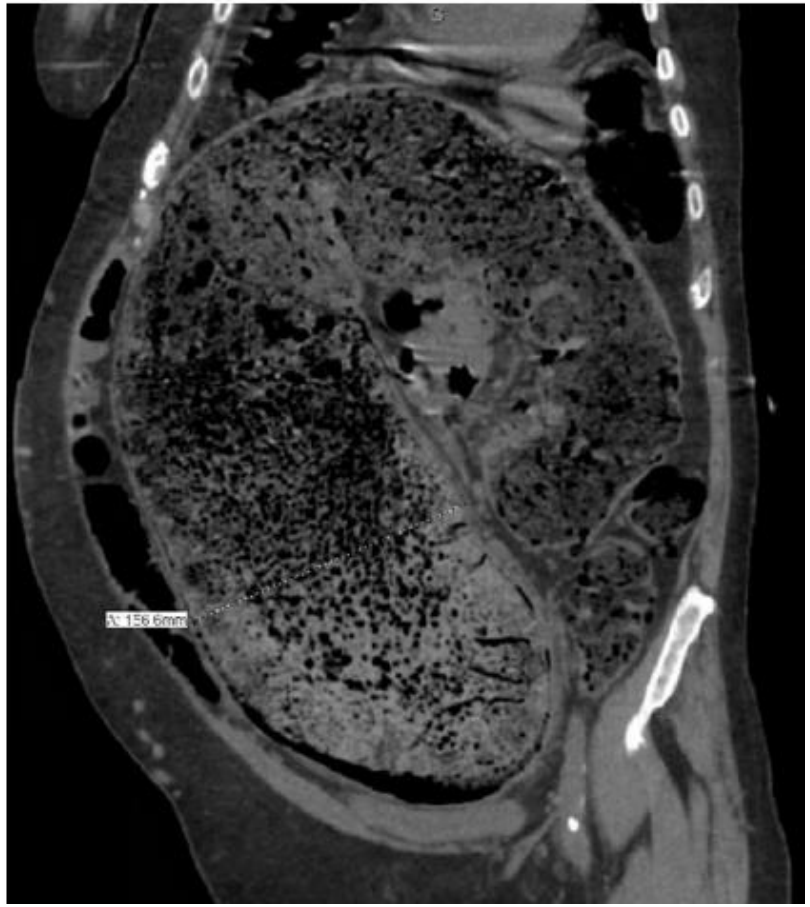
- Fecal Impaction is a health condition in which stools become hardened in colon making it tough for the body to excrete it out. Also known as intestinal obstruction, fecal impaction is a major problem with those who have poor diet which renders the healthy immune system out of sync. **In Fecal Impaction, the stool becomes dry and the rectum cannot expel the dry stool out from body. This condition is a result of a situation where the person has been constipated for a long time.**

Fecal impaction



- medication side effects
- insufficient nutrient intake
- dehydration
- not consuming enough fiber
- illness
- frequent bouts of diarrhea
- problems in the digestive system
- diseases such as diabetes or thyroid diseases
- obstruction in the intestinal tract
- continuous vomiting
- spinal cord injury





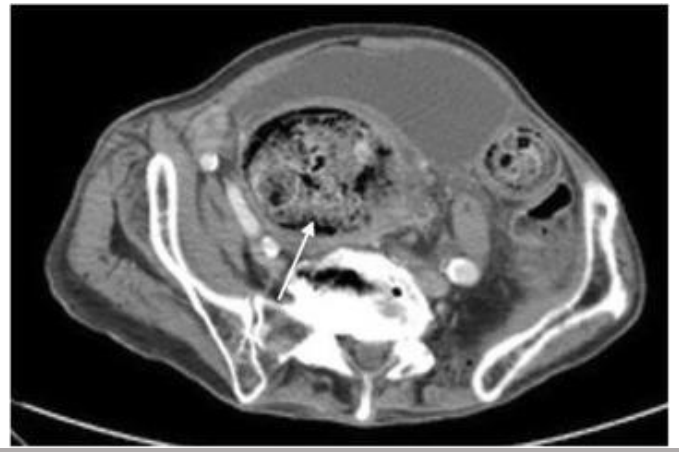
Coronal section on a computerized tomography (CT) scan showing severe fecal impaction. In this particular section, the rectum is noted to be distended up to approximately 16 centimeters.

Stercoral colitis and ischemic colitis, **(L113)**

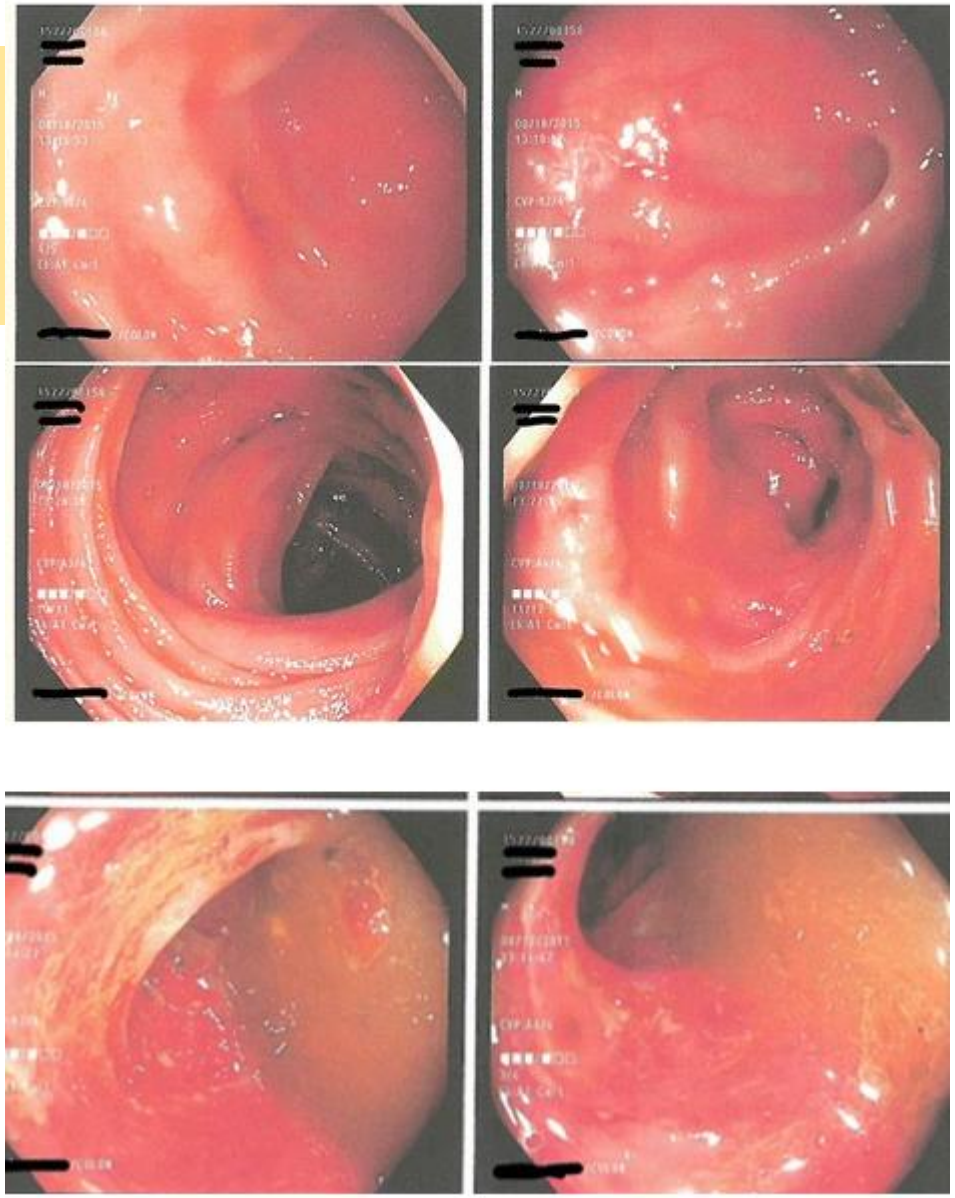
Stercoral colitis complicated with ischemic colitis: a double-edge sword

Maliha Naseer, et al : *BMCGastroenterology* **volume 17**, Article number: 129 (2017)

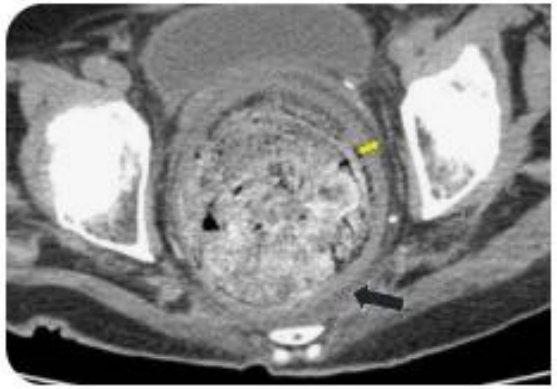
- 一名有慢性便秘病史的 87 歲男性因嚴重腹痛就診於急診科。患者血流動力學穩定。體格檢查，腹部輕度擴張，中度壓痛。檢查白細胞增多症(WBC 15,700/mcL).

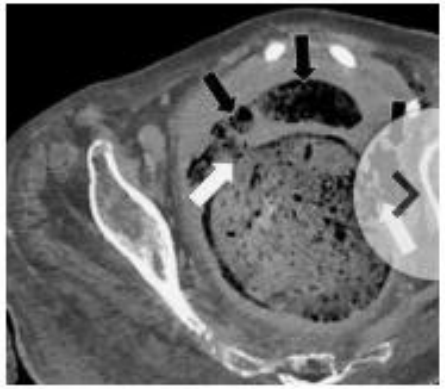


- 腹部 CT 掃描圖像顯示結腸內大量滯留糞便，腸壁增厚和結腸周圍脂肪浸潤



降結腸結腸鏡圖像顯示水腫、結腸壁紅斑伴黏膜脫落, 及潰瘍





「糞石性結腸炎」或「糞便嵌塞性結腸炎」

Stercoral colitis is an inflammatory condition caused by chronic constipation and fecal impaction, where a mass of dehydrated feces, or fecaloma, builds up in the colon. This buildup increases pressure, leading to colonic distention, ulceration, and potential tissue death (ischemic necrosis). It is a serious condition that can progress to life-threatening complications like colon perforation and sepsis.

Causes and risk factors

- **Chronic constipation:** The most significant risk factor, leading to the formation of a fecal impaction.
- **Fecal impaction:** Dehydrated feces accumulate in the colon, forming hard masses called fecalomas.
- **Increased intraluminal pressure:** The fecal mass presses on the colon wall, causing inflammation and pressure necrosis.
- **High-risk populations:** The condition is most often seen in the elderly, individuals with chronic constipation, those who are bedbound, nursing home residents, and sometimes in pediatric patients with certain psychiatric conditions.

Surgical or medical diseases, depend upon the nature and the progression of diseases.

- 傳統上,不需即刻手術的病人,由內科care.
- NTUH- 有一年改由外科照顧、爭取即時手術治療而不致拖延。---內科GI 很不爽。
- 可是需要,觀察的cases 很多,在急診處淪落為無人招呼的孤兒
- 交班中最容易疏忽了。
- Follow up最重要了。最好Q 4-6 hours
- 看一次記一次. 至少一班要看一次記一次 (Q 12 hours)

Acute colonic ileus is an uncommon motility disorder of unclear pathogenesis that predominantly occurs in older patients with severe medical or surgical disease. Conservative management is the treatment of choice and is successful in the majority of cases. Pharmacologic therapy offers an alternative for patients not responsive to conservative measures. For those patients who do not respond to pharmacologic treatment, colonoscopic decompression is the next step in management. Surgical decompression is reserved for refractory patients or patients whose presentation suggests colonic perforation.

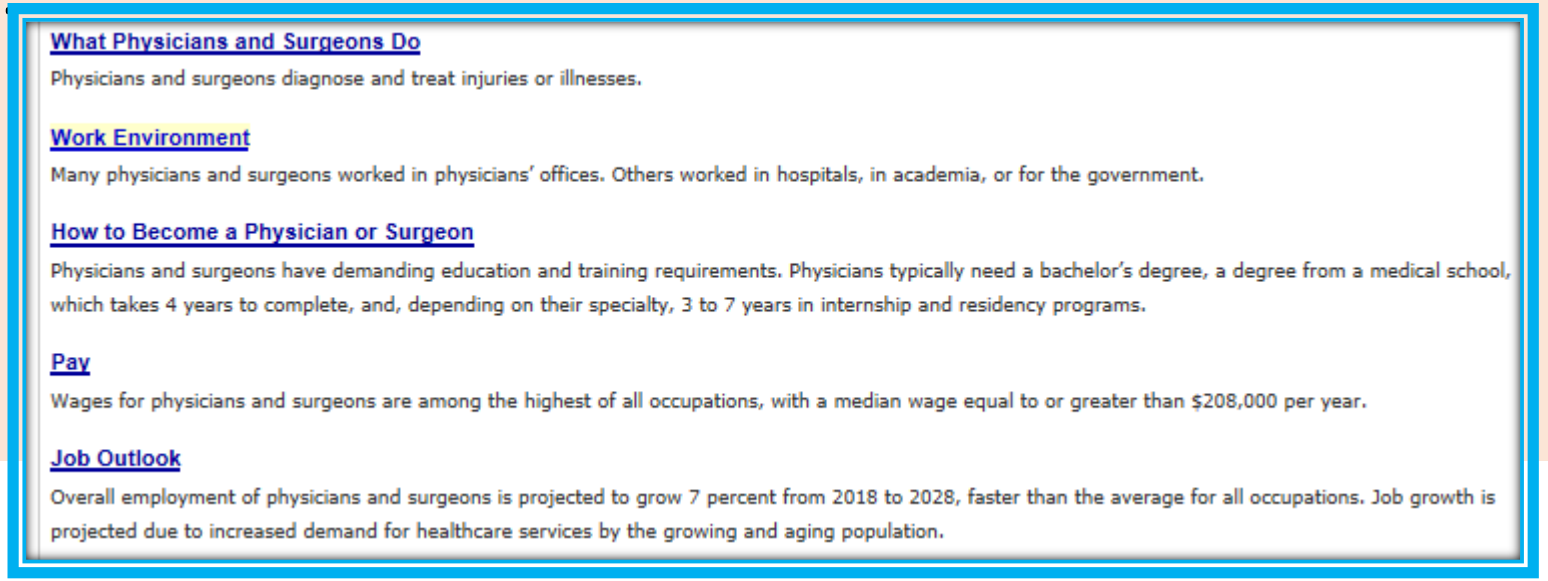
Conservative treatment -→ needs medical area.
→ Decompression is important step.—often medical
→ Approach.

Bowel obstruction: outcome

- Large bowel obstruction: 80 % 自我緩解.
- Small bowel obstruction: 80 % needs surgery.
- Regular check is very important.

內科系或外科系醫師?

- **Find the right doctor. Get the best care.**
- You may call them simply doctors. But most doctors have extra expertise in one type of medicine or another. In fact, there are several hundred medical specialties and subspecialties.
- 不應該有不執刀的外科醫師,也不可以有動不動都要開刀的內科醫師
- 最surprize 的事是所有的病人均吊上同一種IV fluid ---aminofusin (R1時看到學長的特殊作風)



Team work.+ Guidelines for best care

- The hospital SHOULD provide the right doctors and do the best care.

Physicians--多思考,多討論.-----Surgeons,要膽大心細.

結論 (2025.11.14.)

- 1.腸阻塞在急性腹痛(Acute abdomen) 中非常重要,須密切觀察、方能決定是否手術
- 2. 引起腸阻塞之原因甚多,可分為阻塞性及非阻塞型.
- 3.X光及病史與Physical examination是診斷腸阻塞的工具
- 4. 大腸阻塞多數可緩解。小腸阻塞多需手術
- 5. **Best care is team care**. **Regular follow up (Q4-6 hours at Emergency)** 仍是判斷final outcome.最不可缺的因素、在急診交班時要交待清楚.