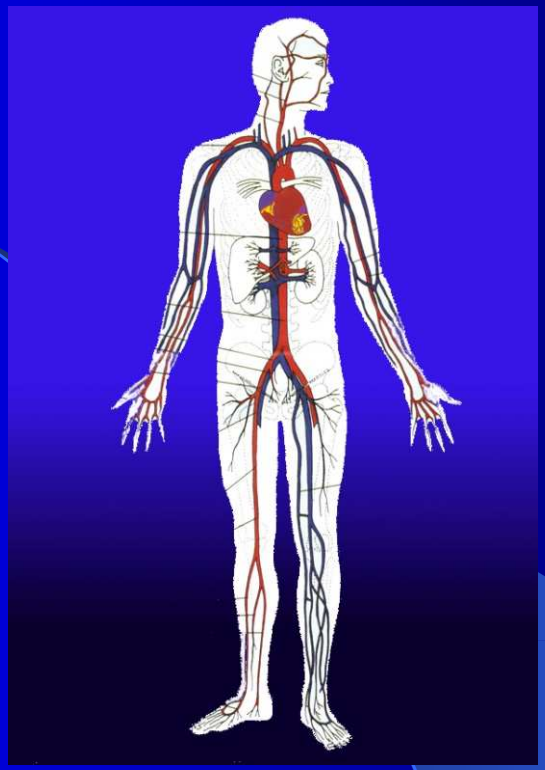
DIFFERENTIAL DIAGNOSIS

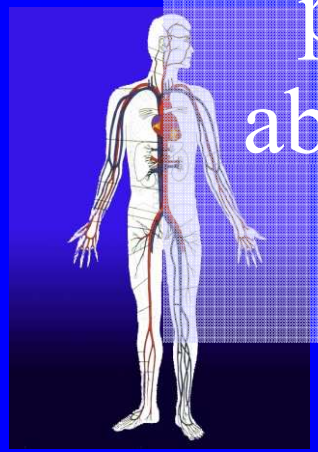


Acute abdomen = Abdominal pain, GIT bleeding,

Dyspepsia, Diarrhoea, Hepato-Splenomegaly, Icterus

Differential diagnosis is an ability of ALL physicians

The specific treatment of the particular disease is the ablity a physician with the particular speciality



The Leading Symptom vs Accompanying symtpoms

e.g.

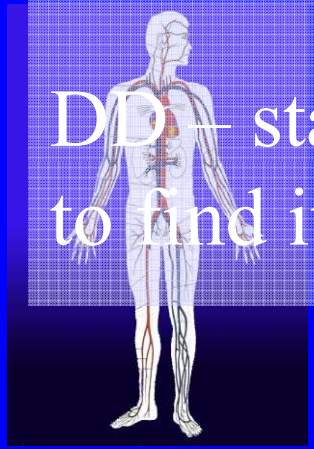
ABDOMINAL PAIN

Vs.

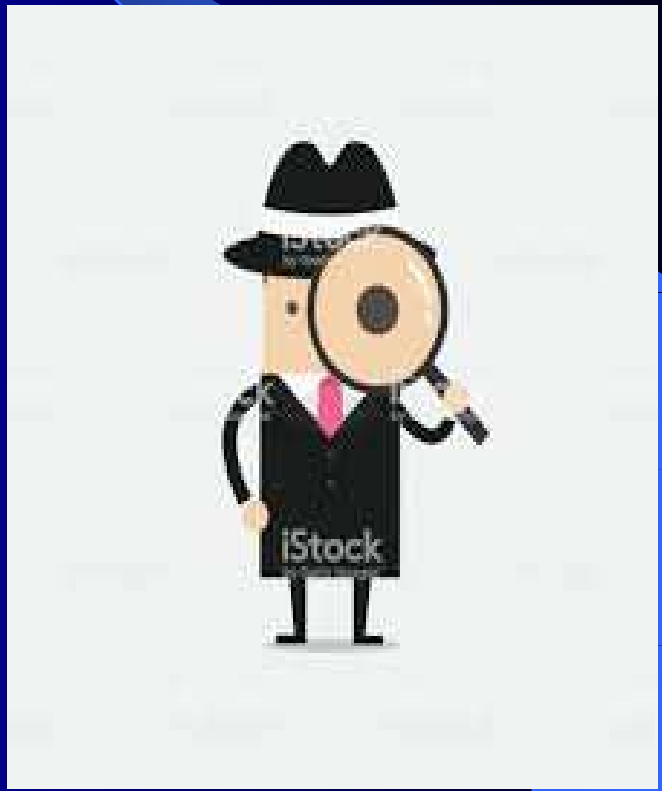
Fever, Dierrhoea, Jaundice, Bleeding, Dyspepsia, Breathlessness, Vomiting, Peripheral ischaemia, …

The principle is reverse to the learning

Learning – starts with organ systems and gets deeper into different pathologies with deifferent symptoms



DD – starts at a symptom and tries to find its origin – the diseae



Exclude life threatening conditions

Sepsis (cholangitis, bowel perforation, toxic megacolon, nephritis, appendicitis…) secondary peritonitis,

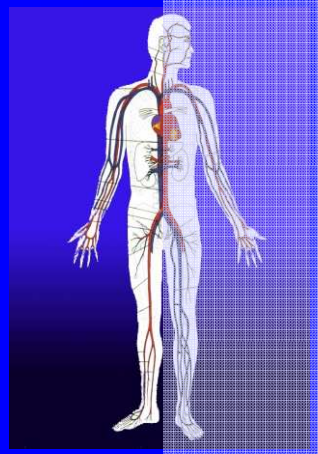
Bleeding – into and outside GIT

Thrombemolism…..

Critical ischaemia

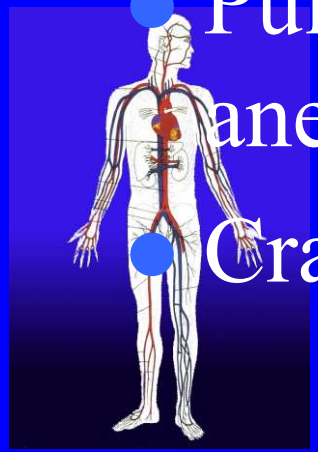
Haemolytic crisis

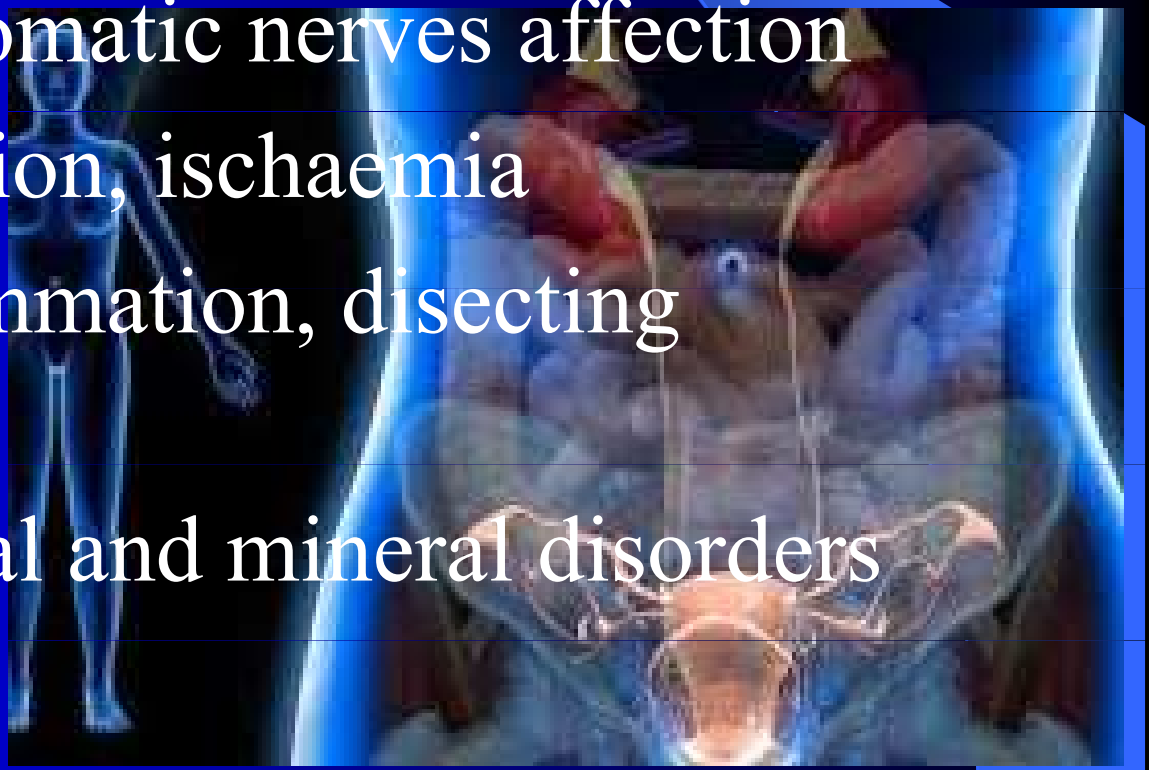
Heart failure



The Leading Symptom
Abdominal pain

- Sharp and hot - neuropathic
- Well localised – somatic nerves affection
- Blunt – inflammation, ischaemia
- Pulsating – innflammation, disecting aneurysm
- Cramps – hormonal and mineral disorders





The significance of the ACUTE ABDOMEN

- Up to 20% surgically treated patients
- Correspond to a vast majority of surgical mortality and morbidity
- Up to 25% with GI tumor is being diagnosed for the first time upon bleeding or obstructive acute abdomen

Definition

- As of a tradition, they are defined as life threatening episodes of abdominal symptoms arising with no prior warning.
- The term Acute abdomen or Acute abdominal pain, however comprises all even non surgical causes.

Division – should mirror the treatment

- Traumatic
  - Penetrating
    - Always revise
  - Non-penetrating
    - Non-surgical approach possible

- Non-traumatic
  - inflammatory
    - Hollow organ - colic
    - Solid organ
    - peritonitis
  - Obstructive - ileus
    - mechanic
    - vascular
    - neurogenic
    - pseudoobstruction
  - Bleeding
    - into GIT
    - Out of GIT

Treatment

- A shift to less invasive methods
  - endoskopic
  - Endovascular
  - Laparoscopy
  - Completely non-surgical upon the particular cause
  - Non-surgical treatment possible only when 24hr diagnostics at hand (ileus, bleeding)
- Raised demands for accuracy and reproducibility of imaging methods

Possibilities in inflammatory Acute Abdomen

Inflammtory AA	GIT perforation	Surgical revision Laparoscopic suture and drainage Conservative in covered perforation reported
	Hollow organ inflamed, empyema, abscess	ATB + Drainage – percutaneus (CT, US) - Endoscopic - If everything fails than surgical Pimary surgical APPE, LCHCE
	Solid organ inflamed (kidney, pancreas...)	-Just ATB, -if abscess or infected necrosis thean percutaneous or endoscopic necrectomy or drainage -Surgery as the last possibility -Provide proper clearance of particular duct affected

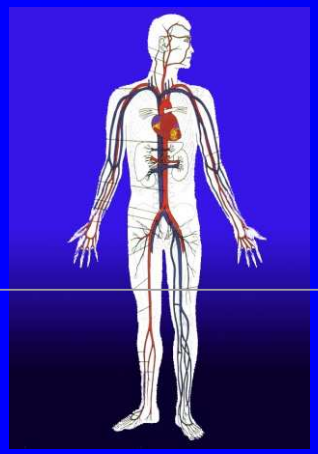
Possibilities in obstructive acute abdomen

ileus	mechanic	Obstruction removal, early enteroclysis in intususception, spontaneous resolution in adhesions possile, - Surgical reviosion usually inevitable
	vascular	Thrombolysis if caught early Surgical revascularisation Or resection if possible
	Neurogenic – both spastic and paralytic	Non-surgical treatment unles its failure and disease progression
	pseudo-obstruction, Ogilwie	Endoscopic desuphlation and prokinetics

Possibilities in bleeding acute abdomen

Always substitute for the blood loss and coagulopathy

Bleeding into GIT	Varices, GD ulcer, tumours, divrticuli, AV malformations	endoskopy, TIPS, endovascular, surger as the last option or in a non-stabilisable patient
	aorto-enteric fistula	Diagnostics unaccurate – emergency surgical reviosion - Emergency stentgraft placement reported
Bleeding out of GIT	Visceral arteries ruptured, AV malformation	Endovascular emboisation, stentgrafts, surgery in case of failure
	Ruptured aneurysm of AA and iliac arteries	Emergency surgical revision (2/3 die before admission and another 2/3 after succesfull surgery – MOSF)
	Extrauterine pregnancy	Laparoscopy possible



Treatment of traumatic acute abdomen

- Penetrting
  - Always surgical reviosion
  - At least using laparoscopy

- Non-penetrating
  - Non-urgical management possible if good 24hr IC monitoring and CT accesibility
  - Liver trauma oudht to be managed non-surgically irresective of the degree and haemoperitoneum but a non-stabilized patient
  - Hve in mind risk of ommitted GIT perforation – high energy trauma

Origin

- Psychologic
- Alimentary/Intoxication
- Musculosceletal
- Metabolic
- Bleeding
- Ischaemia/Thrombosis
- Infection
- Inborn malformations
- Tumours

Diagnosis

- Swift and accurate
- Medical history
- Physicl examination
- Blood chmistry
- Imaging methods
- Development in time
- Be carefull in
  - toddlers
  - elderly
  - pregnant

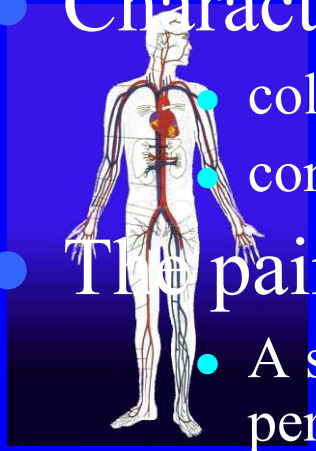
Differential diagnosis

- Extra-abdominal diseases
  - IHD - MI, basal pneumonia, lumbago, pulmonary embolisation, pleuritis, testis torsoin (or torqued ovary), radiculitis, herpes zoster
- Hematologic causes
  - Haemolytic crisis – liver and spleen distension,
- Metabolic
  - Uraemia, poissoning, hyper-parathyreosis, thyreotoxicosis, endometriosis, DM and alkoholic ketoacidosis, porfyria, mehtanol poissoning

- Other
  - GI gasses, morphin withdrawal syndrome, gastro-enteritis, colitis
  - Black widow bite, scorpion sting.

Defining symptom- abdominal PAIN

- Type
  - visceral – vegetative nerves – non-localisable - distension, spasms
  - Somatic – somatic nerves - peritoneum
  - Irradiating – convergence of nerves coming from different places within the medulla
- Beginning
  - sudden – seconds - perforation, bleeding, torsion (ovary, testes, appendix)
  - quick - minutes to hours - intususception, strangulation, pancreatitis, hollow organs collic
  - slow - inflammation -
- Character
  - colic – hollow organ obstruction
  - continual
- The pain travel
  - A shift of affection from the particular organ to the corrsponding peritoneum

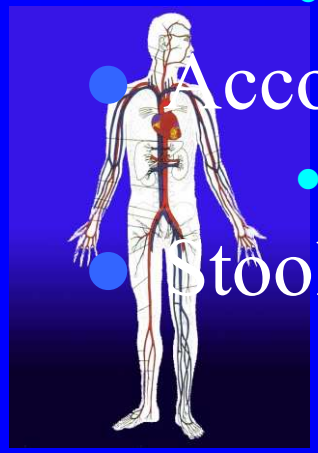


Pain Location

- EPIGASTRIUM - nn splanchnici maiores + n.X
  - Foregut embriologically – coeliac trunc - stomach, 1st one half of duodenum, liver, pancreas.
- MESOGASTRIUM - n splanchnici maiores + n.X
  - Midgut embriologically - AMS – periumbilical pain
  - appendicitis – typical shift in the location and character of the pain
- HYPOGASTRIUM – pelvic sympathetic nn. + nn. splanchnici minores
  - Hindgut – AMI - levý tračník a níže (+ genitourinární systém)

Important medical history

- Medication
  - Blood thinning therapy, NSAIDS, hormonální contraception
- Oral intake
  - Poissoning, diet mistakes, abuse of…
- Chronic diseases
  - Gastric ucer, CKD, haematologic diseases
- Preceding surgeries
  - Relapsses, adhesions
- Accompanying symtoms
  - Constipation, diarrhoea, vomitus
- Stool, urine character, vomitus character

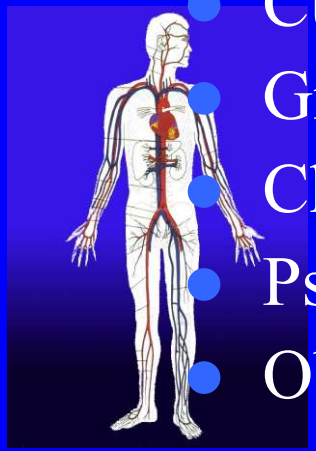


Physical examination

- 2A + 3P (Aspection, auscultation, palpation, percussion, per rectum)
- Pulse, Blood pressure, Body temperature,
- Rectal to axillary BT difference

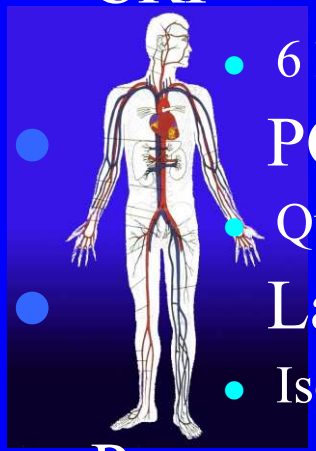
Typical local findings on abdomen resulting from the peritoneum irritation

- Défanse musculaire – diffuse peritonitis
- Murphy
- Kehr – phrenic nerve sign
- Blumberg
- Rowsing
- Pleniés
- McBurney – McBurney spot pain
- Cullen – acute pancreatitis
- Grey-Turner – acute pancreatitis
- Chandelier – pelveoperitonitis, pelvis elevation on DRE
- Psoatic sign – psoatic irritation
- Obturator fossa sign – inner hernia



Laboratory tests

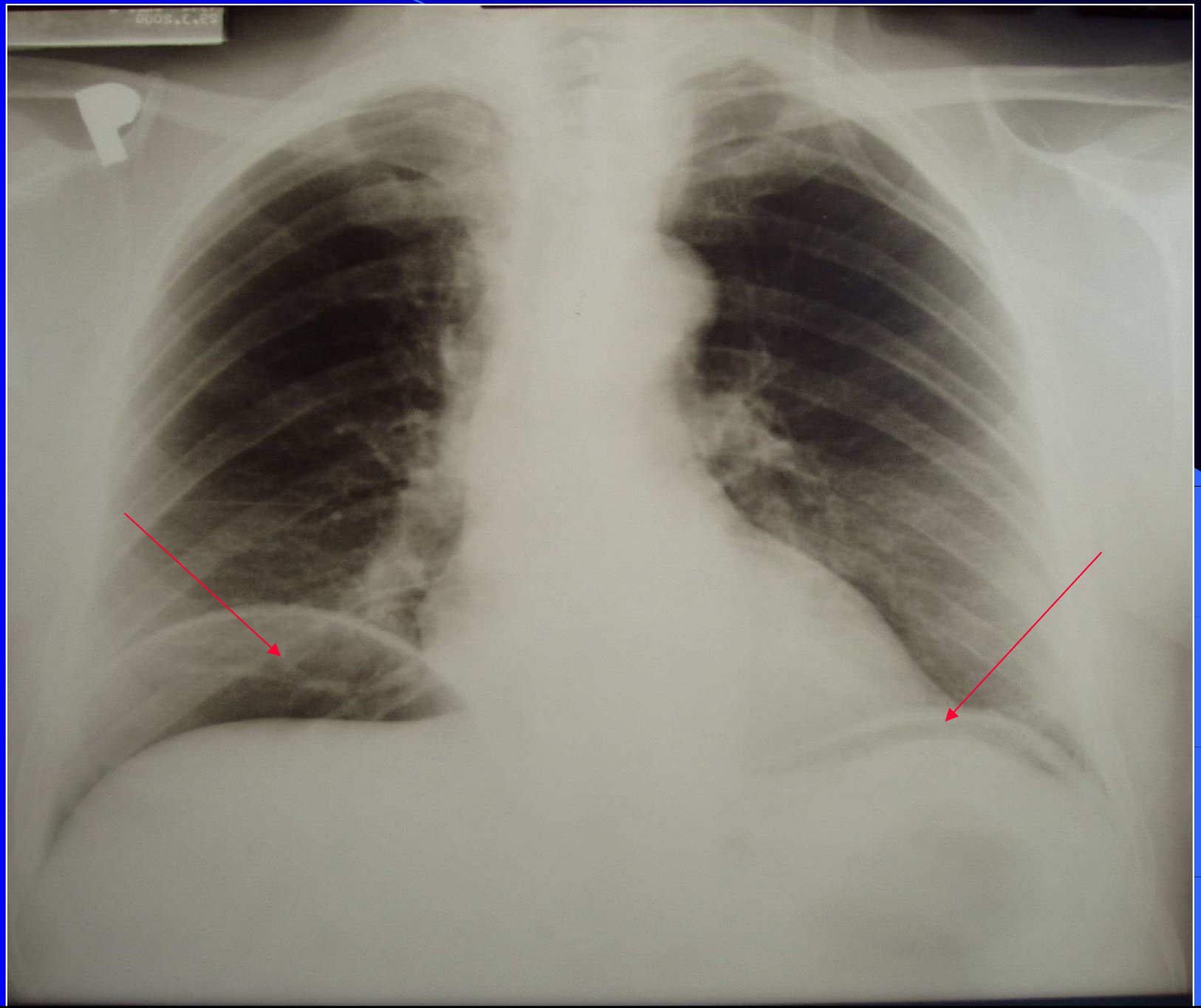
- Blood count + coagulation
  - LEU – sign of inflammation, dehydration, ERY – deyhdration, Leukocytóza jako známka zánětu, polycytémie a riziko trombózy
  - Bleeding – cave delay, Plt + Ery down , Leu up
  - Primary or secodary coagulopathy
  - D-Dim – when negative thrombosis excuded
- JT
  - hepatopathy
  - Bile obstruction
- Amylase + lipase (serum , urine)
  - Acute pancreatitis/ischamia (3 times serum level od 5 times inrenal insuff.)
- CRP
  - 6 hours after insult, maxumu at 48 hours
- PCT (vs. IL-6)
  - Quite specific for becterial infection
- Lactate
  - Ischaemia, shck, affected microcirculation
- Pregnancy test - HCG



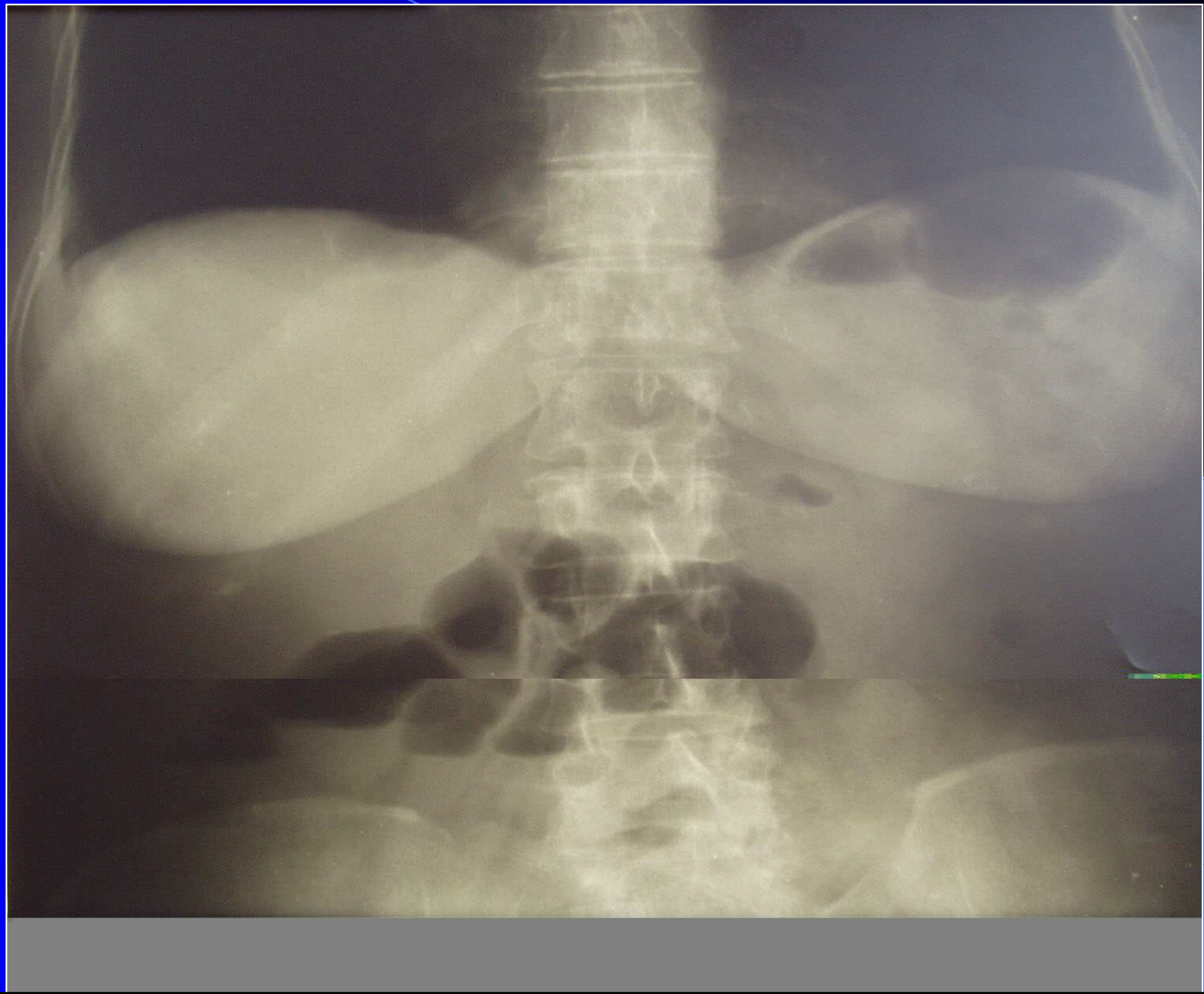
Fundamental imaging methods

- Plain abdominal X-ray
  - Lying vs standing position – ileus, foreign body
- Plain X-ray targeted to subphrenic space
  - Free air = GIT perforation
  - But – preceding surgery, PNO, VATS, pneumatosis cystoides
  - Mind adhesions – prevent gas redistribution –ascension to diaphragm and detection
- US
- CT – all in one examination
- Endoscopy in case of GIT

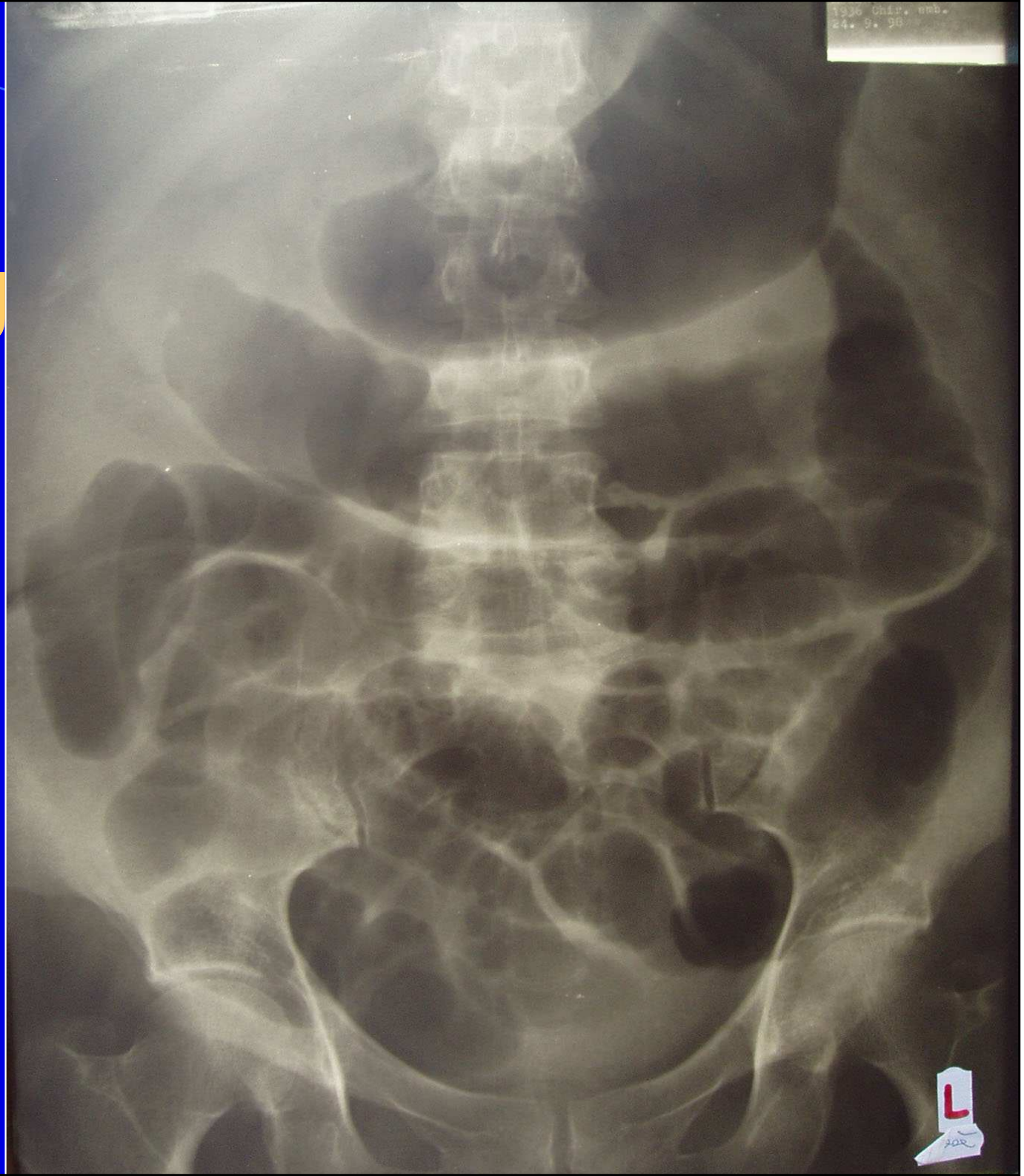
Pneumoperitoneum



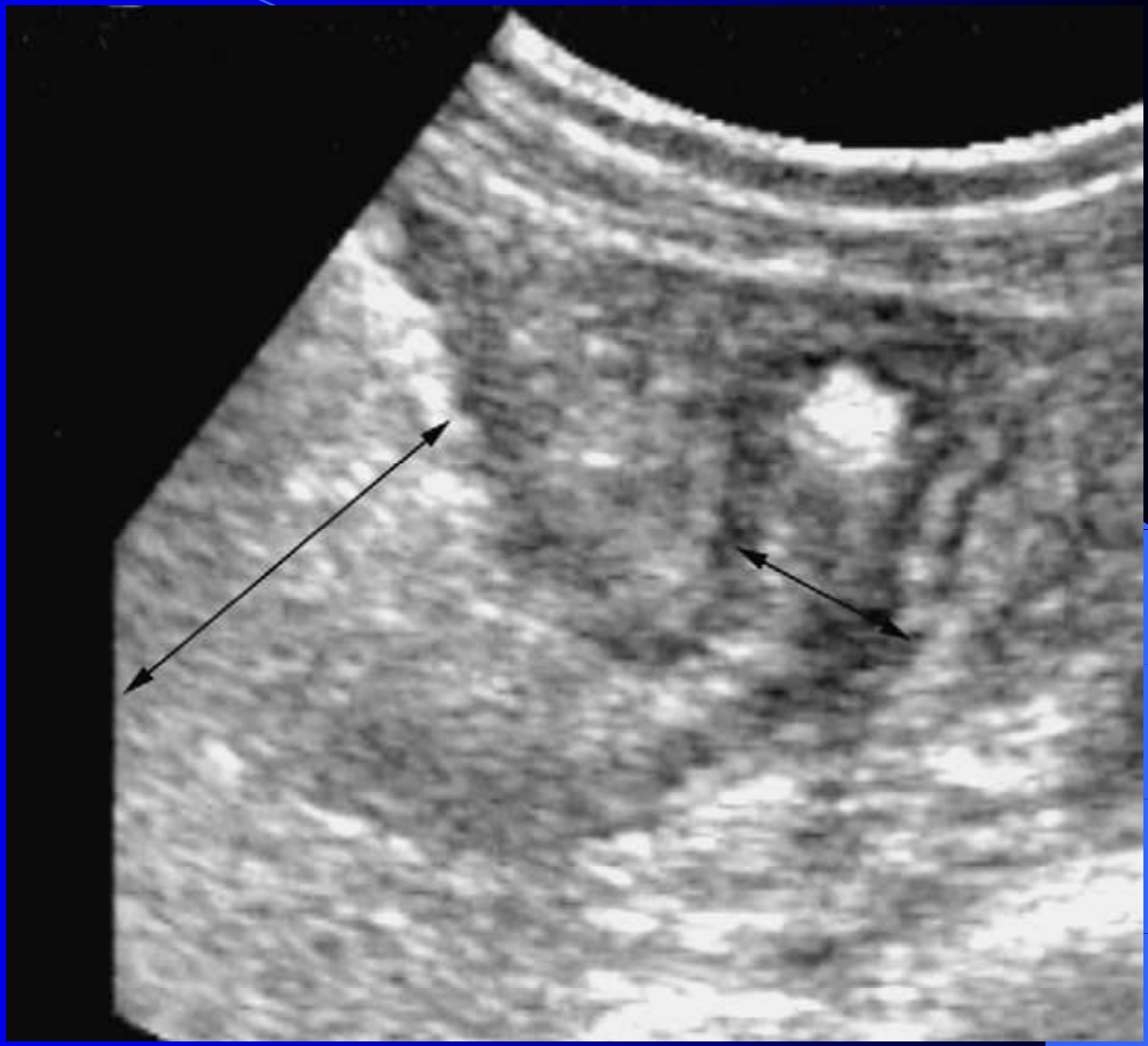
Water levels in ileus



Dilation, gathering



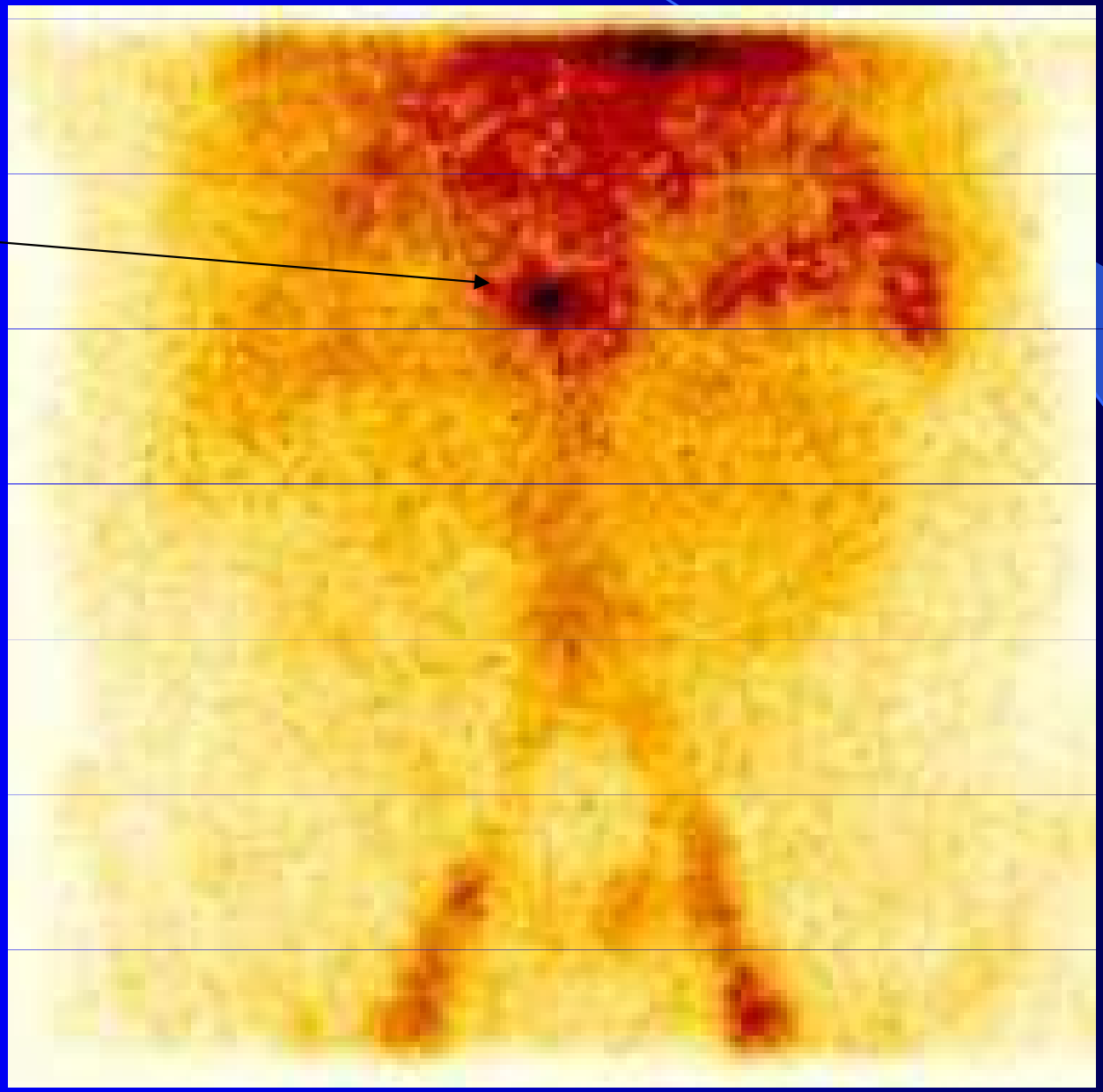
Prestenotic dilation in Crohn´s disease



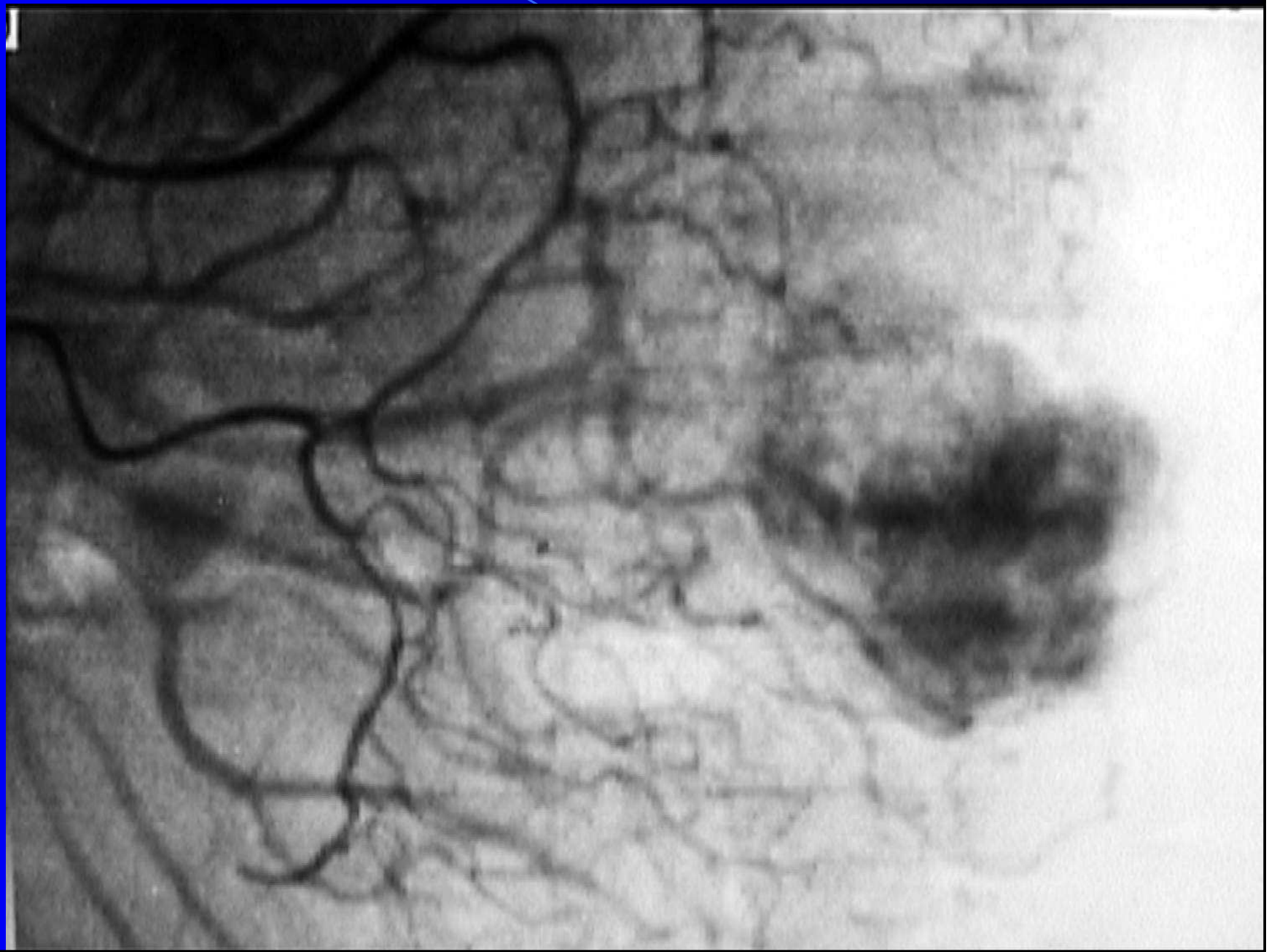
Additional and Alternatve imaging methods

- When still in doubt
- Usually non emergency
- MRI
- enteroclysis
- DSA
- MR a CT angiography
- ERCP, MRCP
- Gamma ray imaging with stained Leu or Ery

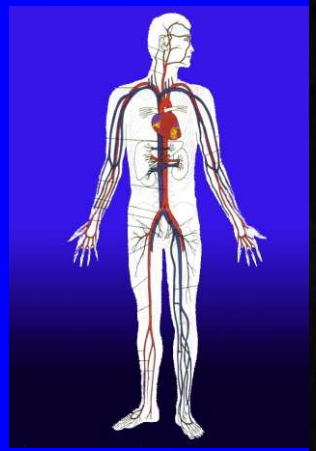
Gamma-ray image - bleeding



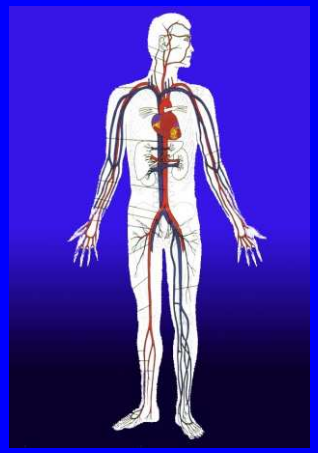
Leiomyoma of the jejunum
DSA

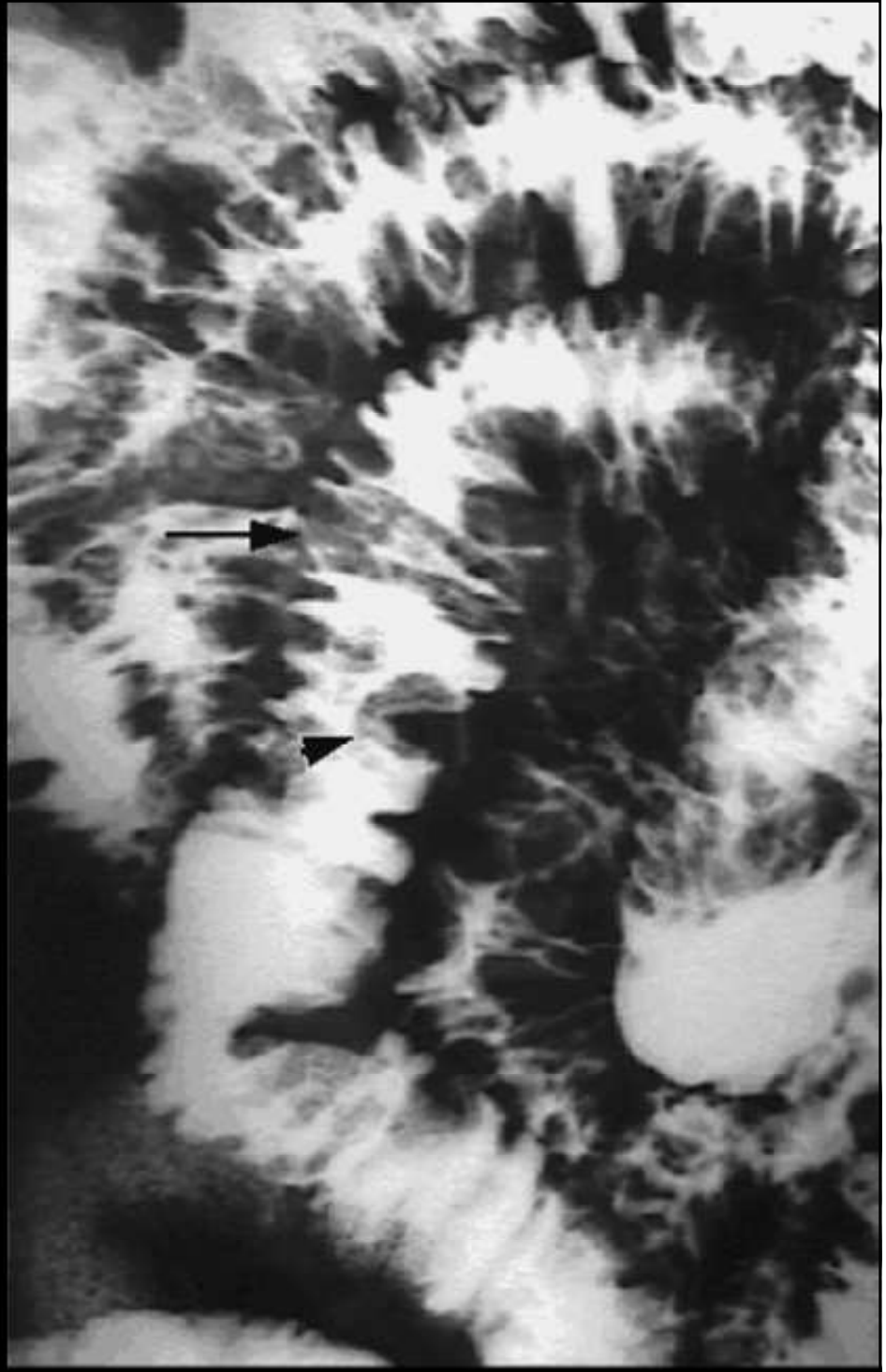


Lymphoma of jejunum at enteroclysis

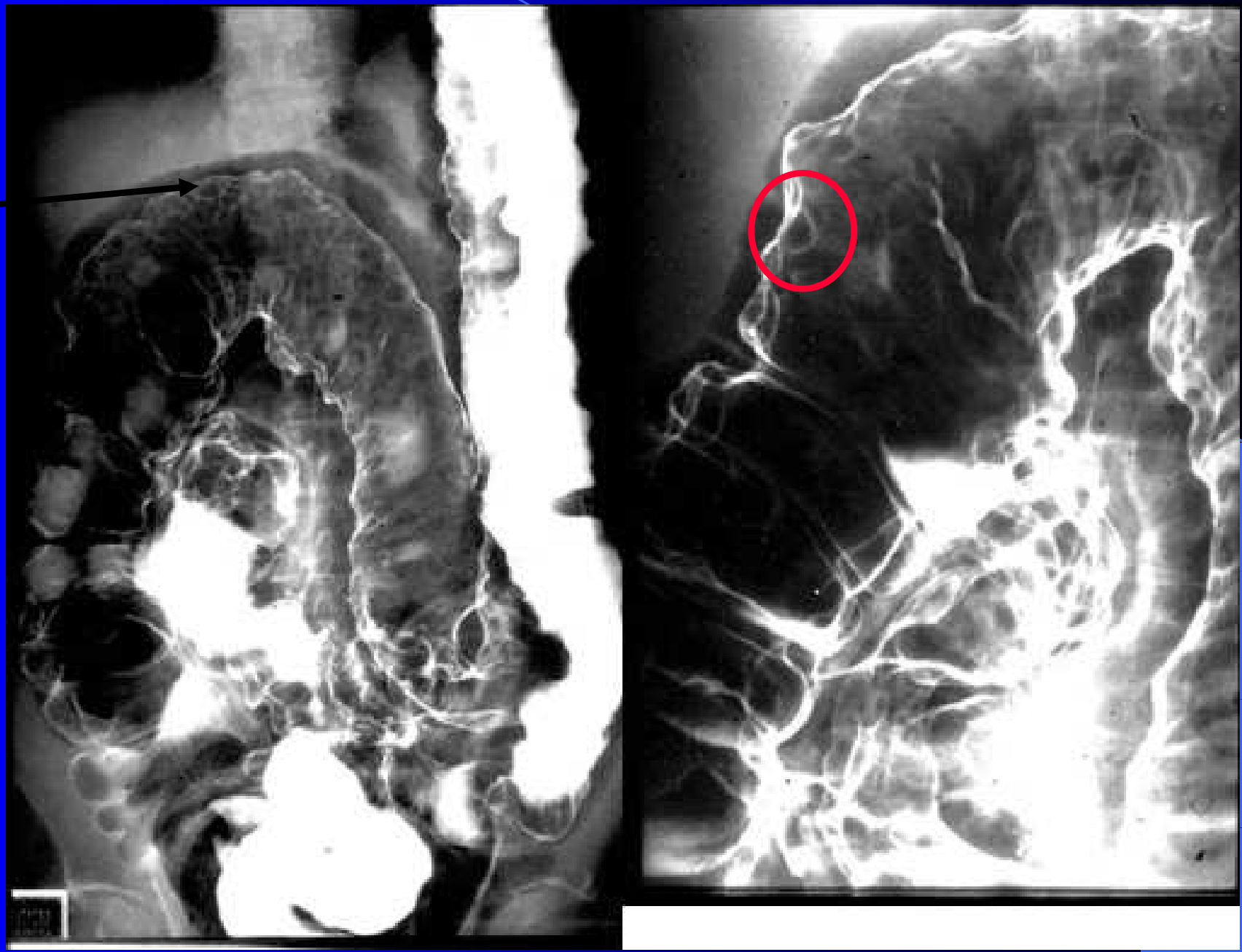


Amyloidosis enteroclysis of the ileal region





Pneumatosis cystoides v obraze enteroklýzy, bublinky plynu ve stěně



The Leading Symptom Diarrhoea

- Psychologic
- Alimentary/Intoxication
- Metabolic
- Infection
- IBD

The Leading Symptom

Dyspepsia

- Psychologic
- Alimentary/Intoxication
- Metabolic
- Infection
- IBD
- Malformation/Atresia

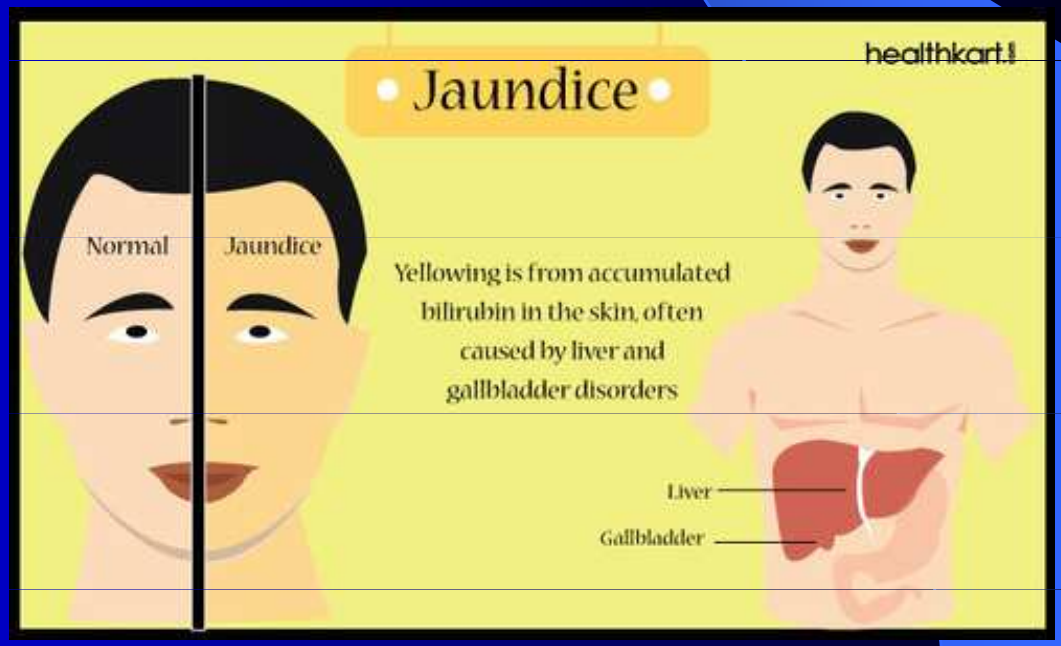
Origin

- Psychologic
- Alimentary/Intoxication
- Musculosceletal
- Metabolic
- Bleeding
- Ischaemia/Thrombosis
- Infection
- Inborn malformations
- Tumours

The Leading Symptom

Jaundice

- Psychologic
- Alimentary/Intoxication
- Metabolic
- Infection
- IBD

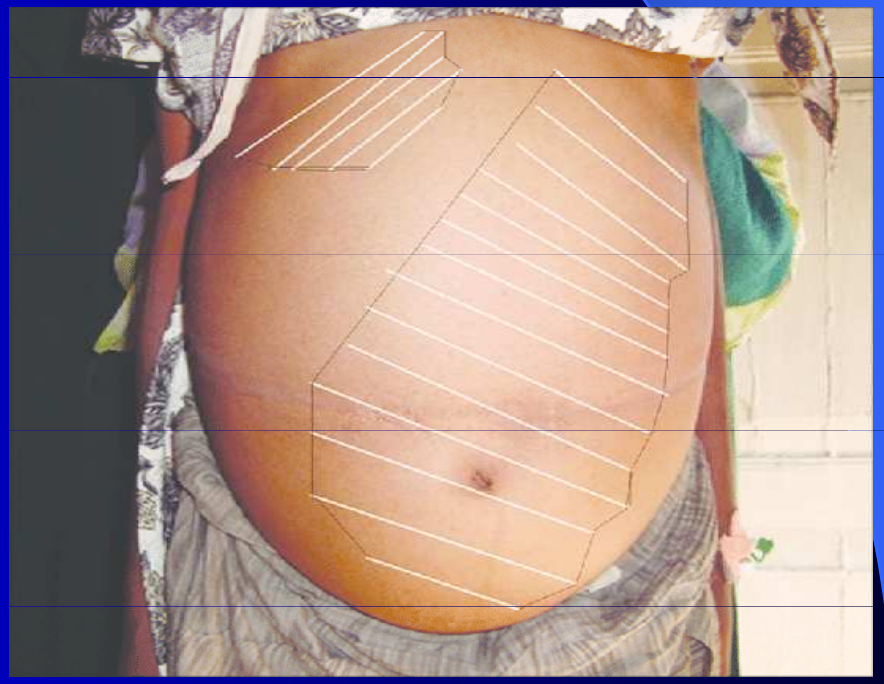


Origin

- Psychologic
- Alimentary/Intoxication
- Musculosceletal
- Metabolic
- Bleeding
- Ischaemia/Thrombosis
- Infection
- Inborn malformations
- Tumours

The Leading Symptom hepato-spleno megaly

- Hematologic
- Oncohematologic
- Cardiologic
- Infection



Origin

- Psychologic
- Alimentary/Intoxication
- Musculosceletal
- Metabolic
- Bleeding
- Ischaemia/Thrombosis
- Infection
- Inborn malformations
- Tumours

The Leading Symptom

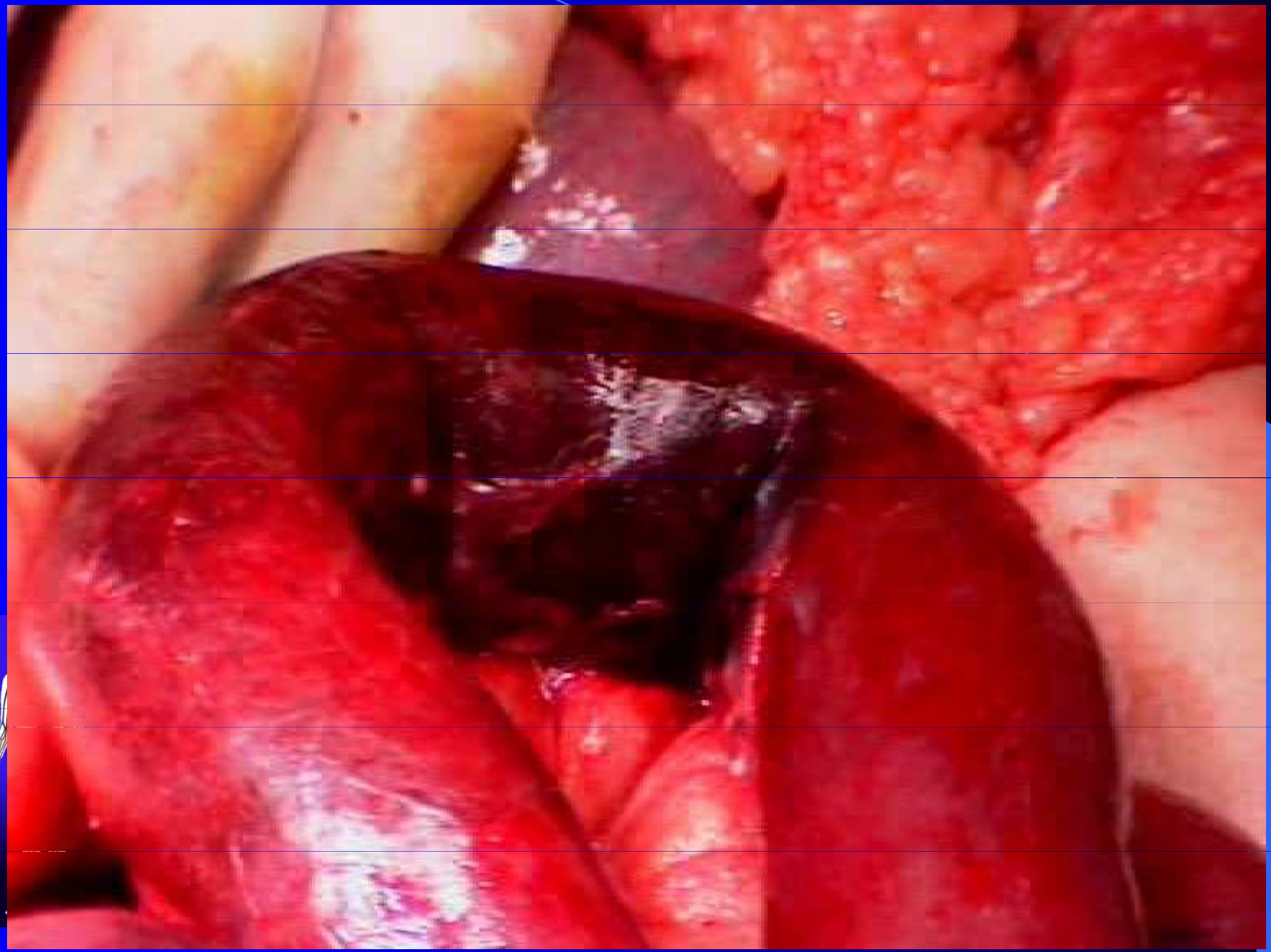
GIT bleeding

Origin

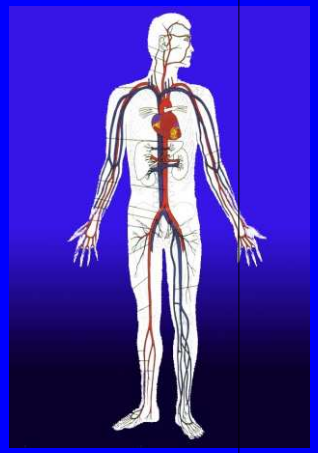
- Psychologic
- Alimentary/Intoxication
- Musculosceletal
- Metabolic
- Bleeding
- Ischaemia/Thrombosis
- Infection
- Inborn malformations
- Tumours

Causes

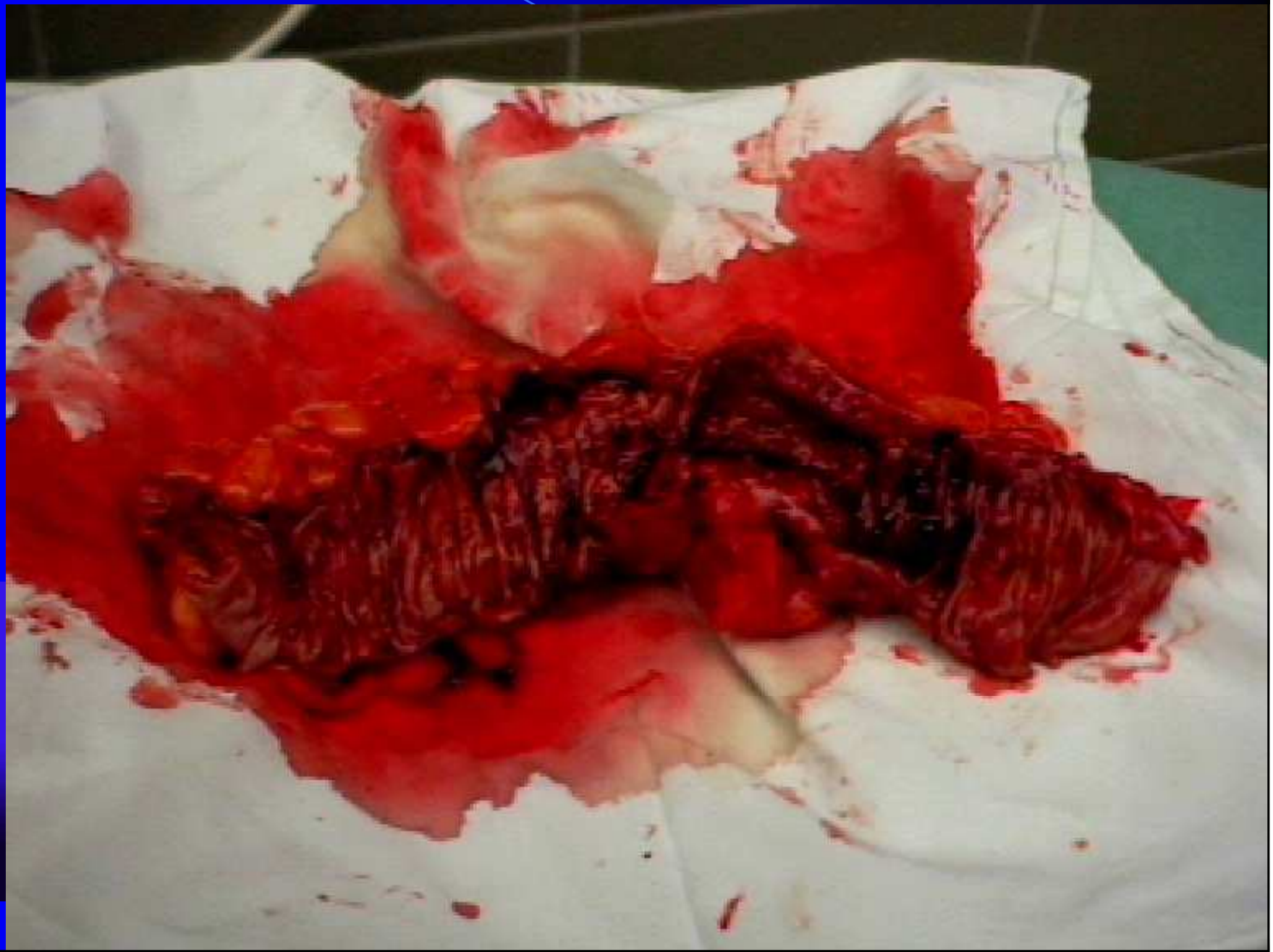
Trombóza a. mesenterica částečná

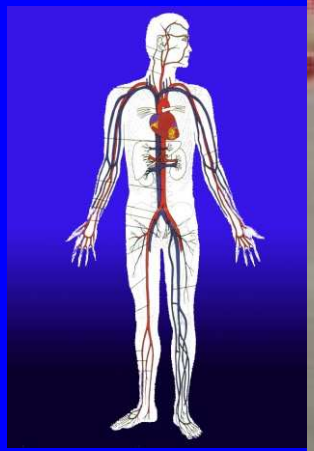


Leiomyom jejuna

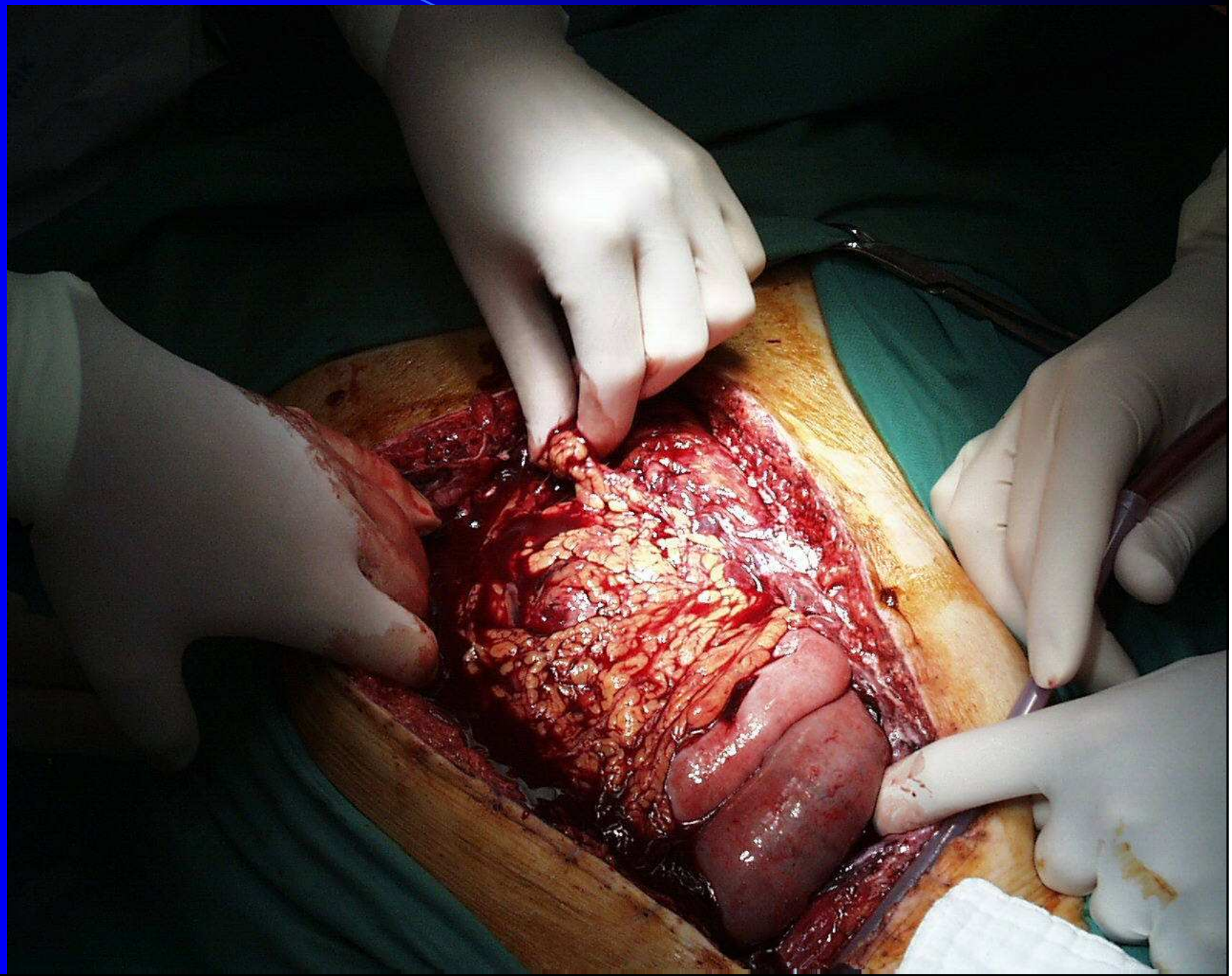


Karcinom sigmatu



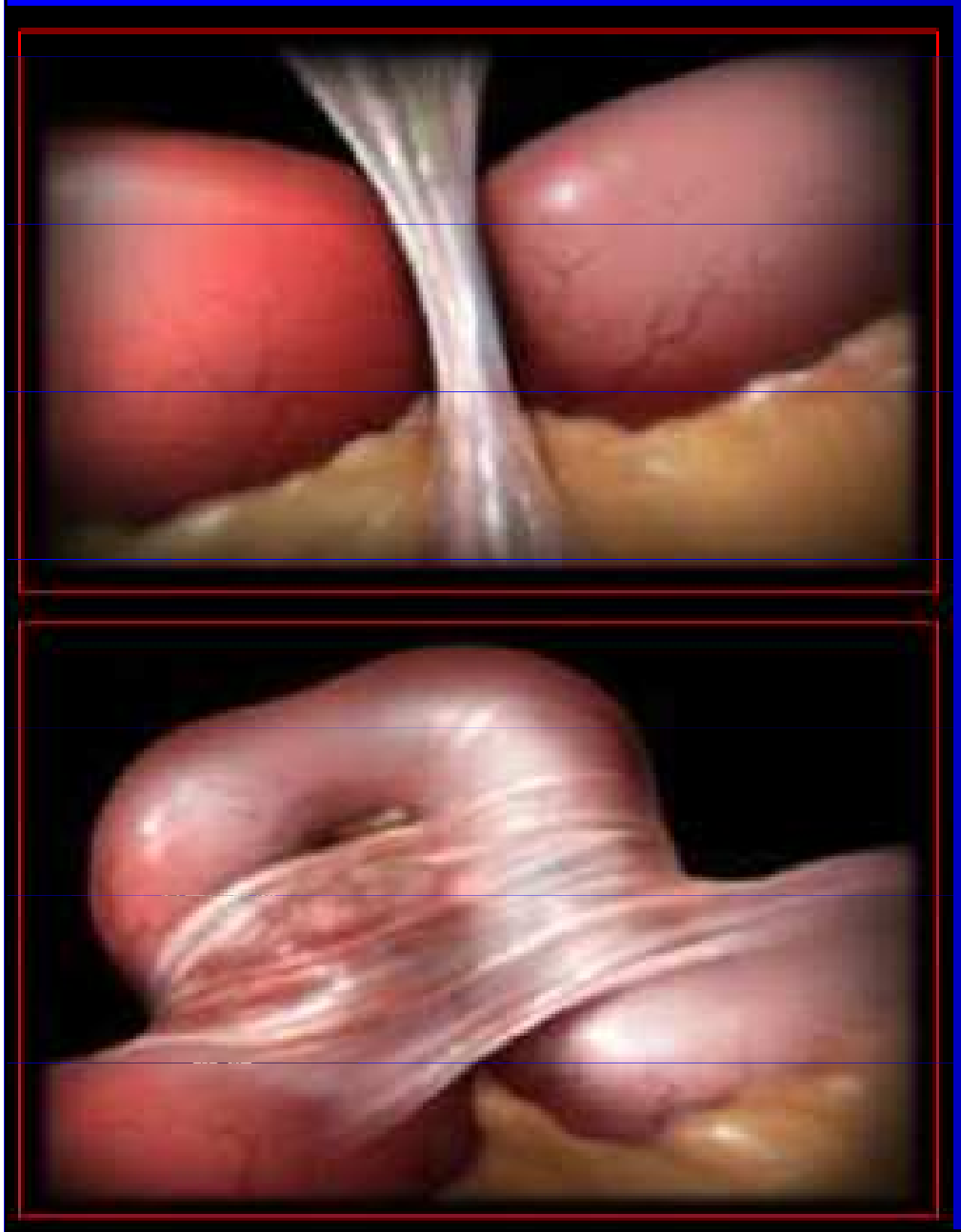


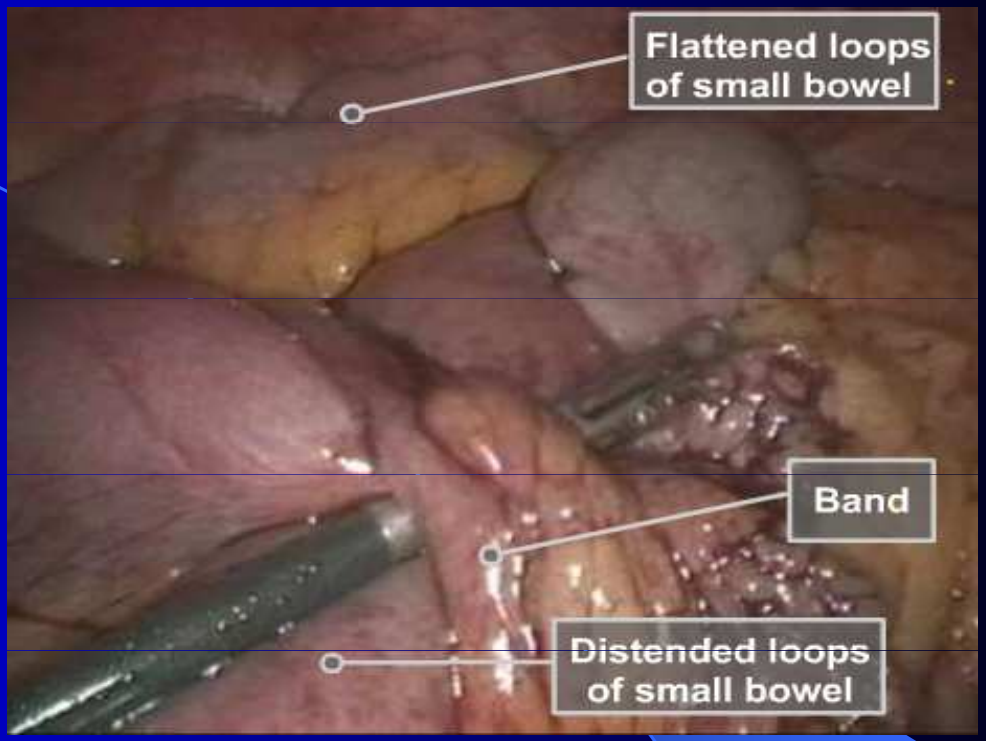
Hemoperitoneum

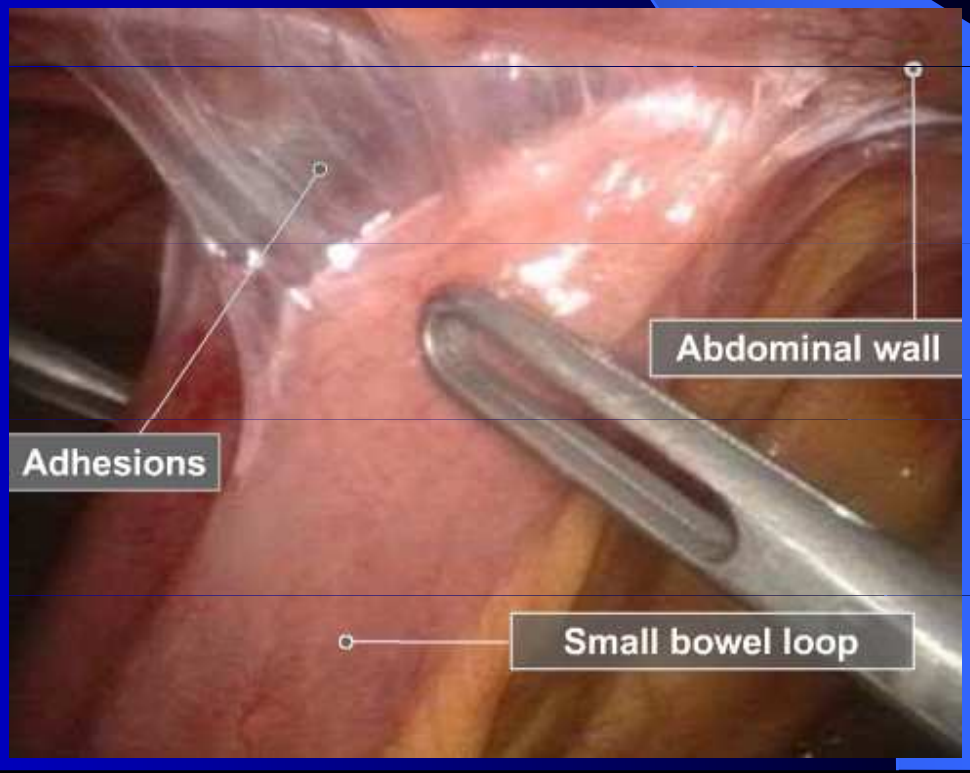


Biliární ileus

Srůsty




Flattened loops of small bowel
Band
Distended loops of small bowel


Abdominal wall
Adhesions
Small bowel loop

Rupturující aneurysma břišní aorty v CT obraze