

Abdominal CT scan

Diverticulitis



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Outline

- Introduction
- Definition
- Role of CT scan
- CT scan Technique
- CT scan finding
 - Mild, Severe, complication
- Review of some cases

Sigmoid diverticulitis ,Cecal diverticulitis

Colon Anatomy



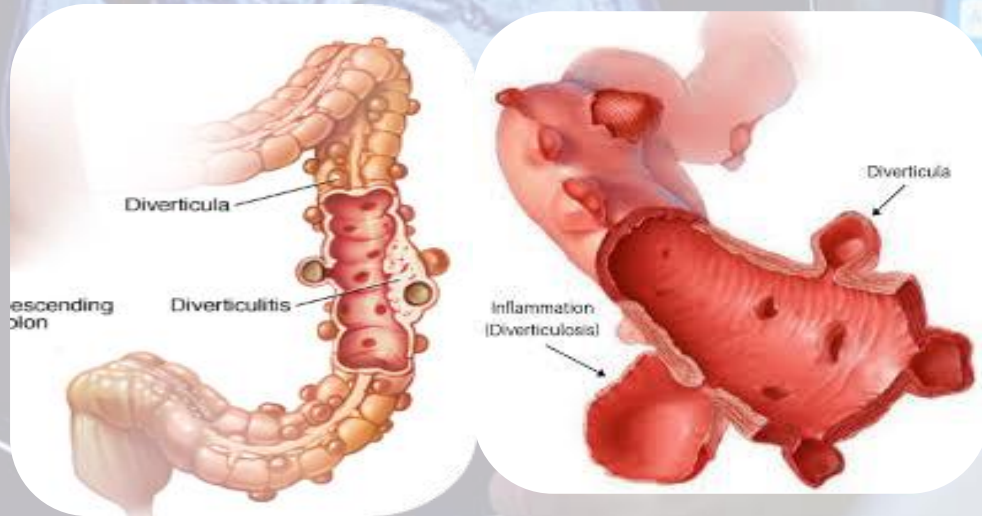
BrightSpeed S SYS#ctb
Ex: 6904
Se: 2
IC 1100.56
Im: 81
DFOV 47.3cm
STND/+/E



Computer interface showing system information and network status. The interface includes a taskbar with icons for 'Linq', 'Internet Explorer', and 'Power'. The system information panel displays the date '26 January 11:08', the time '01:28:02', and the user 'YODA: P079'. The network status panel shows 'Network Status' and 'Data Compressor enabled'. The scanning hardware status panel shows 'Scanner', 'File Compressor', 'Printer', and 'Compu' with various status indicators and settings.

Introduction

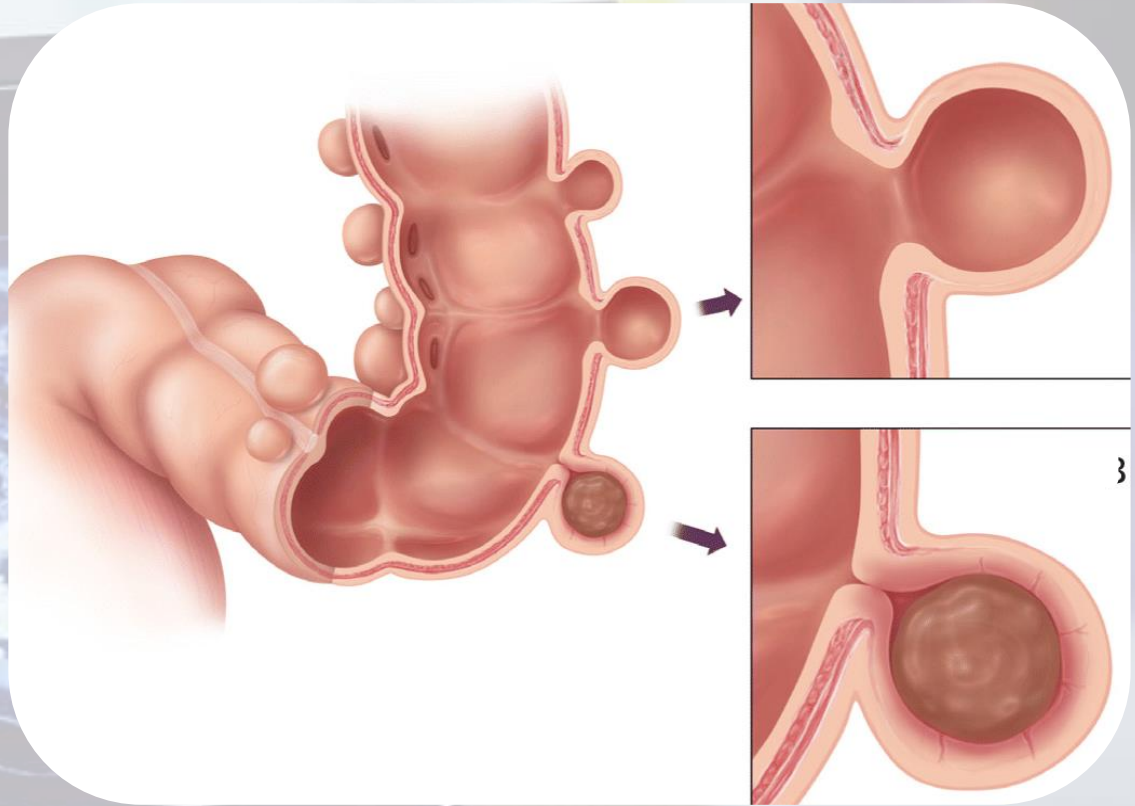
Diverticular disease of the colon begins as **diverticulosis** (colonic outpouchings), which may develop into **diverticulitis** (diverticular inflammation and perforation)



Introduction

Diverticula

Diverticulitis

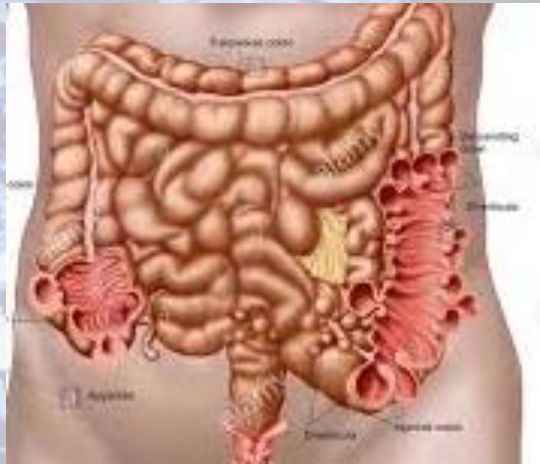


Introduction

Diverticula involve

Sigmoid

in 95% of patients



Diverticula involve

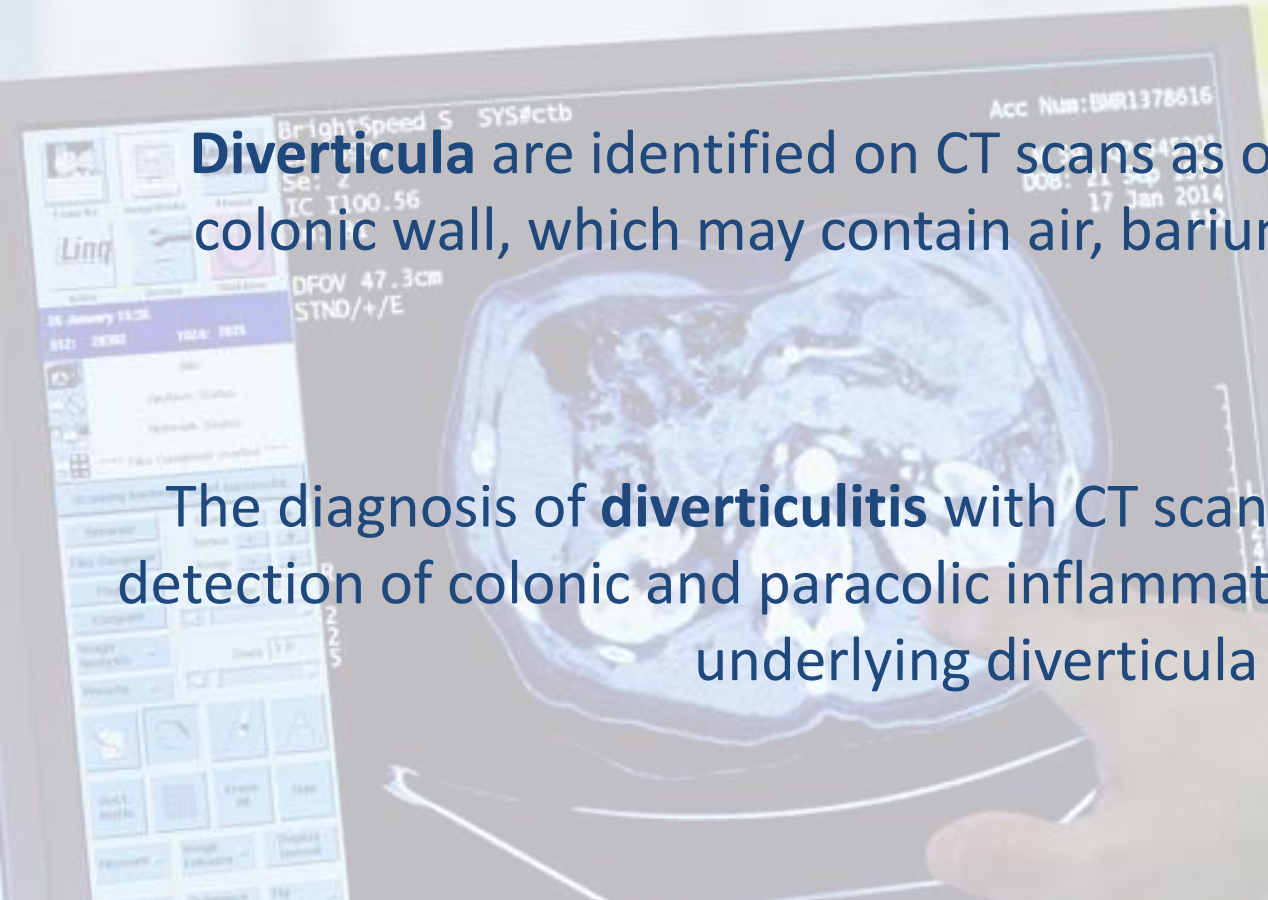
Cecum

is involved in 5% of patients

Introduction

Diverticula are identified on CT scans as outpouchings of the colonic wall, which may contain air, barium, or fecal material

The diagnosis of **diverticulitis** with CT scanning is based on the detection of colonic and paracolic inflammation in the presence of underlying diverticula





Multiple diverticula arising from the recto sigmoid

BrightSpeed
Ex: 6904
Se: 2
IC 1100.56
Im: 81
DFOV 47.3
STND/+E

26 January 11:28
812: 28302 1024: 7878

System Status
Network Status

Warning hardware alert accessible

Monitor	Event	28
File Compression	Service	28
Printer	Image	28
Compass	Image	28
Weight	Image	28
Weight	Image	28
Weight	Image	28
Weight	Image	28

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Role of CT scan

CT is the preferred imaging modality because of its ability to evaluate the severity of disease and the presence of complications

CT with **IV and oral contrast** has documented **sensitivities of 97%** and **specificities approaching 100%**



CT scan Technique

Techniques for the CT evaluation of diverticulitis vary from institution to institution



Rectal contrast



Oral contrast



Iv contrast

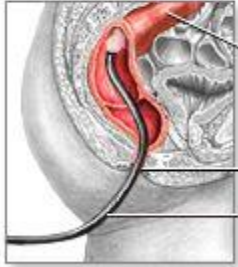
CT scan Technique

The American College of Radiology rates CT of the abdomen and pelvis with ***oral and/or colonic contrast*** as the preferred procedure in the setting of LLQ pain

The logo for the American College of Radiology (ACR) is centered in the lower half of the image. It features the letters 'ACR' in a large, bold, blue font with a registered trademark symbol. Below this, the words 'AMERICAN COLLEGE OF RADIOLOGY' are written in a smaller, black, sans-serif font.

ACR[®]
AMERICAN COLLEGE OF
RADIOLOGY

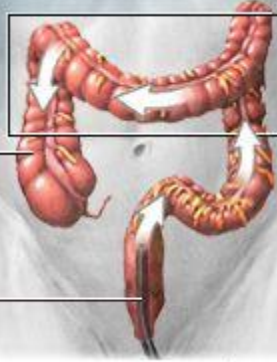
through the anus



Large intestine

Anus

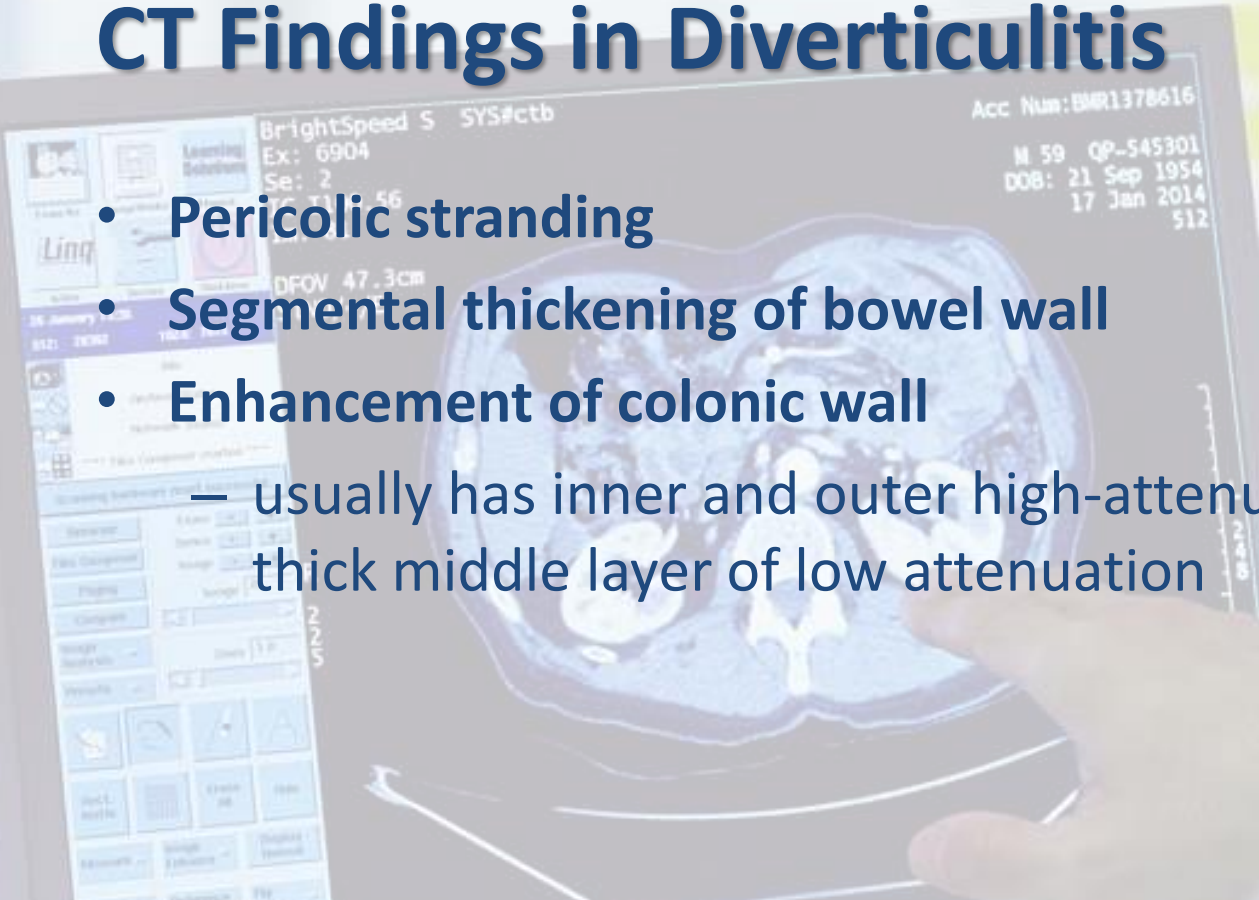
Endoscope



Rectally administered contrast helps define thickened sigmoid wall, staggered haustra, and diverticular outpouchings.

CT Findings in Diverticulitis

- **Pericolic stranding**
- **Segmental thickening of bowel wall**
- **Enhancement of colonic wall**
 - usually has inner and outer high-attenuation layers, with a thick middle layer of low attenuation



BrightSpeed 9
Ex: 6904
Se: 2
IC 1100.56
Im: 81
DFOV 47.3cm
STND/+/E

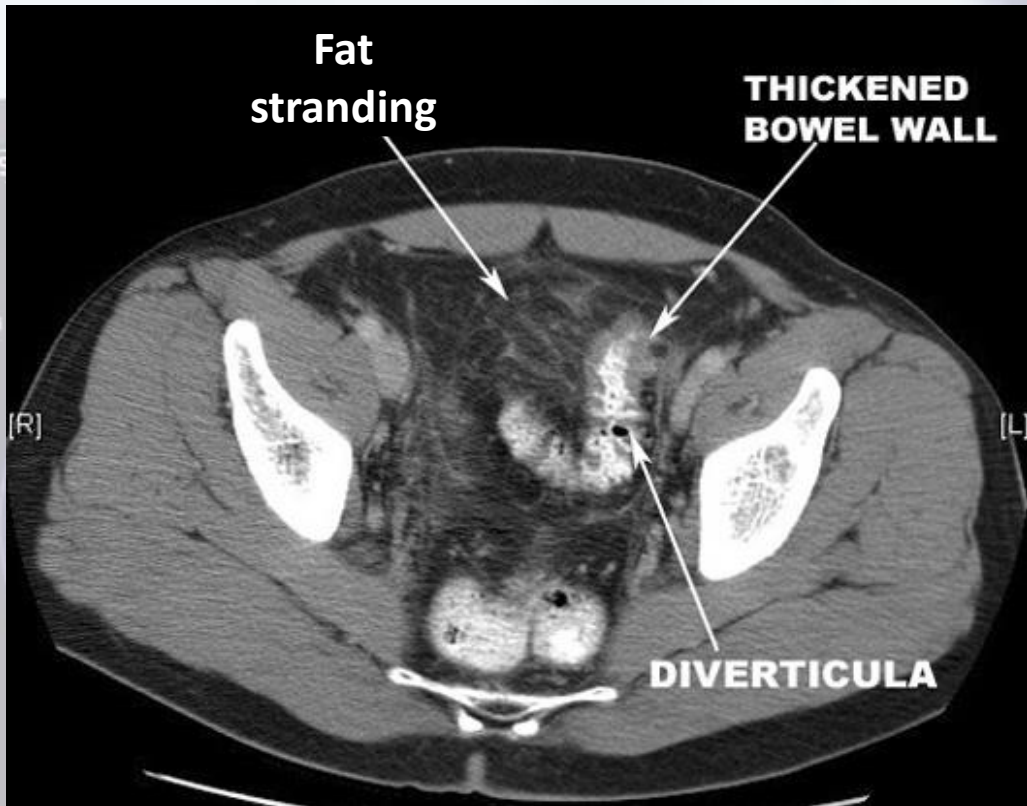
26 January 11:08
812: 28302 1024: 7878

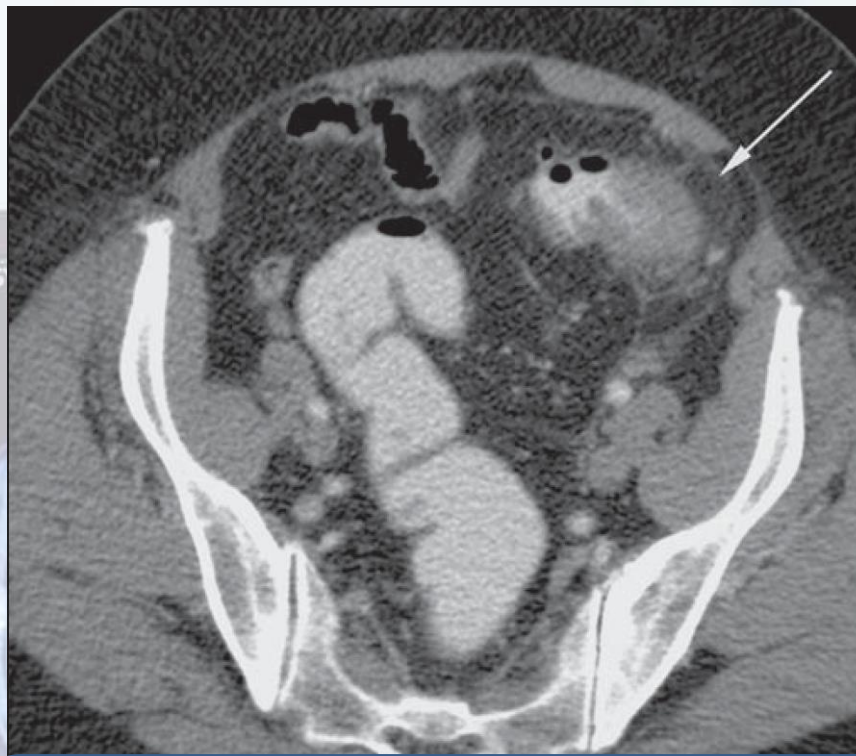
Windows Status
Network Status

Starting hardware self-accounts

Monitor	Event	25	25
File Compressor	Service	25	25
Printer	Image	25	25
Compu	Image	25	25
Weight	Image	25	25
Weight	Image	25	25
Printer	Image	25	25

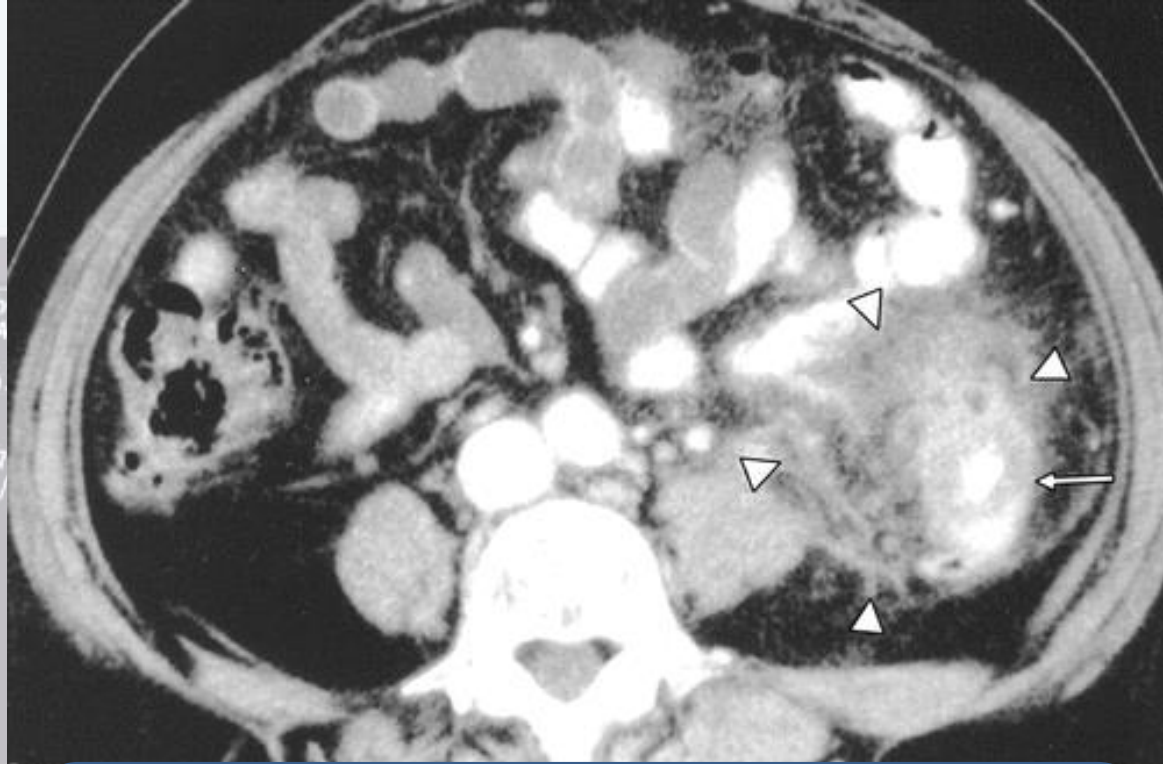
R
L





1. Increased mesenteric fat attenuation (arrow) adjacent to the inflammatory process in the diverticula

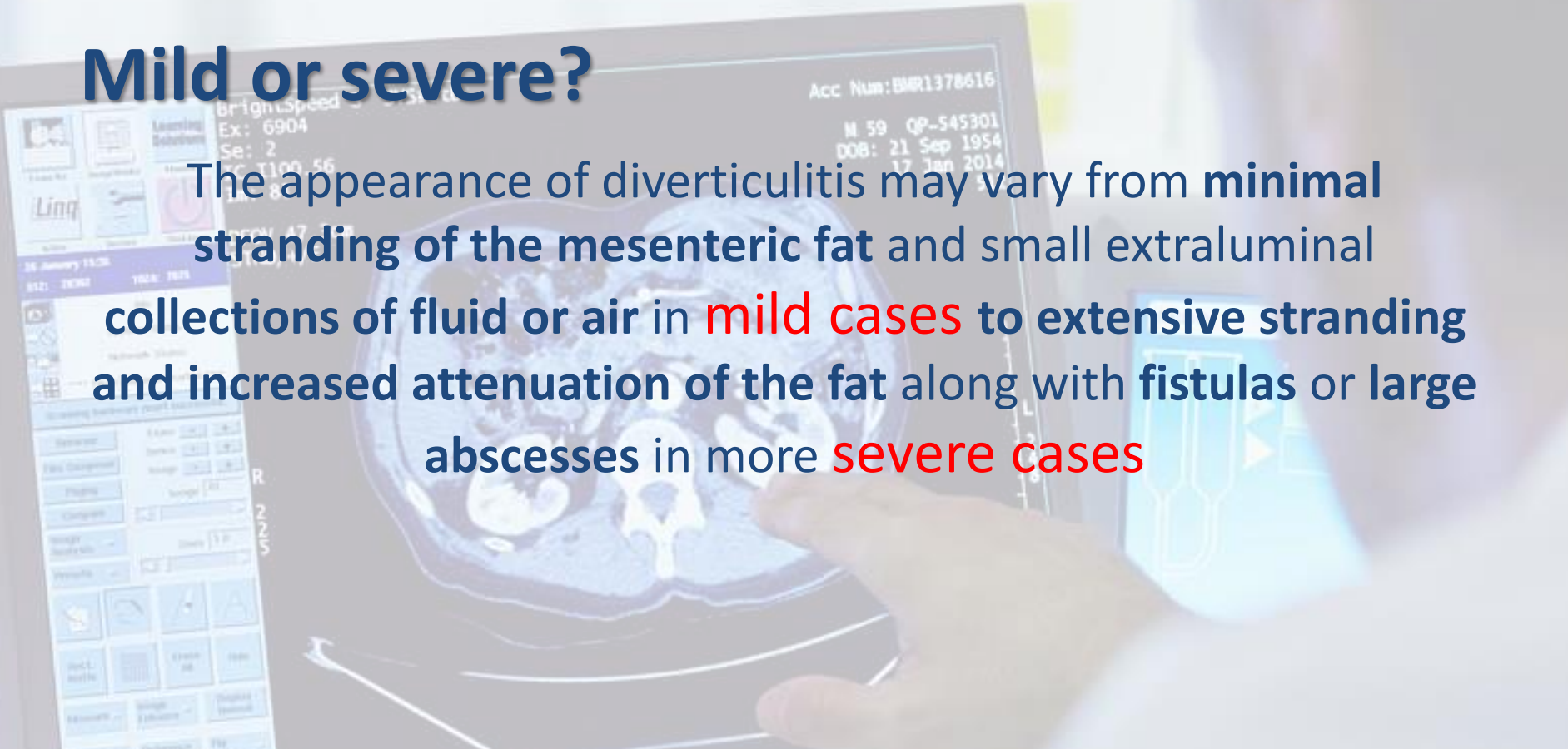




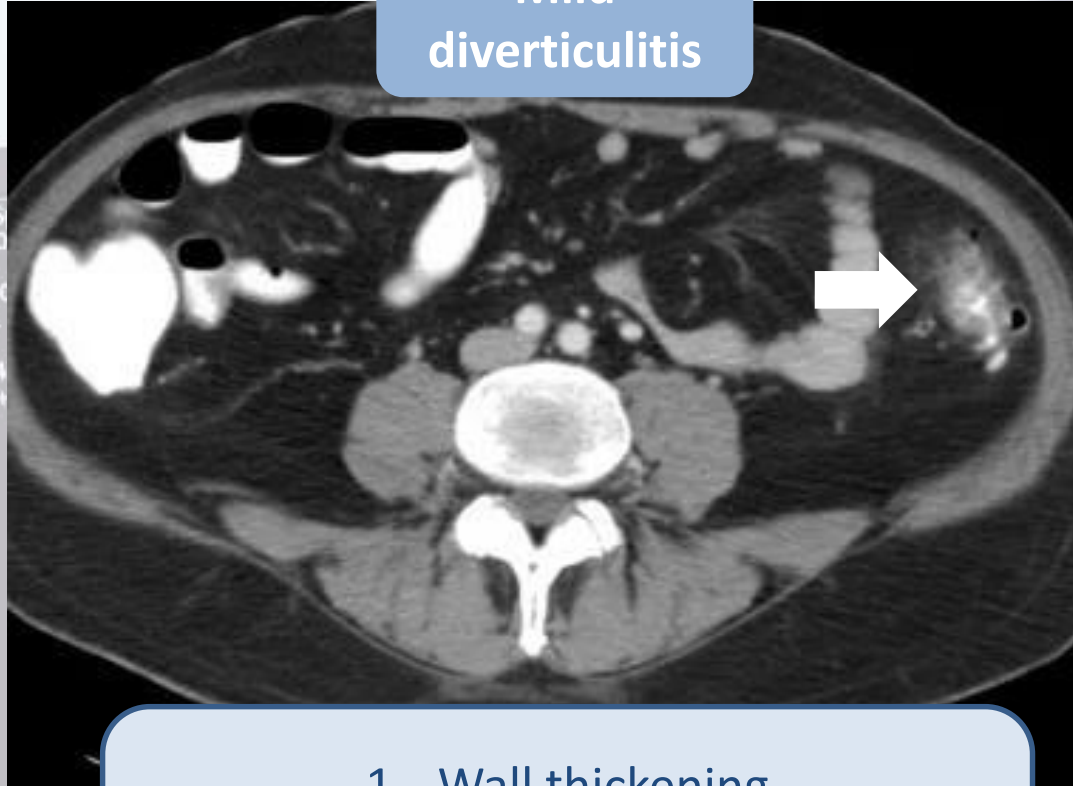
1. **Concentric wall thickening** (*arrow*) of descending colon
2. **Adjacent fatty infiltration** (*arrowheads*)

Mild or severe?

The appearance of diverticulitis may vary from **minimal stranding of the mesenteric fat** and small extraluminal collections of fluid or air in **mild cases** to **extensive stranding and increased attenuation of the fat** along with **fistulas or large abscesses** in more **severe cases**

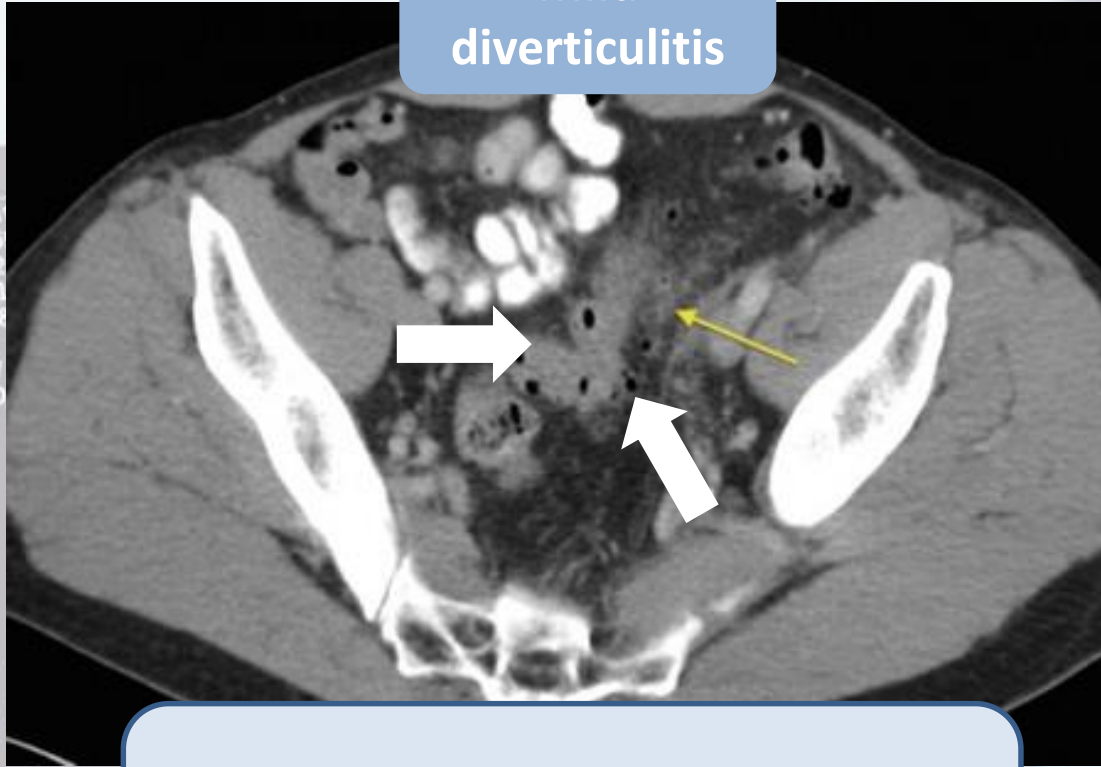


Mild diverticulitis



1. Wall thickening
2. Diverticulum
3. Mild stranding of the pericolic fat

Mild diverticulitis

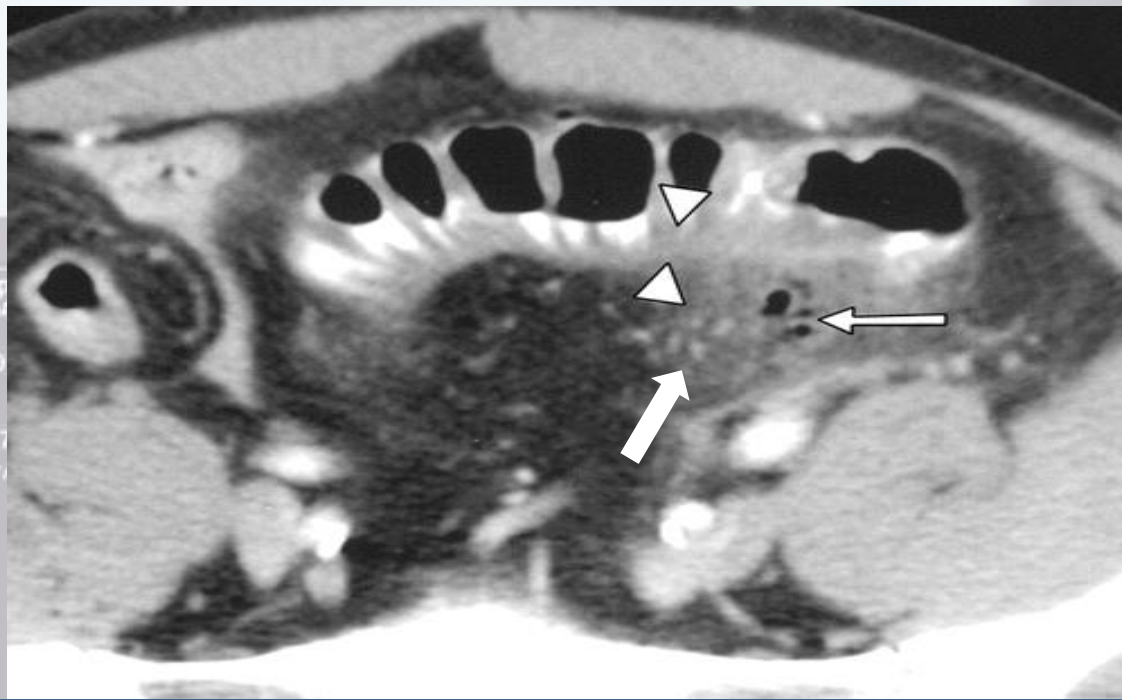


1. Multiple gas-filled diverticula
2. Fat Stranding (arrow)



Sever diverticulitis

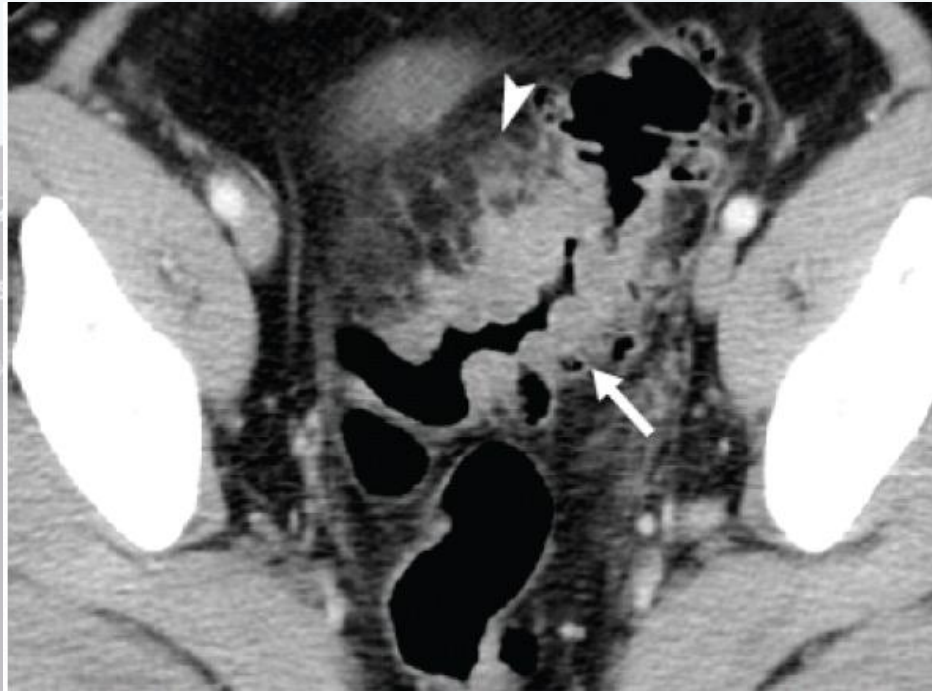
- 1.Sigmoid wall thickening (asterisk)
- 2.Extensive fat stranding
- 3.Small amounts of free fluid
4. Extraluminal air (arrowhead)
- 5.Trace extravasated luminal contrast (arrow)



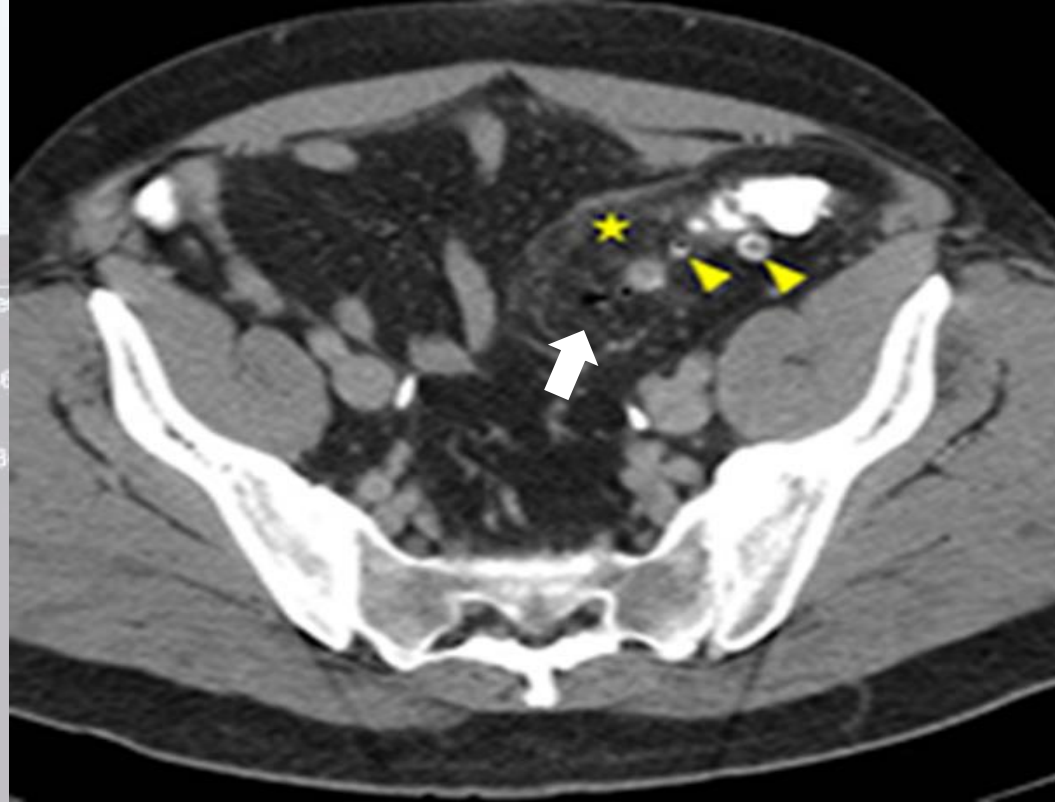
1. Wall thickening of horizontal aspect of sigmoid colon (*arrowheads*).
2. Extraintestinal gas (*arrow*) in area of fat infiltration
3. Fat stranding



- 1.Thickened wall of sigmoid
- 2.Diverticula
- 3.Peri colonic stranding



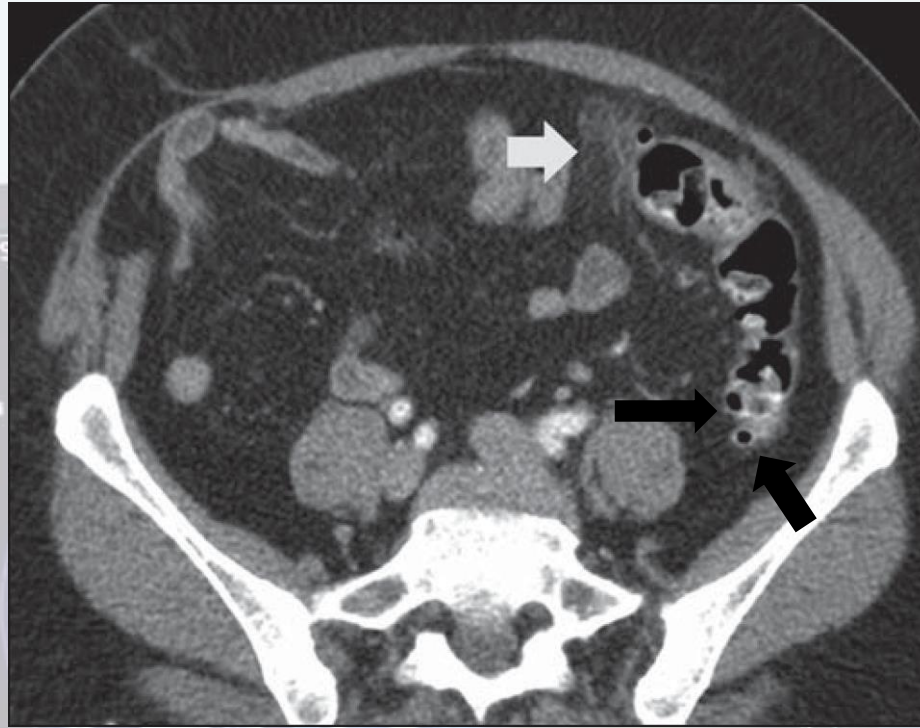
1. Focal marked thickening of sigmoid wall (arrow)
2. Stranding into the adjacent fat (arrowhead)



- 1.Diverticula (arrowhead)
- 2.inflammatory stranding is seen in the sigmoid mesentery (star)
- 3.Extraluminal gas (arrow)



1. Multiple diverticula (arrowheads)
2. wall thickening



1. Diverticulum
2. Discrete wall thickening (arrow)
3. Increased attenuation of pericolic fat

CT Findings of Complications

- **Diverticular perforation**

Frank./Micro

Extravasation of gas and fluid into pelvis and peritoneal cavity

- **Abscess formation**

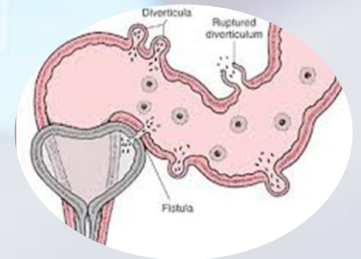
May contain fluid, gas or both

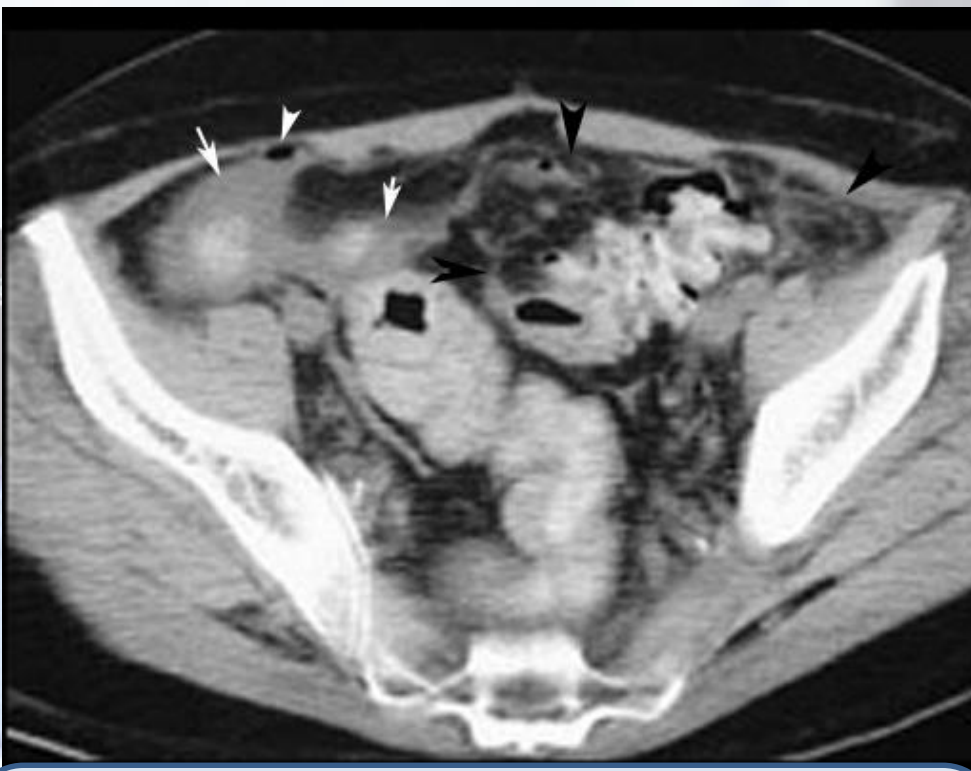
- **Fistula formation**

Colovesical/Colovaginal/Coloenteric/Colocutaneous

gas in the bladder

direct visualization of a fistulous tract





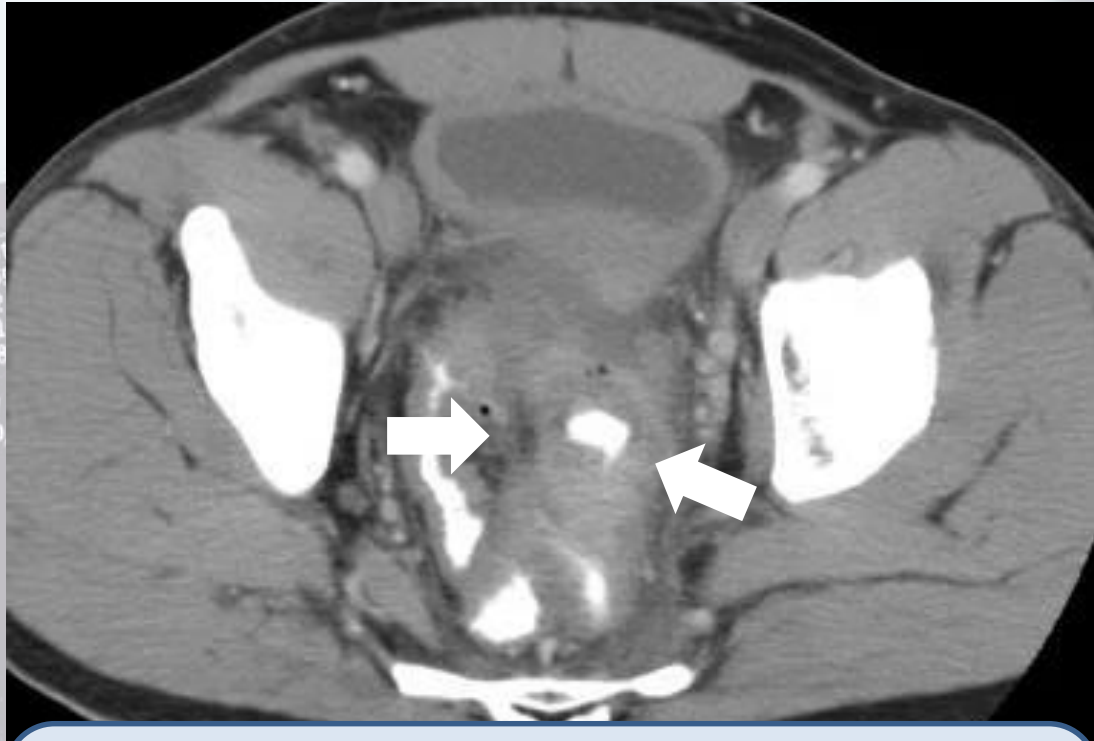
Perforated Diverticulum

- 1.Free air(Arrowheads)
- 2.Collection of fluid around bowel loops(Arrows)
- 3.Pericolic fascial infiltration (Black arrows)



Abscess

Diverticulitis demonstrates an **abscess** adjacent to the sigmoid colon



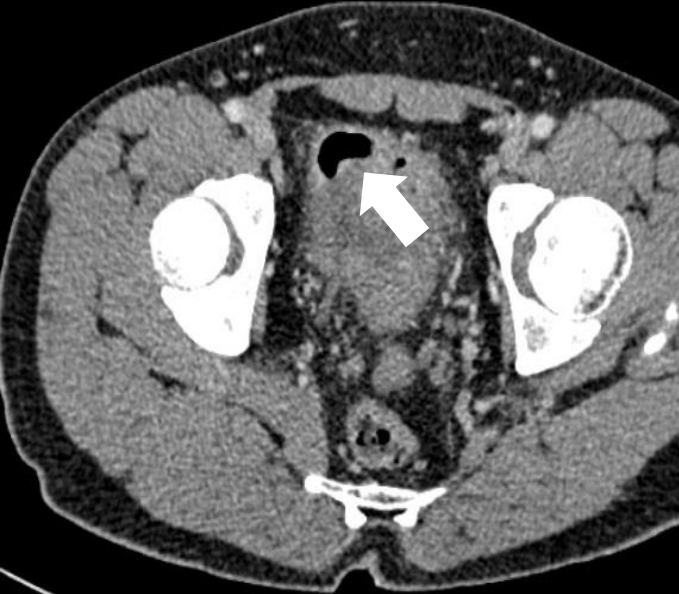
Abscess

Intramural **abscess** in the sigmoid and an abscess adjacent to the rectosigmoid that fills with contrast material



Fistula

The diagnostic hypothesis of fistula can be suggested when there is inflammatory tissue or **increased density of fat** between the colon and adjacent organs, as well as **intraluminal gas** (in the bladder, vaginal canal, or other lumen)



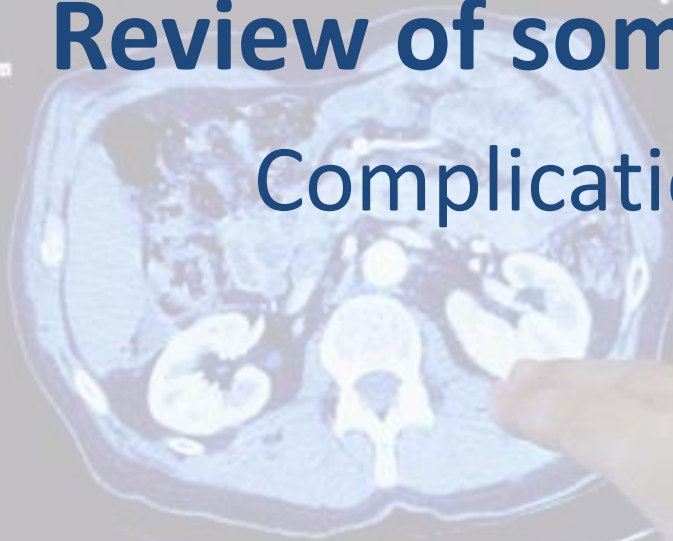
Fistula

Thickened sigmoid colon with pericolic inflammatory change and Bladder **fistula** (large volume of gas in the bladder)

Review of some cases Complications

BrightSpeed S SYS#ctb
Ex: 6904
Se: 2
IC I100.56
Im: 81
DFOV 47.3cm
STND/+E

Acc Num: BMR137B616
M 59 QP-545301
DOB: 21 Sep 1954
17 Jan 2014
512

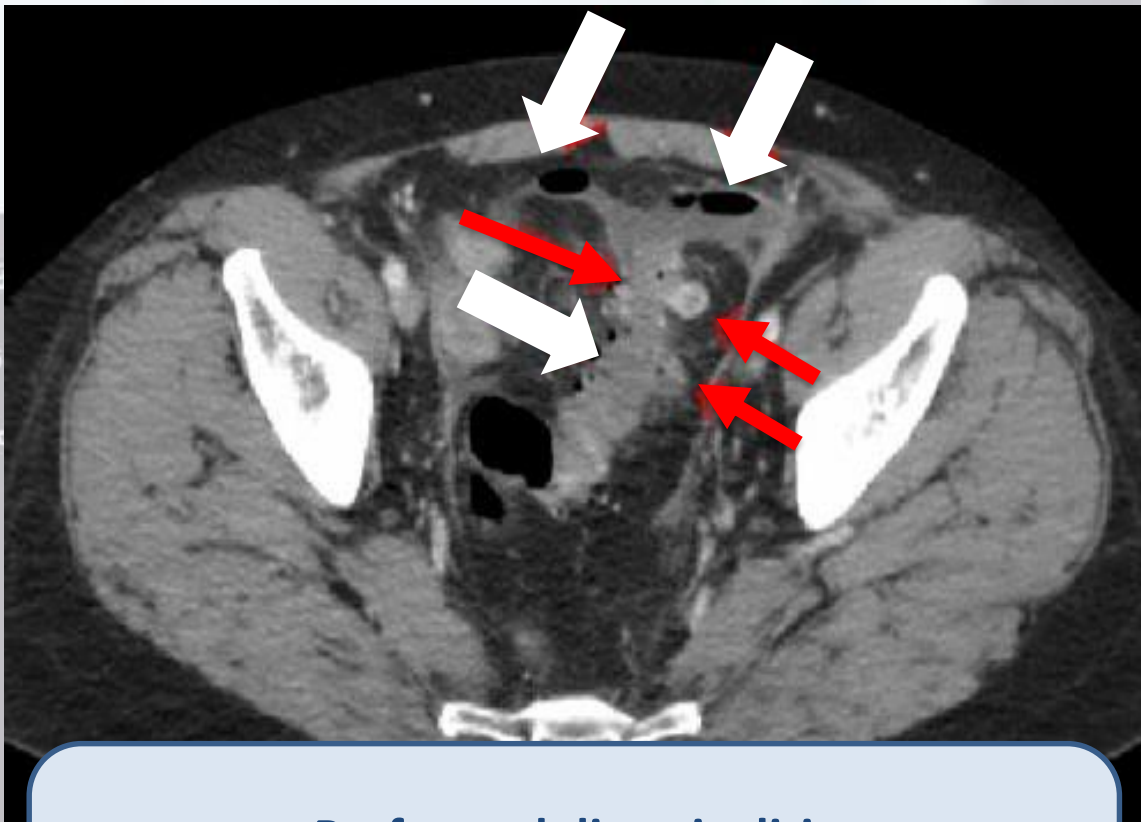


26 January 11:08
10:21:10 AM

Network Status
Network Status

Windows Firewall
Windows Firewall





Perforated diverticulitis
1.Diverticula (Red arrows)
2.Free abdominal air (white arrows).

BrightSpeed
Ex: 6904
Se: 2
IC 1100.56
Im: 81
DFOV 47.34
STND/+E

25 January 11:28
812: 28302 1024: 7878

Windows Status
Network Status

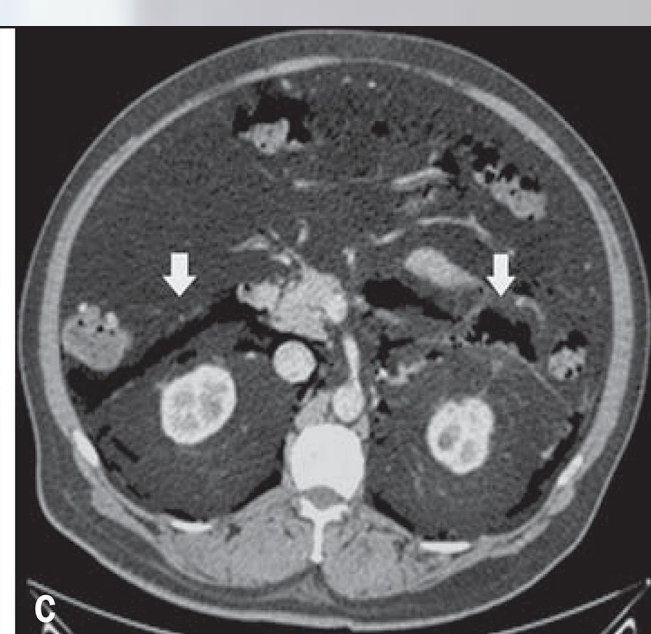
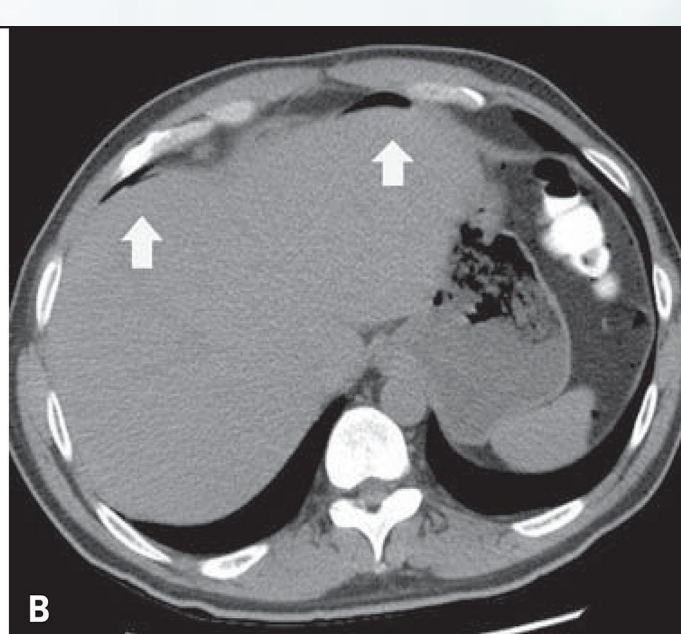
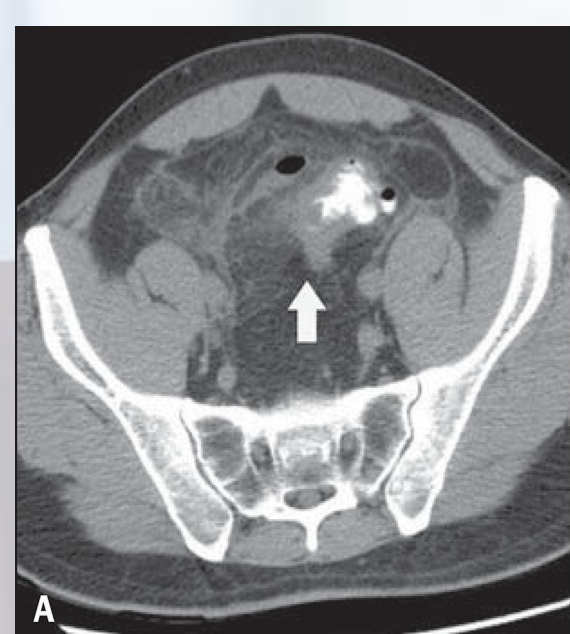
Warning hardware not accessible

Monitor	Auto	25.0
File Compression	None	Off
Printing	None	Off
Clipboard	On	Off
Weight	Normal	117
Priority	Normal	0

WIN 2



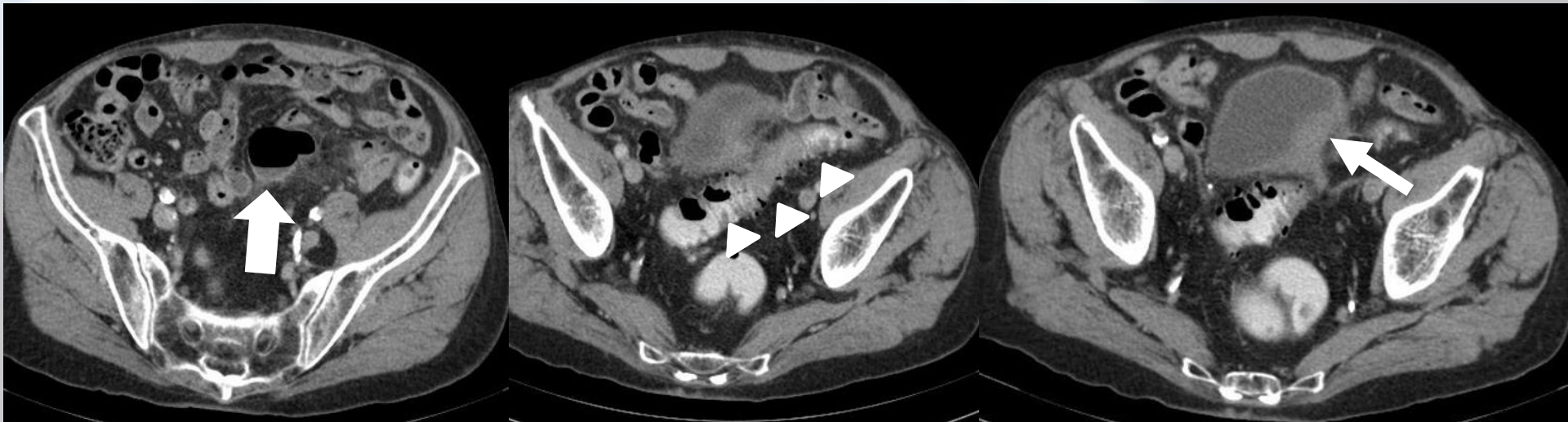
Intramural **abscess** in the sigmoid colon and an abscess adjacent to the rectosigmoid that fills with contrast material



Diverticulitis + Perforation

A: sigmoid wall thickening, diverticula, increased regional fat density

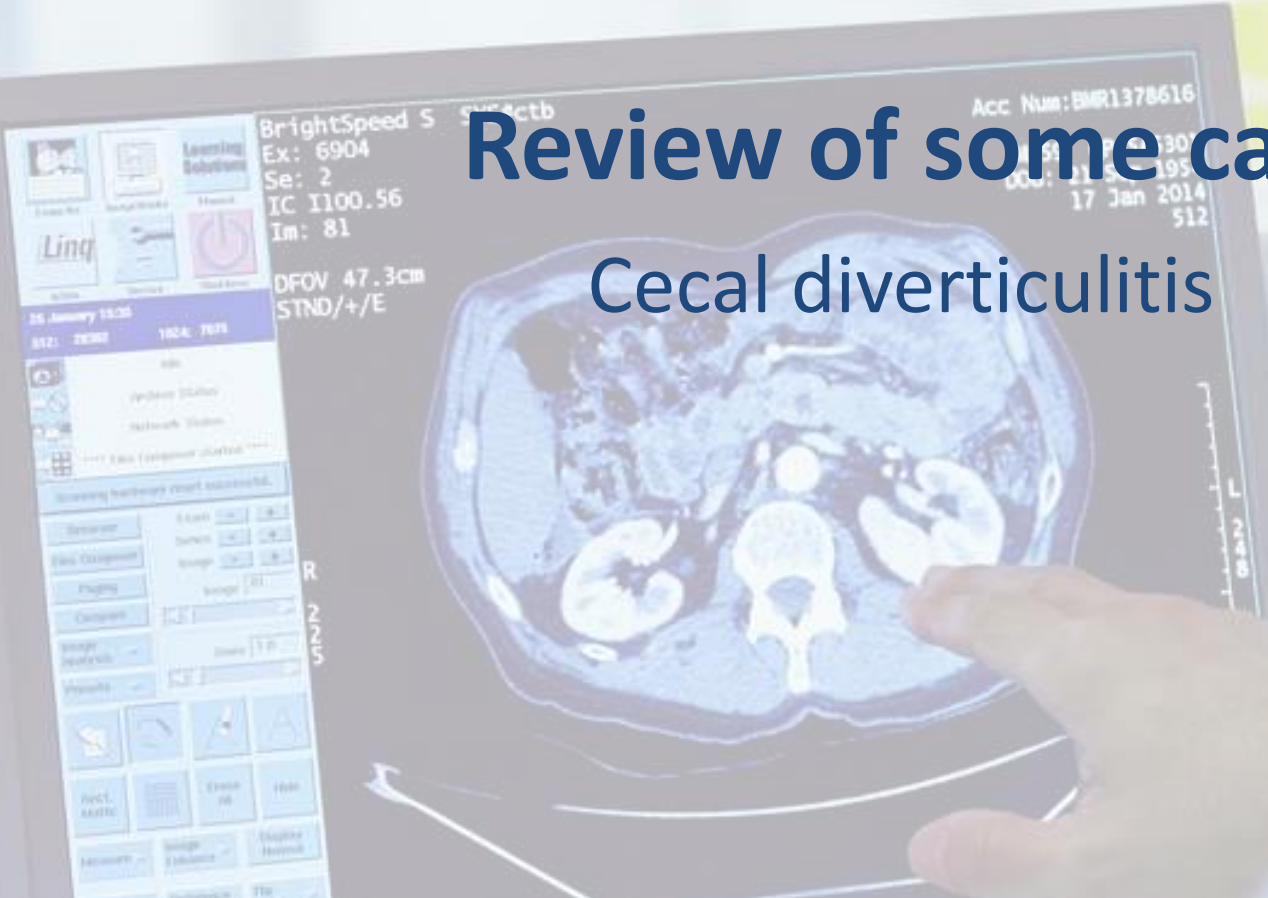
B,C: extraluminal gas, (pneumoperitoneum)



1. Abscess with air fluid level
2. Diverticulitis
3. Adjuvent Bladder wall thickening

Review of some cases

Cecal diverticulitis





Med Sci 2016;36(3):123-125
DOI: 10.4103/1011-4564.185218

CASE REPORT

Right-sided Diverticulitis: An Unusual Presentation of Abdominal Pain in Children

with right-sided diverticulitis.

CASE REPORT

A 12-year-old Asian woman presented to the ED with a history of severe, sharp right lower quadrant pain that was non-radiating, exacerbated with movement, and relieved at rest. It started in the morning, gradually worsened throughout the day, and was at its greatest intensity in the waiting room. At the time of her evaluation,

Case report

[Open Access](#)

Cecal diverticulitis mimicking acute Appendicitis: a report of 4 cases

Oguzhan Karatepe*, Osman Bilgin Gulcicek, Gokhan Adas,



CASE REPORT

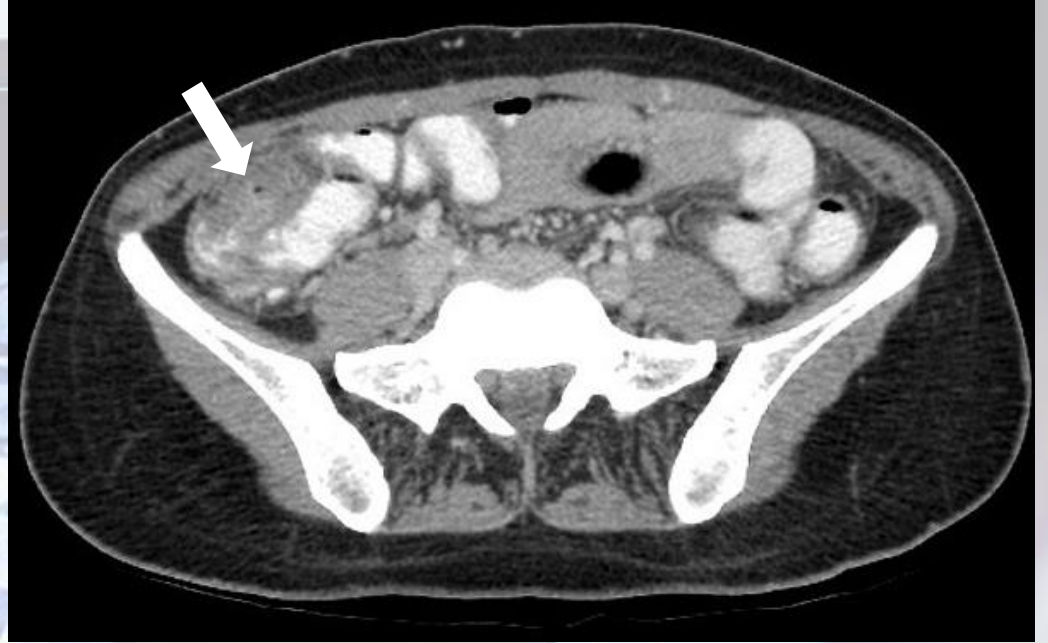
RIGHT-SIDED DIVERTICULITIS MIMICS APPENDICITIS

Thomas Gilmore, MD, Charlton Jordan, MD, and Elisabeth Edelstein, MD

A 12-year-old Taiwanese emergency department patient with persistent abdominal pain in the right lower quadrant (RLQ) that increased after eating and after ibuprofen use. She presented with



Cecal diverticulitis

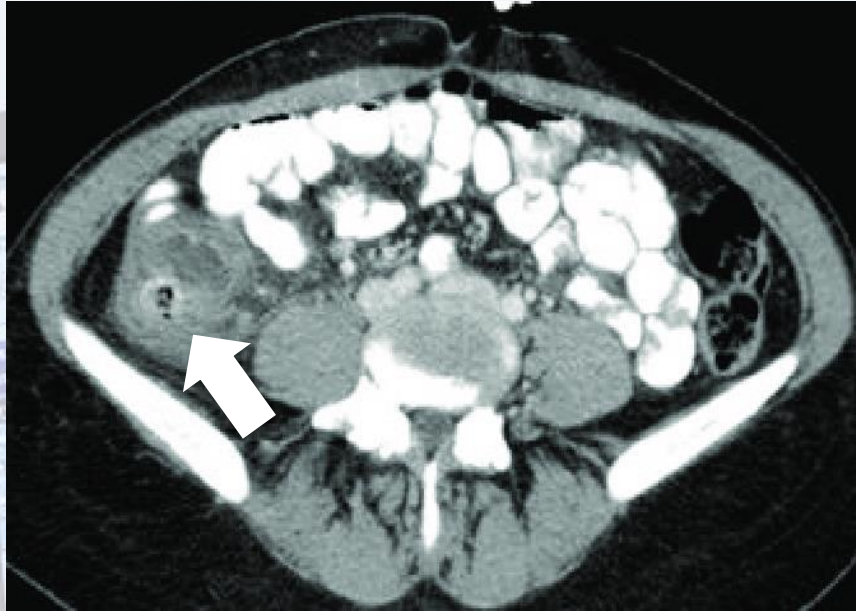


Cecal diverticulitis

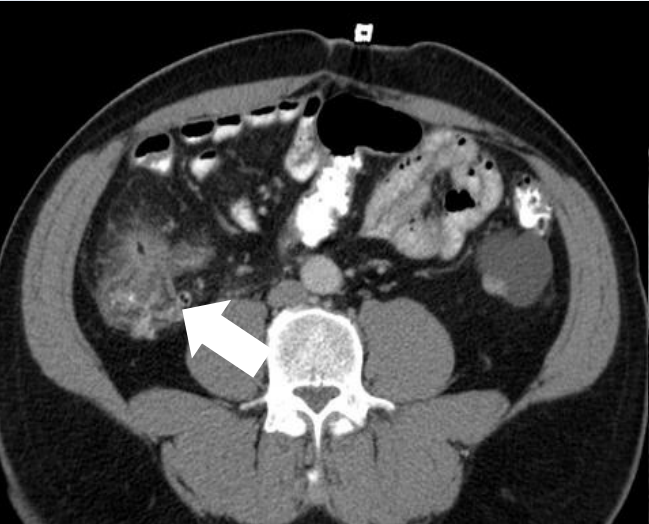


1: BMR137B616
9 QP-545301
21 Sep 1954
17 Jan 2014
512

Cecal diverticulitis
Small pericolic abscess



Cecal diverticulitis



Cecal diverticulitis

Thank you for your attention

