

Colon ischemia

BIBLE CLASS 01.07.2020

Definition

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Colon ischemia (CI) is the condition that results when blood flow to the colon is reduced to a level insufficient to maintain cellular metabolic function.

End result: colonocytes become acidotic, dysfunctional, lose their integrity and die.

Manifestations

REVERSIBLE

subepithelial hemorrhage

edema

colitis

IRREVERSIBLE

gangrene

fulminant colitis

stricture formation

chronic ischemic colitis

recurrent sepsis due to bacterial translocation

Epidemiology

Which of the following concerning colonic ischemia is true?

- A. It is the etiology in 9–24% of all patients hospitalized for acute lower gastrointestinal bleeding
- B. It is more common in women than in men
- C. It occurs in adults of all ages and increases with age, especially after age 49 years
- D. A and B
- E. A, B and C

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Pathophysiology

Which of the following concerning colonic ischemia is false?

- A. It can result from alterations in the systemic circulation or from anatomic or functional changes in the mesenteric vasculature
- B. The proximate cause is thought to be local hypoperfusion and reperfusion injury
- C. In most cases, a specific cause for ischemia is identified
- D. Abnormalities seen on angiography mostly correlate with clinical manifestations of CI
- E. C and D

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Risk factors

Which of the following is likely not associated with the development of CI?

- A. Sickle cell crisis
- B. Deficiency of protein C
- C. Marathon-running
- D. PPI-therapy
- E. A and D

Risk factors

Which of the following is likely not associated with the development of CI?

- A. Sickle cell crisis
- B. Deficiency of protein C
- C. Marathon-running
- D. PPI-therapy
- E. A and D

Risk factors

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- comorbid cardiovascular disease
- diabetes mellitus
- chronic kidney disease
- chronic obstructive pulmonary disease
- thrombophilia- young patients
- surgical procedures in which the inferior mesenteric artery (IMA) has been sacrificed-abdominal aortic aneurysm repair
- drugs

drugs

drugs

Moderate evidence:

constipation-inducing drugs, immunomodulator drugs, illicit drugs(amphetamines, cocaine)

Low evidence:

chemotherapeutic drugs, decongestants(pseudoephedrine), diuretics, ergot alkaloids, hormonal therapies, psychotropic drugs, serotonergic drug

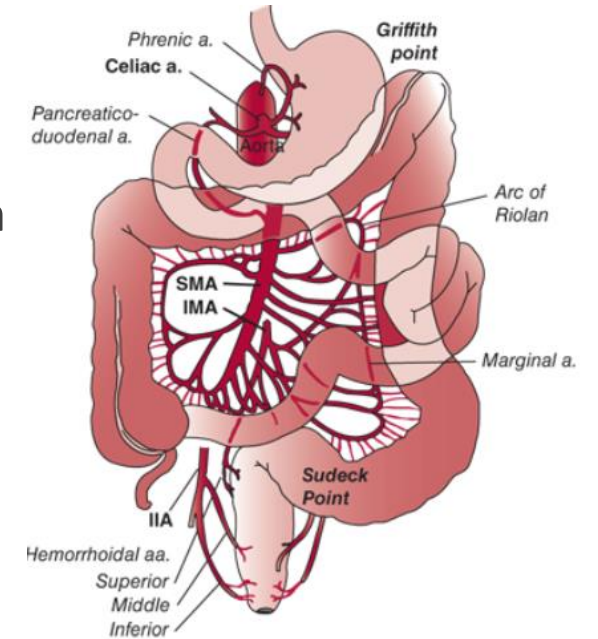
Clinical presentation

Clinical presentation

- sudden mild abdominal pain
- urgent desire to defecate
- passage within 24 hours of bright red or maroon blood per rectum or bloody diarrhea
- *CI isolated to the right colon is associated with higher mortality rates*

Segmental nature

- Left colon most affected -32.6%
 - Regions particularly susceptible to ischemia: splenic flexure, sigmoid colon
 - Rectum-uncommonly affected (dual supply-splahnic and systemic)
-
- Isolated right colon ischemia: more frequently atrial fibrillation, coronary artery disease, chronic kidney disease on hemodialysis and worse outcomes



Recommended laboratory tests

Recommended laboratory tests

Serologic

1. Albumin
2. Amylase
3. Complete blood count
4. Comprehensive electrolyte panel
5. CK
6. Lactate
7. LDH

Stool tests

Cl.difficile assay, culture, ova and parasites

Predictors of severity

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Decreased Hb level

Low serum albumin

Metabolic acidosis

Plain radiography(thumbprinting sign)



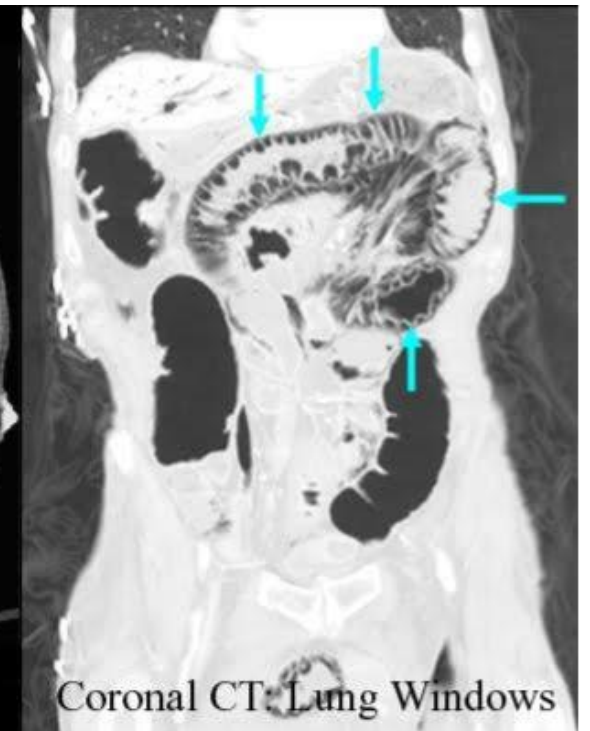
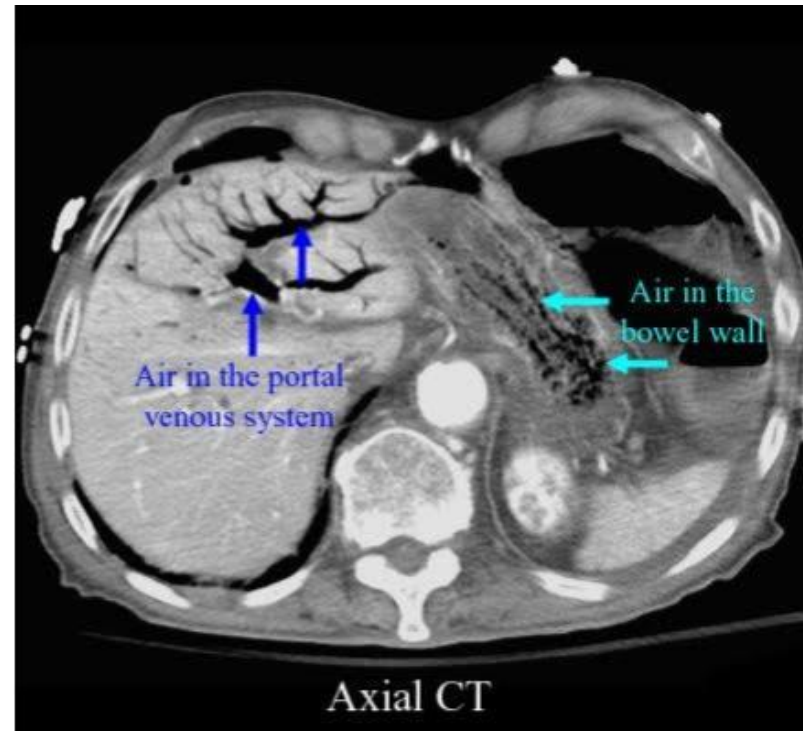
Imaging

CT with iv and oral contrast

Multiphasic CT angiography(suspected IRCI or AMI)

MR angiography

Splanchnic angiography



Recommendations

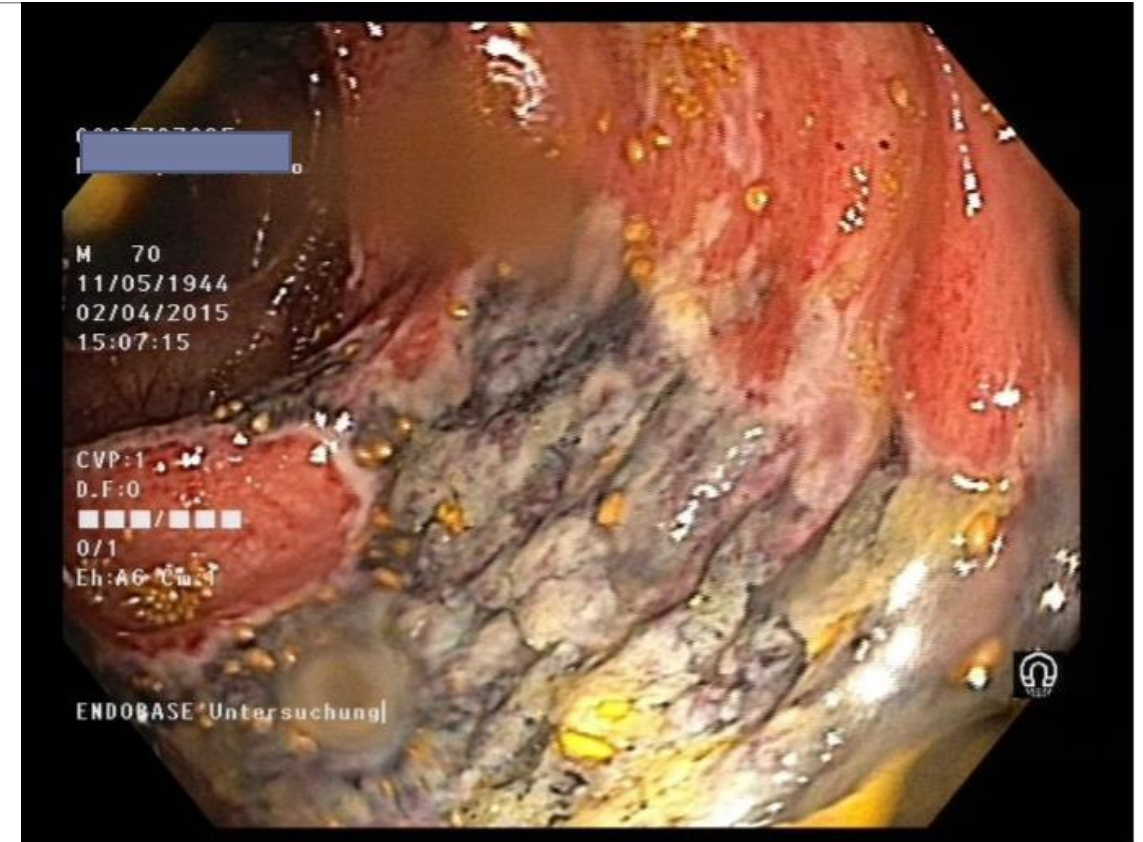
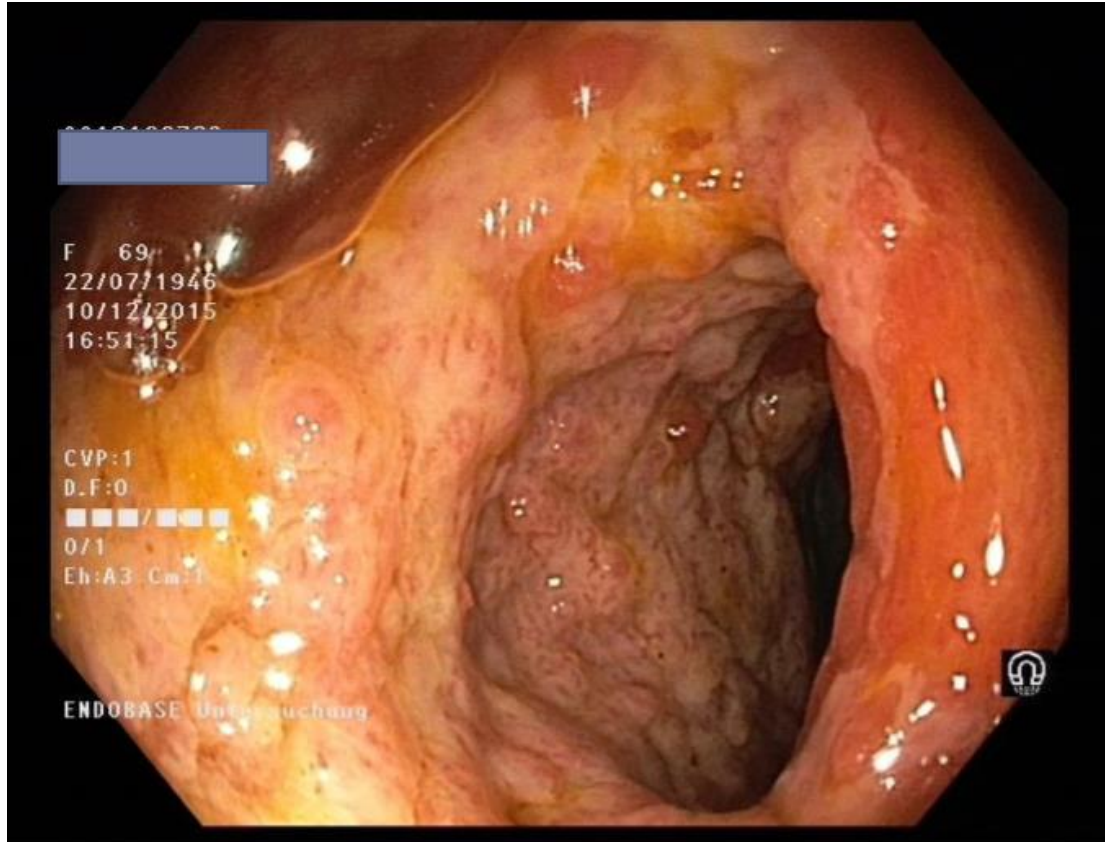
CT with iv and oral contrast – first imaging modality of choice for patients suspected for colonic ischemia

Early colonoscopy (within 48h of presentation) should be performed in suspected CI to confirm diagnosis

The endoscopic procedure should be stopped at the distal-most extent of the disease

Contraindicated: acute peritonitis, gangrene, pneumatosis

Endoscopic images



Histopathology

Infarction and ghost cells-pathognomonic

mucosal and submucosal hemorrhage, edema, capillary fibrin thrombi

Risk factors to predict severity of colonic ischemia

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- Male gender
- TA<90mm
- HR> 100/mi/dl
- Abdominal pain without rectal bleeding
- BUN>20mg/dl
- Hb<12g/dl
- LDH>350U/l
- Na<136
- WBC>15.000
- Colonic mucosal ulcerations at endoscopy

Classification of disease severity

Mild –no risk factors

Moderate- any patient with CI with 3 risk factors

Severe- any patient with CI with >3 risk factors or any of :

peritoneal signs

pneumatosis or portal gas at imaging

gangrene on colonoscopy

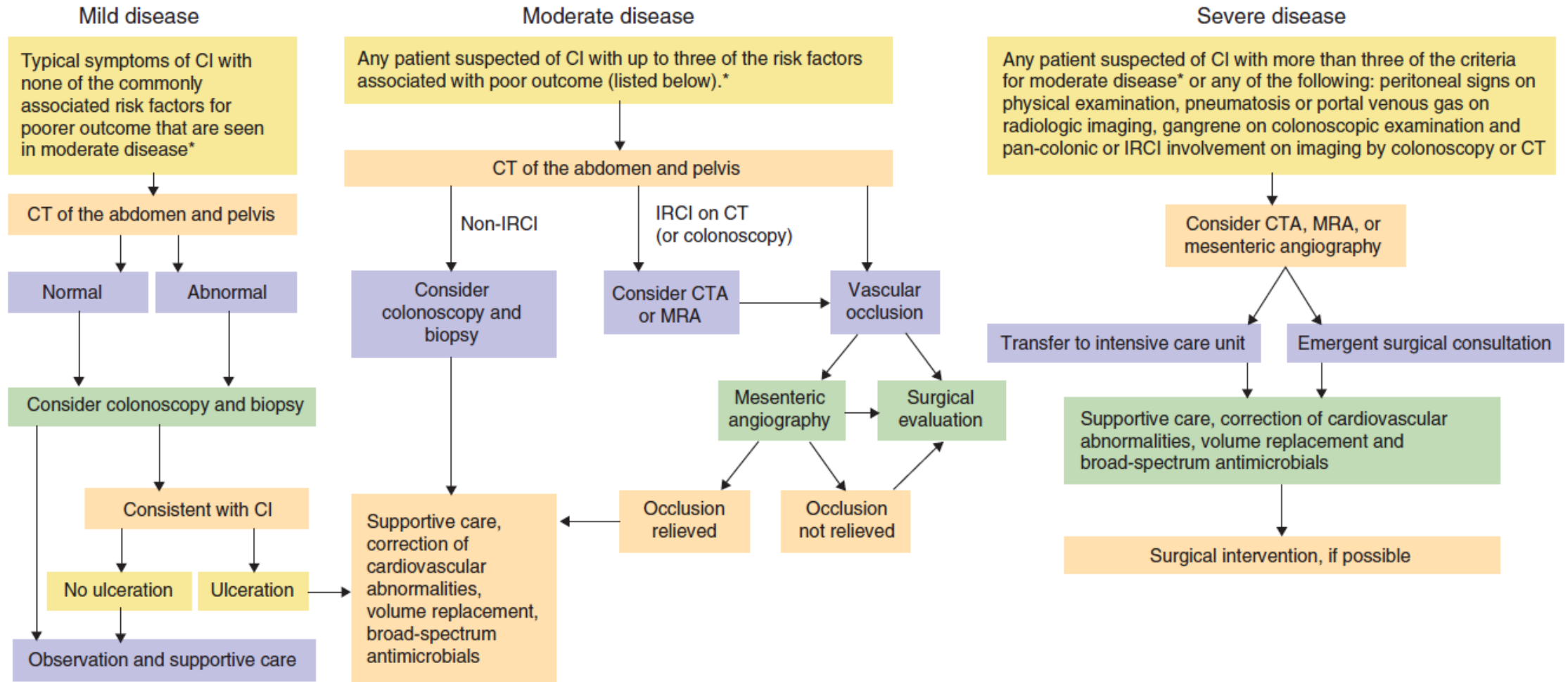
pancolonic distribution/IRCI

Severity and treatment-Recommendations

1. most cases do not require specific therapy
2. surgical intervention- mesenteric angiography
3. antibiotic therapy in moderate or severe disease

Management

Clinical assessment, vital signs, serology (WBC, Hgb, BUN, LDH, electrolytes)



* Risk factors associated with poor outcome: male gender, hypotension (SBP < 90 mm Hg), tachycardia (HR > 100 beats per min), abdominal pain without rectal bleeding, BUN > 20 mg/dl, Hgb < 12 g/dl, LDH > 350 U/l, serum sodium < 136 mEq/l (mmol/l), WBC > 15 x 10⁹/cmm

Surgical indications

Acute indications:

peritoneal signs, massive bleeding, fulminant colitis with or without toxic megacolon, portal venous gas or pneumatosis intestinalis, deteriorating clinical condition

Subacute indications:

failure to respond to treatment within 2-3 weeks with continued symptoms or a protein-losing colopathy

Chronic indications:

symptomatic colon stricture, symptomatic segmental ischemic colitis

Thank you

