

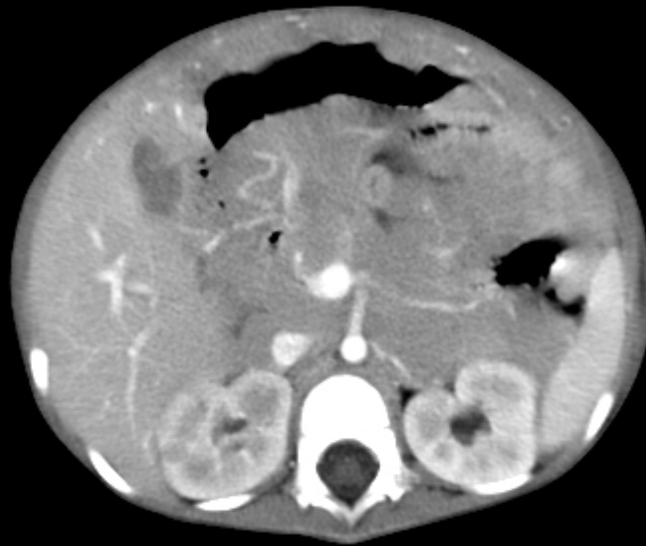
Guo Wei Jie,
60056174
2006-10-3
3 年
M

A

Wuhan Tongji Hosp 64
COLON

2010-5-14 10:25:18
60056174

LOC: -70
THK: 5
FFS

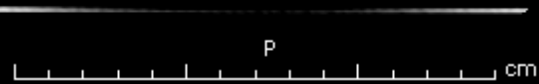


R

Guo Wei Jie,
60056174
2006-10-3
3 年
M

RD: 297
Tilt: 0
mA: 350
KVp: 120
Acq no: 2

页: 73 之 110

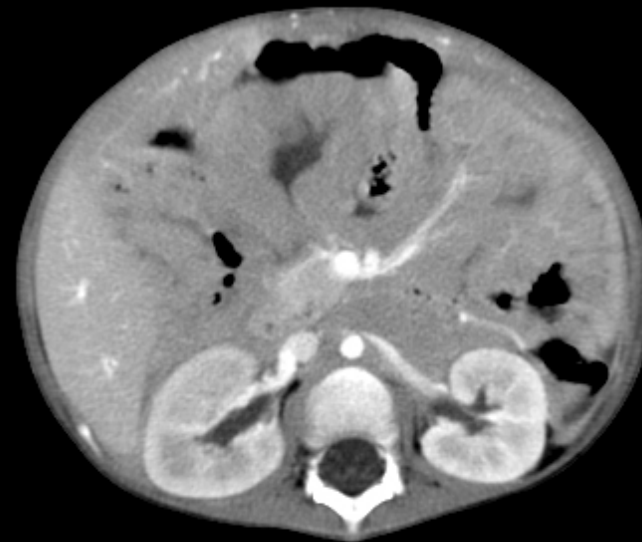


A

Wuhan Tongji Hosp 64
COLON

2010-5-14 10:25:18
60056174

LOC: -85
THK: 5
FFS

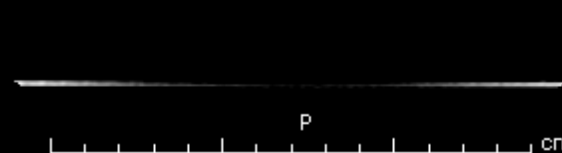


R

L

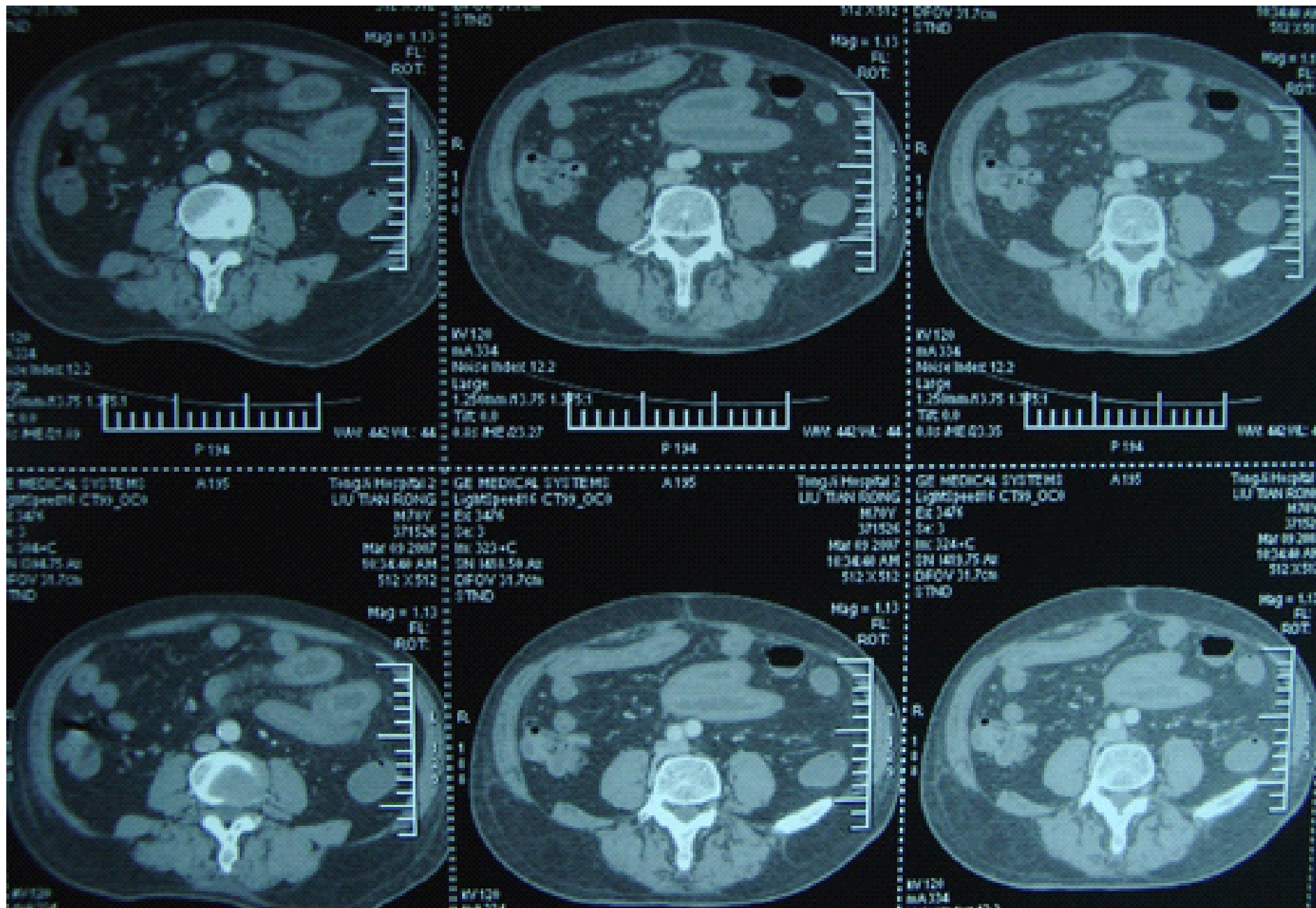
RD: 297
Tilt: 0
mA: 350
KVp: 120
Acq no: 2

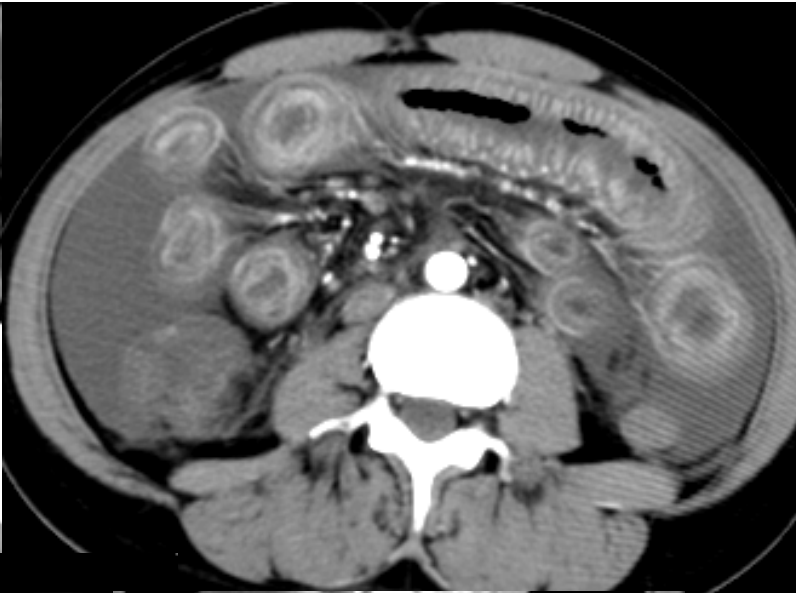
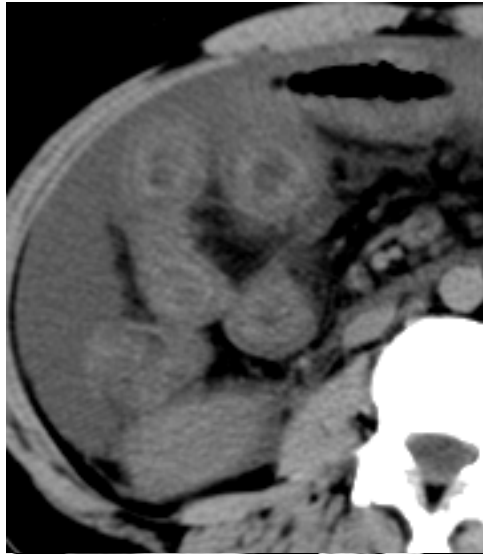
页: 76 之 110



Z: 1
C: 75
W: 196

IM: 76 SE: 2





Wang Guang Chai,

A

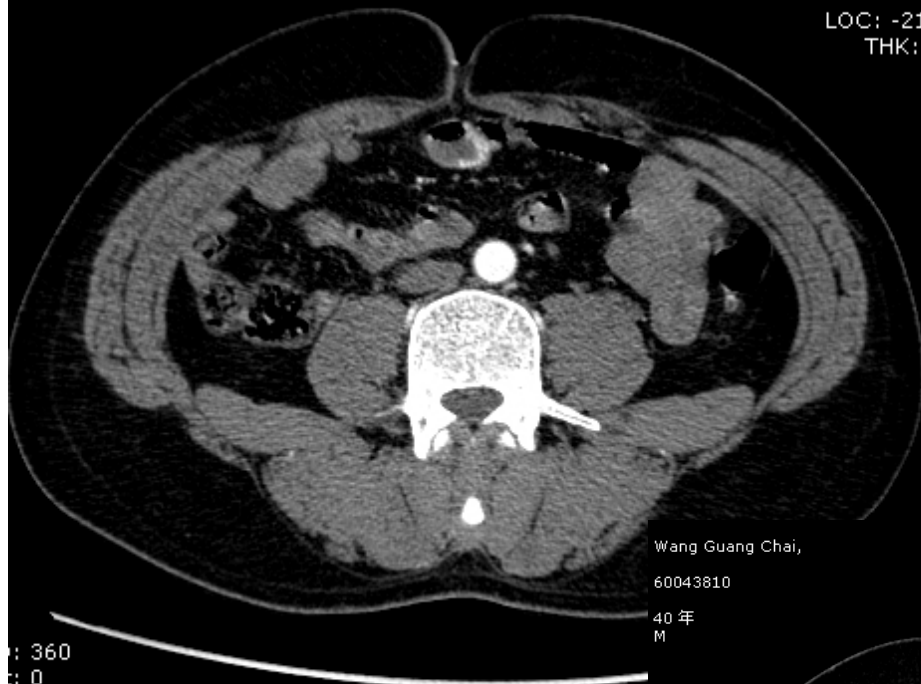
Wuhan Tongji Hosp 64
COLON+3D

60043810

40年

2010-3-3 15:5: Wang Guang Chai,
60043

60043810
LOC: -21:
THK: :40年
M



Wang Guang Chai,
60043810
40年
M

RD: 360
Tilt: 0
mA: 350
KVp: 120
Acq no: 1
197之722



A

Wuhan Tongji Hosp 64
COLON+3D

2010-3-3 15:52:0
60043810

LOC: -237.2
THK: 1.2
FF



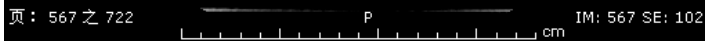
Wuhan Tongji Hosp 64
COLON+3D
2010-3-3 15:52:28
60043810
LOC: -224.75
THK: 1.25
FFS

LOC: -224.75
THK: 1.25
FFS

Z: 1
C: 73
W: 356
IM: 216 SE: 102

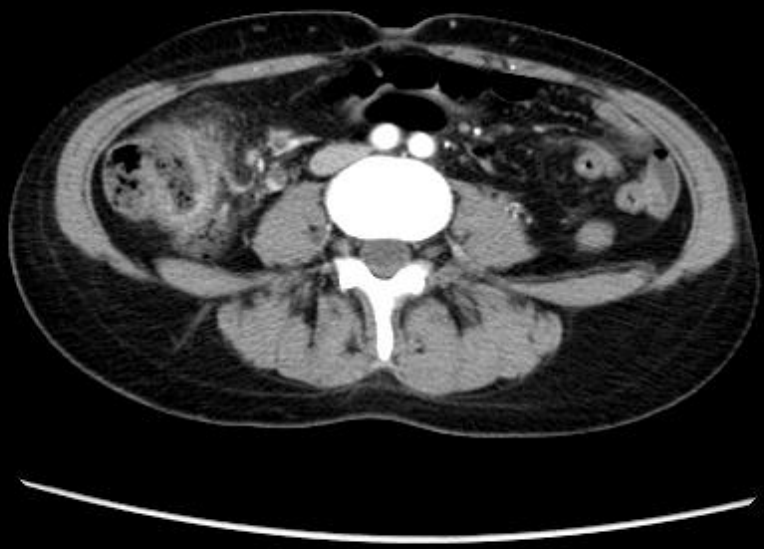


RD: 360
Tilt: 0
mA: 350
KVp: 120
Acq no: 2
Z: 1
C: 73
W: 356
IM: 567 SE: 102



武汉同济医院
姓名: XU LU PING
ID: 473068
性别: F
年龄: 034Y

(1/1)



(P)

武汉同济医院
姓名: XU LU PING
ID: 473068
性别: F
年龄: 034Y

(1/1)



(L)

8 cm

(P)

W: 300
L: 40

武汉同济医院
姓名: YANG QI LING
ID: 60001208
性别: F
年龄: 071Y

(1/1)



(L)
8 cm

武汉同济医院
姓名: YANG QI LING
ID: 60001208
性别: F
年龄: 071Y

(R)

武汉同济医院
姓名: YANG QI LING
ID: 60001208
性别: F
年龄: 071Y

(1/1)



(L)
8 cm

(1/1)

W: 438
L: -32



(L)
8 cm

W: 438
L: -32

肠壁CT表现分类及其 鉴别诊断意义

周义成

2011-05-22

扫描技术

- MSCT-Helical scanning with contiguous 5-mm sections is performed
- from the diaphragm 膈膜 to the symphysis pubis 耻骨.
- 常规平扫-+ 600–900 mL 水（因人而异）
- 增强—A期，门静脉期， delayed scans
- 工作站-3D，MPR、VR

一、正常肠道CT表现

正常肠壁厚度:

- 正常 小肠肠腔**2cm**
- 小肠肠壁**1~2mm**厚
- 空肠粘膜>回肠
- 肠粘膜有均匀一致强化



正常 小肠肠腔2cm
小肠肠壁1~2mm厚
空肠粘膜》回肠
肠粘膜有均匀一致强化



- 正常 小肠肠腔2cm
- 小肠肠壁1~2mm厚
- 空肠粘膜》回肠
- 肠粘膜有均匀一致强化

异常肠道CT表现分类及标准

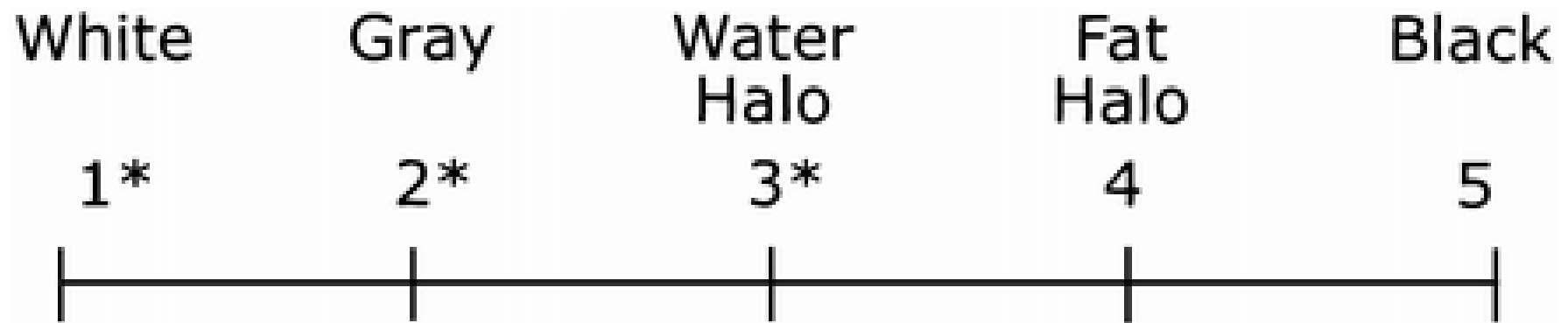
- 异常肠壁强化肠道**密度**
- 异常肠壁**厚度**
- 肠道周围**脂肪浸润**
- 鉴别良恶性**要点**
- 肠道**特异CT征象**

二、异常肠道密度CT表现分类

- 肠壁密度：5种密度
- 白色white (avid明显 contrast material enhancement)
- 灰色gray
- 水晕征water halo sign
- 脂肪晕征fat halo sign
- 黑色and black (pneumatosis)

异常肠道CT表现分类--肠壁强化类型

- **Interpretive Criteria** 诊断标准



- 1、白密度--密度接近IVC密度

武汉同济医院
姓名: YU HUI
ID: 440732
性别: F
年龄: 019Y

(1/1)

Wang Guang Chai,
60043810
40 年
M

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Wuhan Tongji Hosp 64
COLON+3D

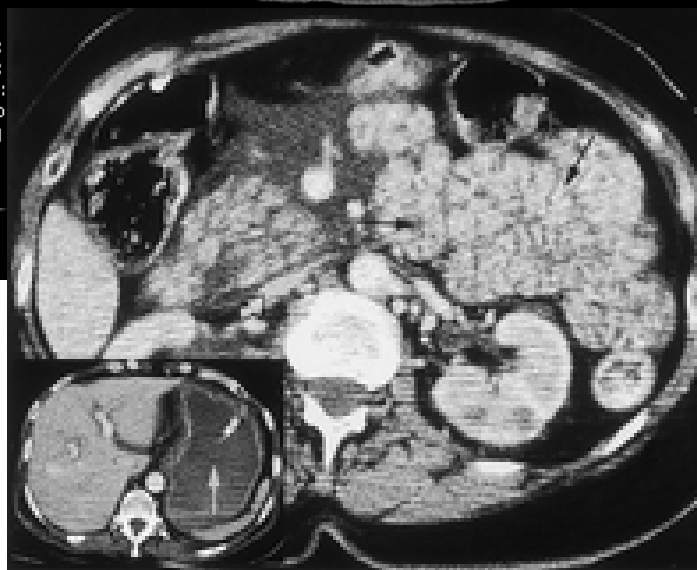
2010-3-3 15:52:28
60043810

LOC: -249.75
THK: 1.25
FFS

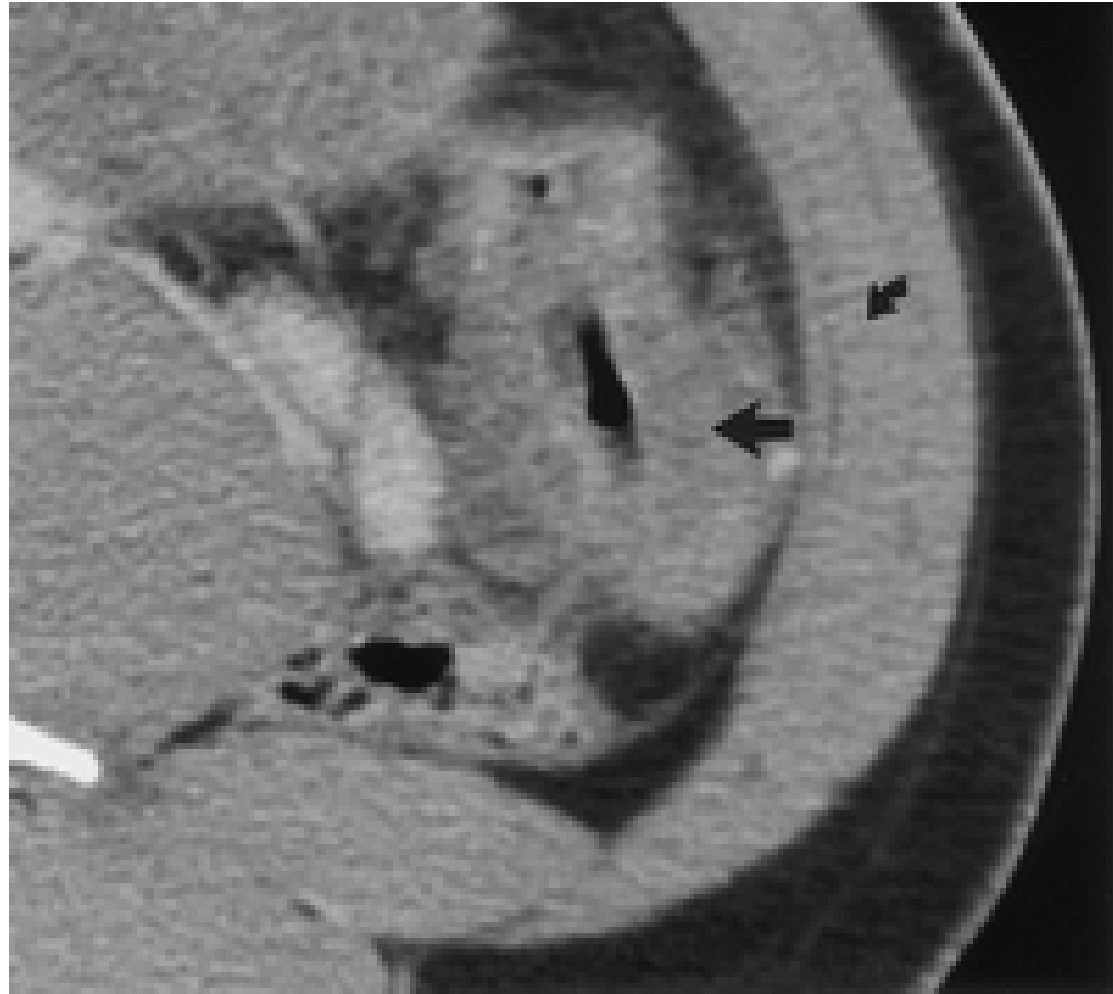


RD:
Tilt:
mA:
KVp
Acq
页:

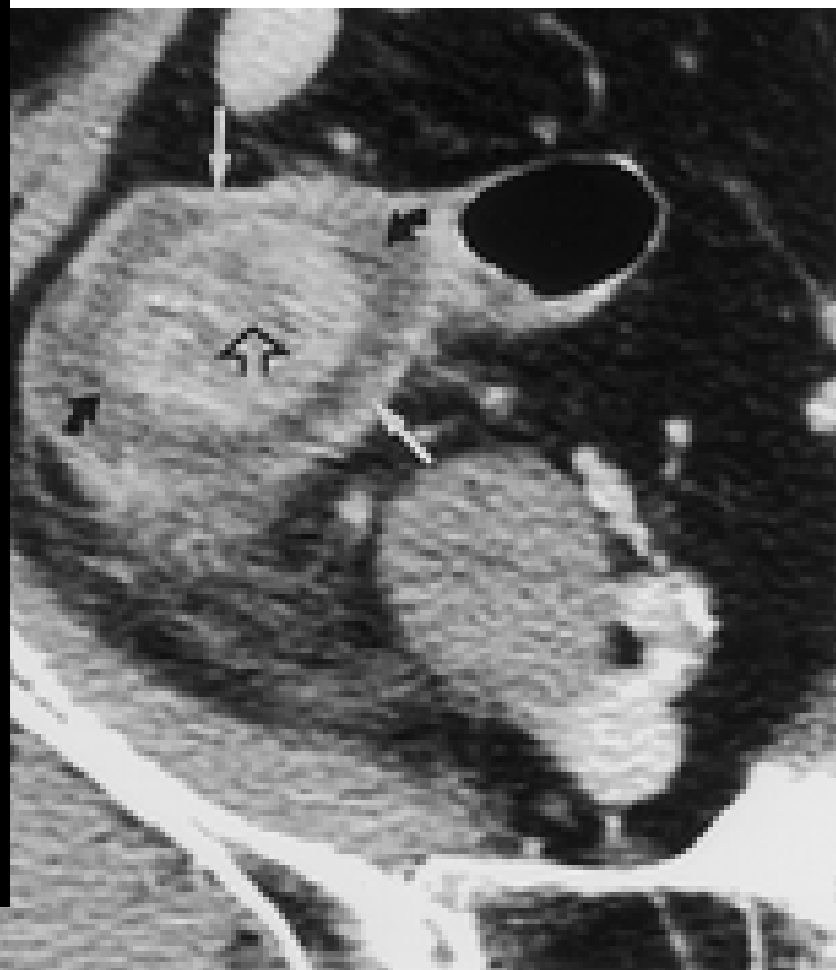
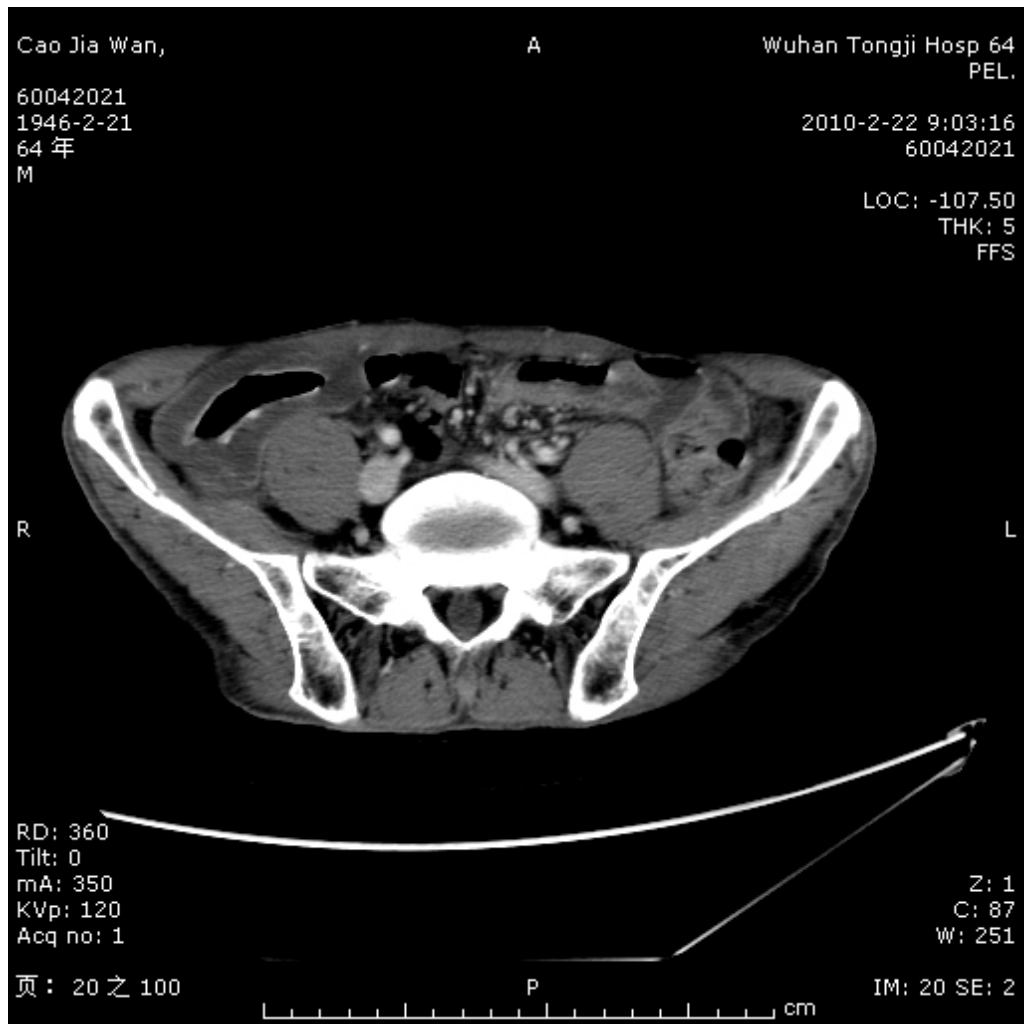
Z: 1
C: 73
W: 356
SE: 102



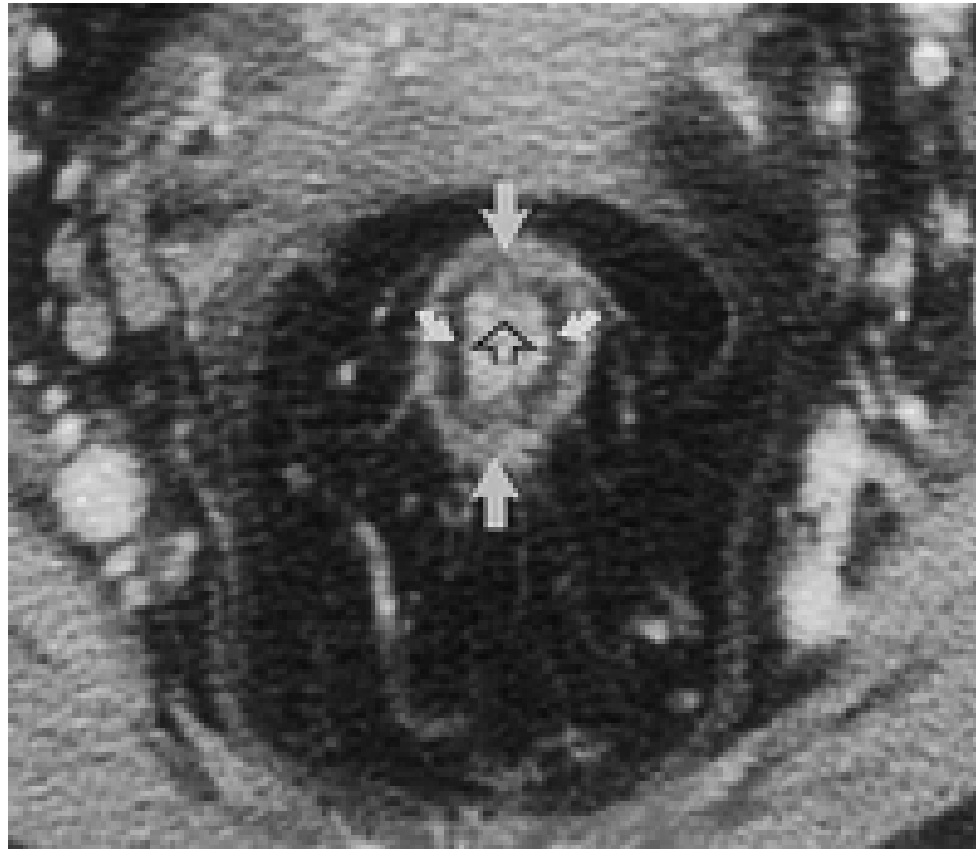
- 2.灰密度Gray attenuation. 肌肉等软组织密度



• 3.水密度



- 4、脂肪晕密度（Fat halo sign）。

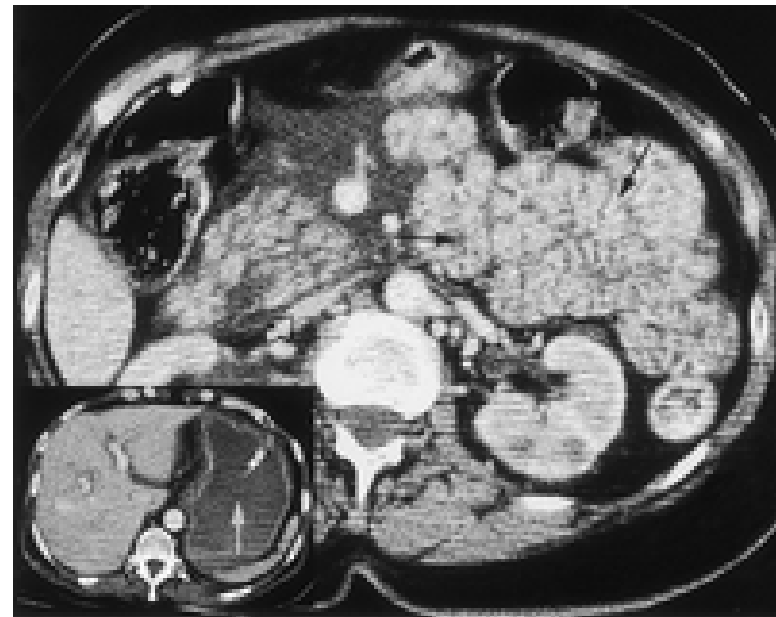
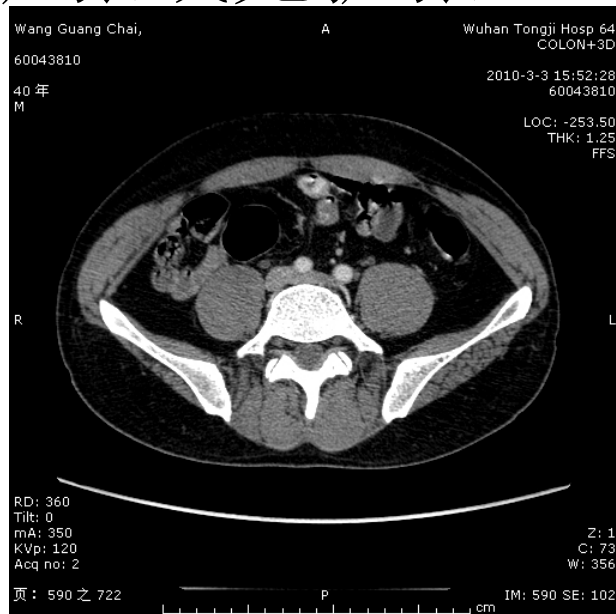


- 5、气体密度或黑色密度（Black attenuation）. cecal pneumatosis in ischemic colitis



第1类:白色密度white White Attenuation

- 肠壁白色密度--明显均匀对比增强
- 肠壁增厚—轻-中
- 肠腔扩张或无扩张

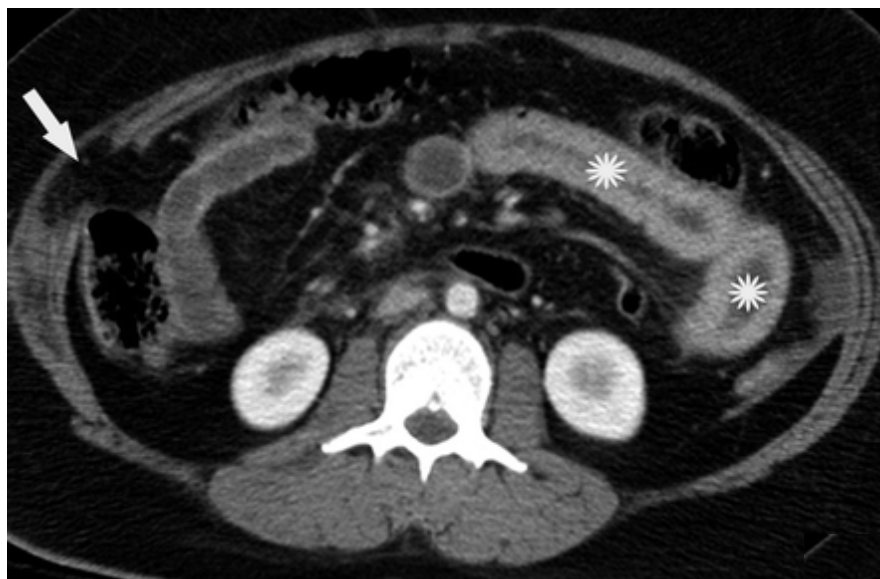


常见疾病-良性病变

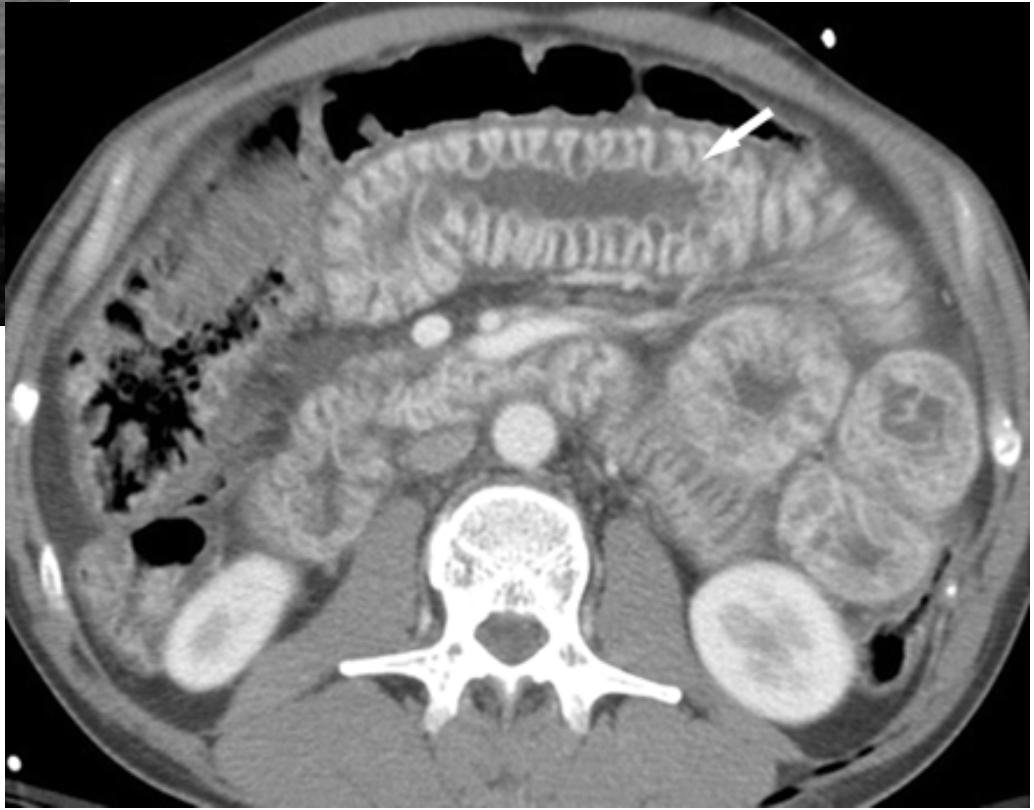
- 1. 低灌注综合征-休克Hypoperfusion complex—shock bowel syndrome “Shock bowel”
- 2. 急性溃疡性结肠炎acute ulcerative colitis.
- 3. 肠道缺血ischemic duodenitis and jejunitis.
- 4 .肠道炎症inflammatory bowel disease
- 5. 血管性疾病 / 血管瘤 *Vascular Tumors*
- 6. 朗格汉斯细胞组织细胞增多病 *Langerhans Cell Histiocytosis*
- 7. 克罗恩强化. 特发性肠道炎性疾病
- 8. 自身免疫原因胶原血管病
- 9. Hypoproteinemia

低灌注综合征-Hypoperfusion complex

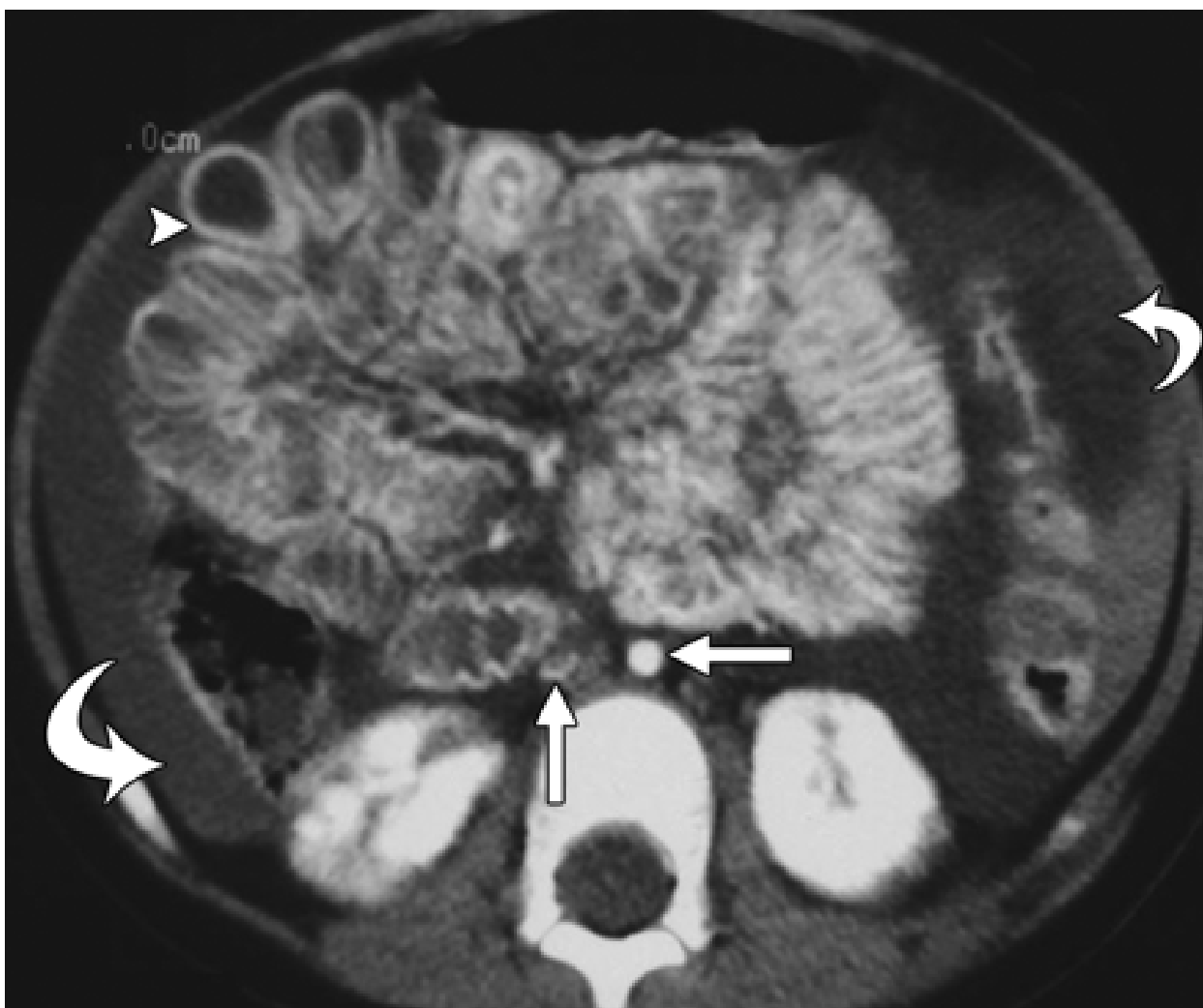
- 即休克肠--休克。低血压—CT表现
- 1.肠壁均匀增厚wall thickening
- 2.粘膜下局部增厚或指压迹submucosal focal mural thickening or thumbprinting
- 3.肠腔扩张dilated
- 4.增厚肠壁强化increased enhancement of the thickened wall-休克肠
- 5. 实质器官梗塞、破裂infarction of other abdominal organs (eg, liver, spleen, or kidneys) .
- 6.外伤后低灌注综合征—小IVC、主动脉、
- 7. 低灌注脾、肾，高灌注肾上腺
- 8.血管Angiography/CTA may show arterial 出血or venous occlusion or demonstrate vasospasm



- 外伤后



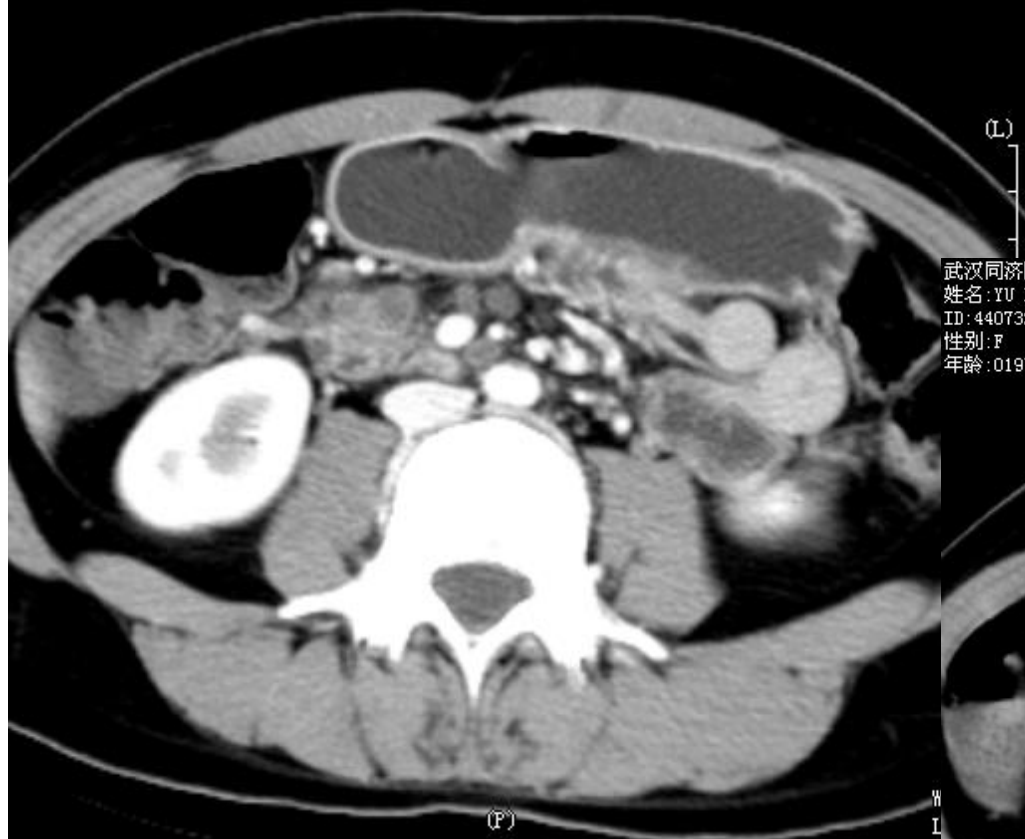
低灌注综合征



- 外伤后低灌注综合征—小IVC、主动脉、休
克肠 低灌注脾高灌注肾上腺

武汉同济医院
姓名: YU HUI
ID: 440732
性别: F
年龄: 019Y

(1/1)



武汉同济医院
姓名: YU HUI
ID: 440732
性别: F
年龄: 019Y

(1/1)



武汉同济医院
姓名: YU HUI
ID: 440732
性别: F
年龄: 019Y

(1/1)



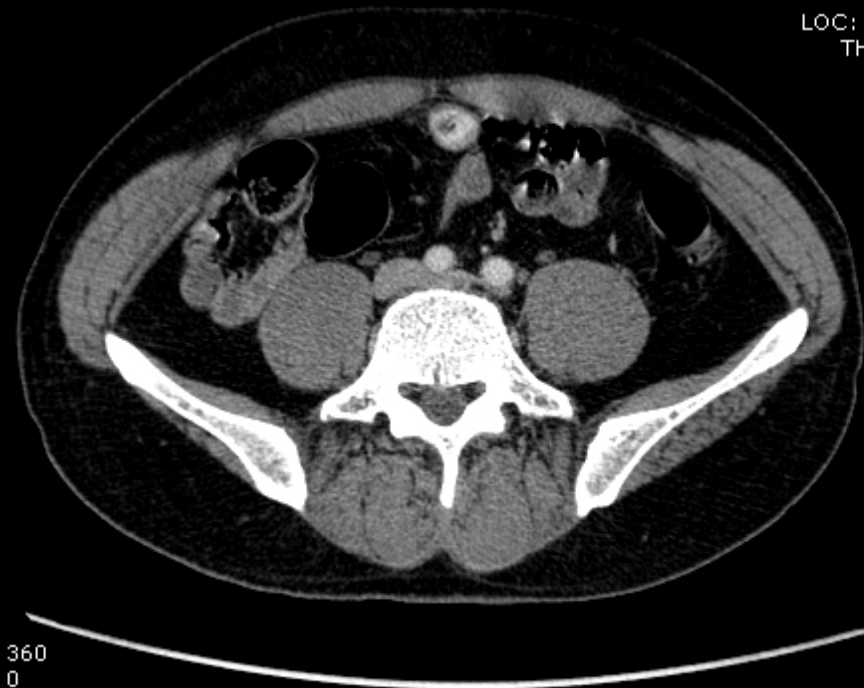
Wang Guang Chai,
60043810
40 年
M

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Wuhan Tongji Hosp 64
COLON+3D

2010-3-3 15:52:28
60043810

LOC: -249.75
THK: 1.25
FFS

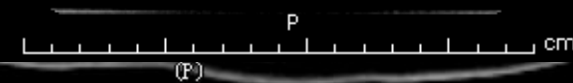


RD: 360
Tilt: 0
mA: 350
KVp: 120
Acq no: 2

Z: 1
C: 73
W: 356

页: 587 之 722

IM: 587 SE: 102



武汉同济医院
姓名: YU HUI
ID: 440732
性别: F
年龄: 019Y

(1/1)



武汉同济医院
姓名: YU HUI
ID: 440732
性别: F
年龄: 019Y

(1/1)

武汉同济医院
姓名: YU HUI
ID: 440732
性别: F
年龄: 019Y

(1/1)



武汉同济医院
姓名: YU HUI
ID: 440732
性别: F
年龄: 019Y

(1/1)



W: 252
L: 40

(F)



W: 252
L: 40

(F)

SYSTEMS
T99_OC0

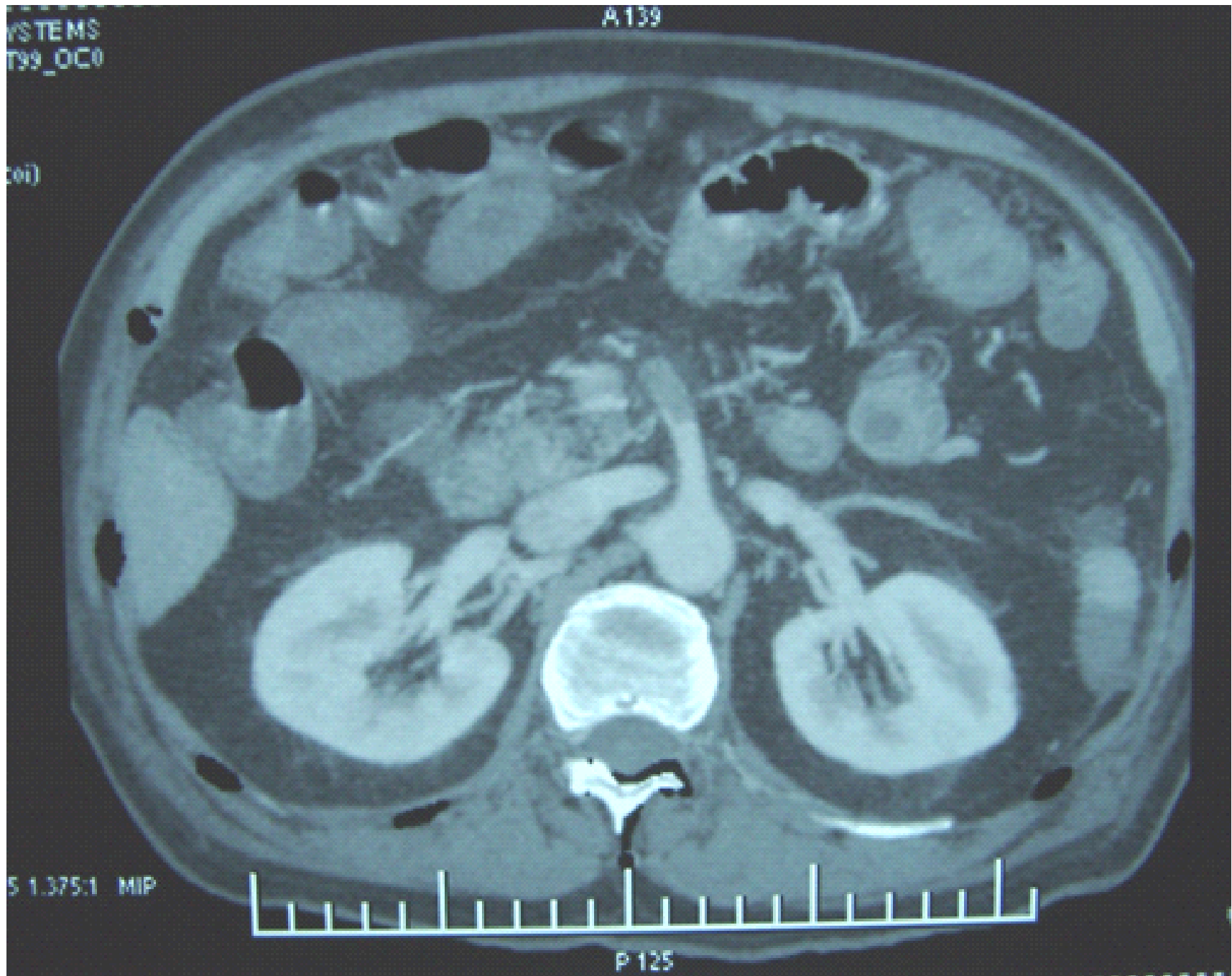
A 139

(ii)

5 1.375:1 MIP



P 125



GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 26958
Se: 103 RFMT
Im: 1+C
XY: 0 R2.4 (coi)
DFOV: 43.1cm
STND

S 70

Tongji Hospital 2
GUO DONG SHENG
M68Y
453962
Jan 08 2009
10:09:41 AM
512 X 512

Mag = 1.00
FL:
ROT:

A
R

P
L

kV 120
mA 245

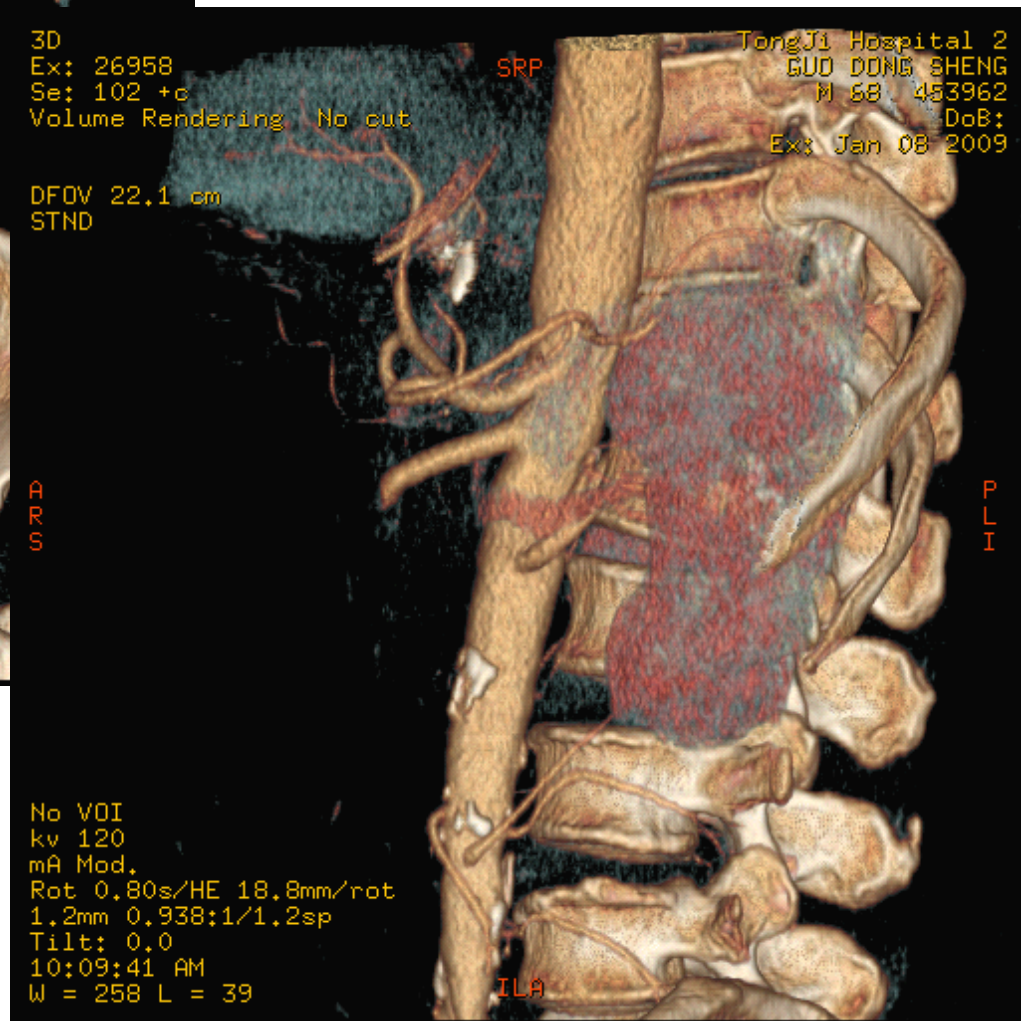
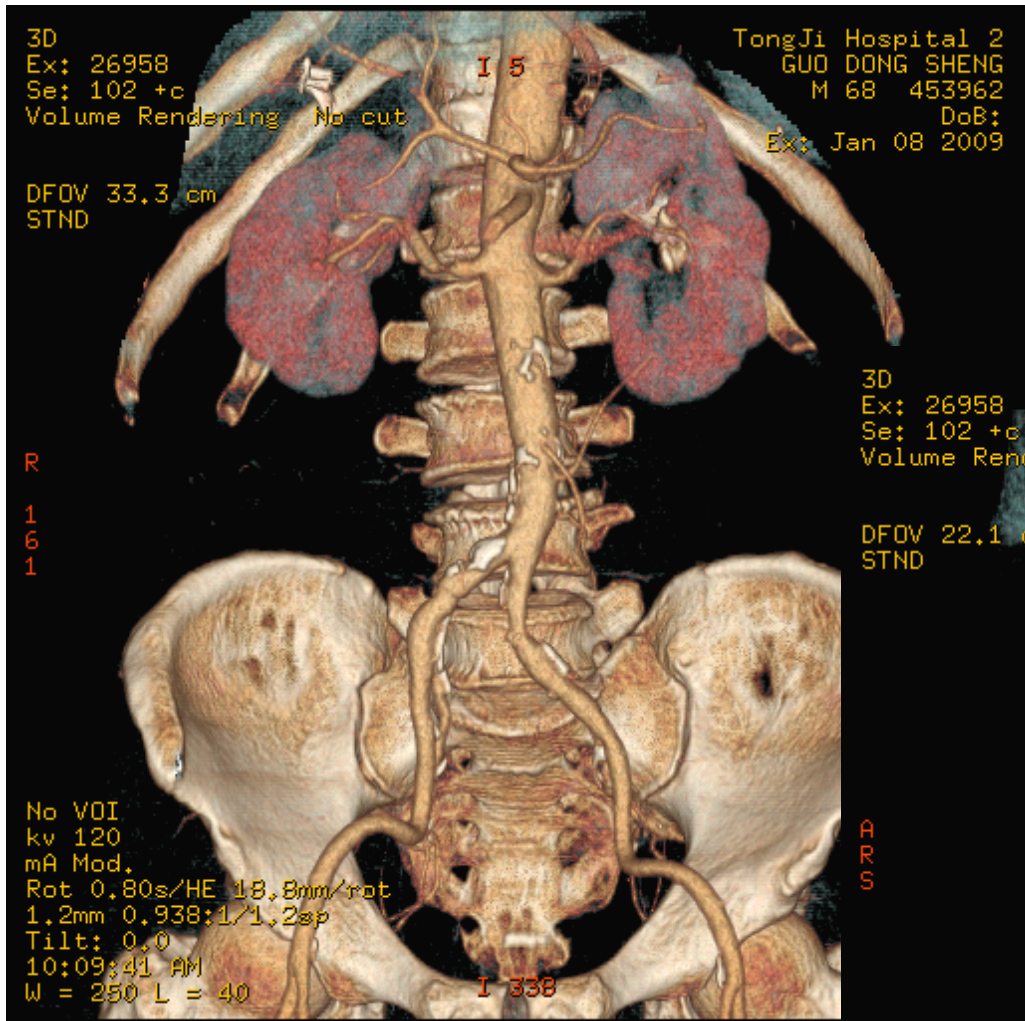
Large
9.141mm/18.75 0.938:1 MP
Tilt: 0.0
0.8s /HE



WW: 274 WL: 72

138





GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 80+C
XY I168.75 Ax
DFOV 32.5cm
STND

A 163

Tong
HUA) GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 81+C
XY I170.00 Ax
DFOV 32.5cm
STND

A 163

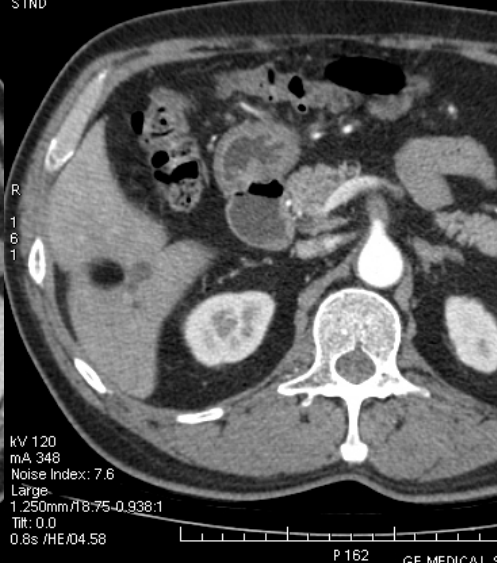
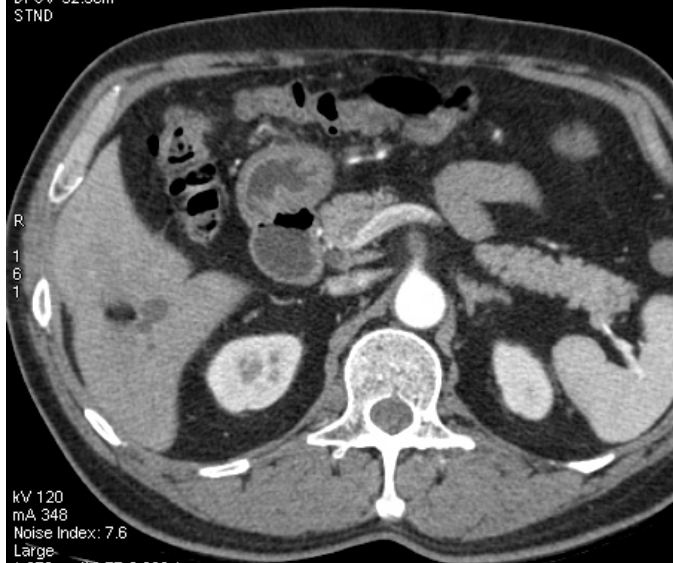
TongJi Hospital 2
HUANG CU QING
M56Y

GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 83+C
XY I172.50 Ax
DFOV 32.5cm
STND

A 163

TongJi Hospital 2
HUANG CU QING
M56Y
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.21
FL:
ROT:



GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 84+C
XY I173.75 Ax
DFOV 32.5cm
STND

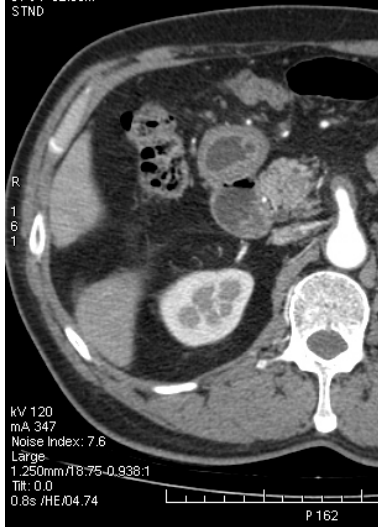
A 163

GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 85+C
XY I175.00 Ax
DFOV 32.5cm
STND

TongJi Hospital 2
HUANG CU QING 30WL: 40
A 163

TongJi Hospital 2
HUANG CU QING
M56Y
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.21
FL:
ROT:



GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 86+C
XY I176.25 Ax
DFOV 32.5cm
STND

A 163

TongJi Hospital 2
HUANG CU QING
M56Y
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.21
FL:
ROT:



GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 87+C
XY I177.50 Ax
DFOV 32.5cm
STND

A 163

TongJi Hospital 2
HUA
GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 89+C
XY I180.00 Ax
DFOV 32.5cm
STND

A 163

Tong, GE MEDICAL SYSTEMS
HUANG
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
M Im: 91+C
11 XY I182.50 Ax
DFOV 32.5cm
STND

A 163

TongJi Hospital 2
HUANG CU QING
MSBY
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.21
FL:
ROT:



GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 92+C
XY I183.75 Ax
DFOV 32.5cm
STND

A 163

TongJi Hospital 2
HUANG CU QING
MSBY 1.00
GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 94+C
N XY I186.25 Ax
DFOV 32.5cm
STND

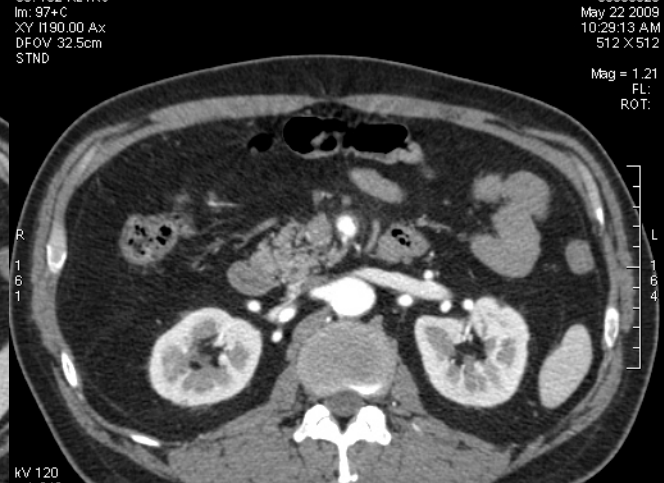
A 163

GE MEDICAL SYSTEMS
HUANG
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 97+C
XY I190.00 Ax
DFOV 32.5cm
STND

A 163

TongJi Hospital 2
HUANG CU QING
MSBY
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.21
FL:
ROT:



KV 120
mA 344
Noise Index: 7.6
Large
1.250mm/18:75-0.938:1
Tilt: 0.0
0.8s /HE/05.16

KV 120
mA 343
Noise Index: 7.6
Large
1.250mm/18:75-0.938:1
Tilt: 0.0
0.8s /HE/05.27

KV 120
mA 342
Noise Index: 7.6
Large
1.250mm/18:75-0.938:1
Tilt: 0.0
0.8s /HE/05.43

WW: 400WL: 40

GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 104+C
XY I198.75 Ax
DFOV 32.5cm
STND

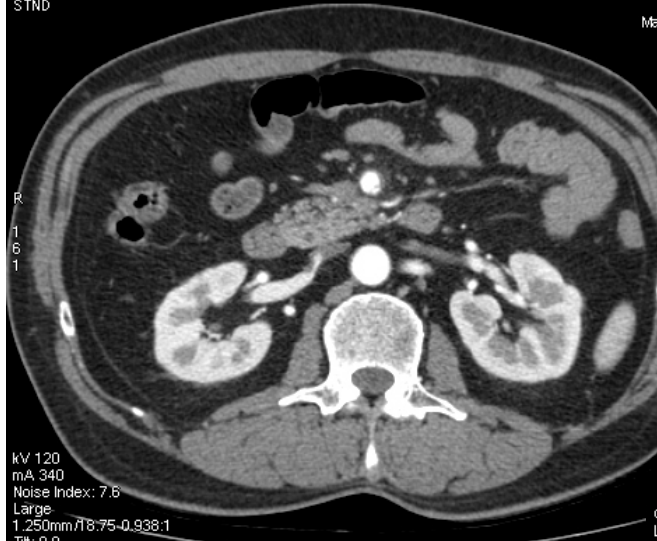
A 163

TongJi Hospital
HUANG CU QING
GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
6C Se: 102 RETRO
May Im: 105+C
10:2 XY I200.00 Ax
51 DFOV 32.5cm
STND
Mag:

A 163

TongJi Hospital 2
HUANG CU QING
M56Y
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.21
FL:
ROT:



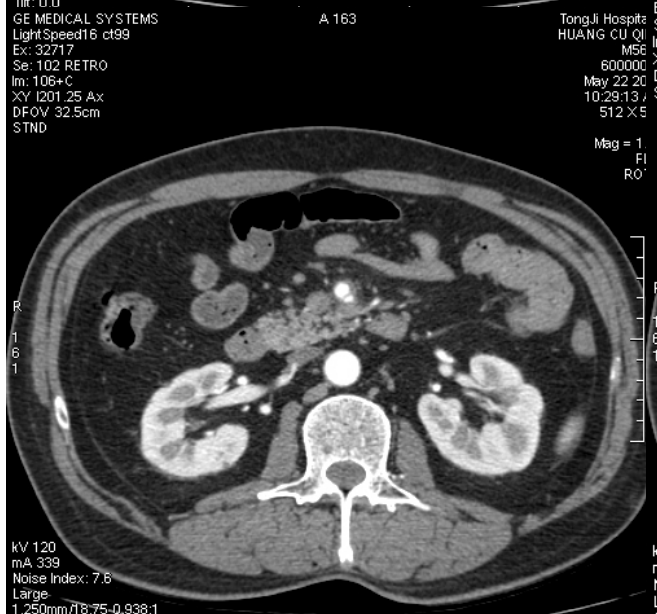
KV 120
mA 340
Noise Index: 7.6
Large
1.250mm/18.75-0.938:1
Tilt: 0.0



KV 120
mA 340
GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 102 RETRO
Im: 108+C
XY I203.75 Ax
DFOV 32.5cm
STND

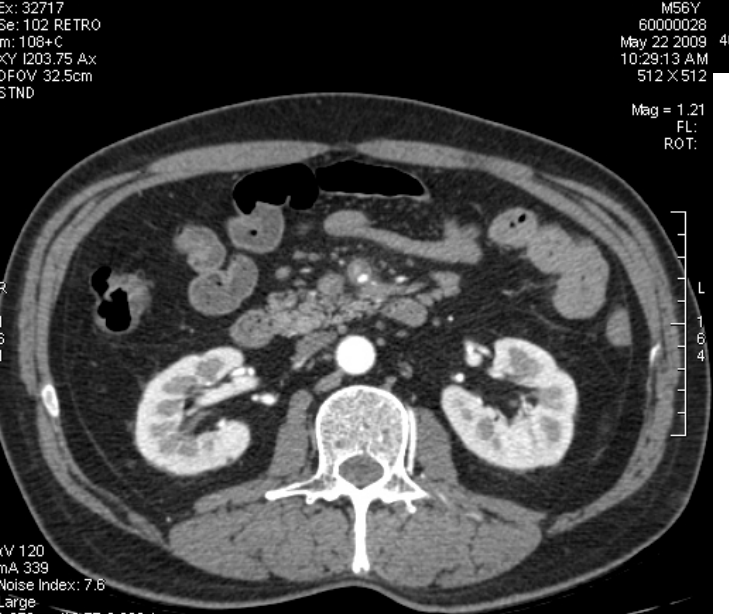
TongJi Hospital 2
HUANG CU QING
M56Y
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.21
FL:
ROT:



KV 120
mA 339
Noise Index: 7.6
Large
1.250mm/18.75-0.938:1
Tilt: 0.0
0.8s /HE/05.91

TongJi Hospital
HUANG CU QING
GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
M56Y
60000028
May 22 2009
10:29:13 AM
512 X 512
STND
Mag = 1.21
FL:
ROT:



KV 120
mA 339
Noise Index: 7.6
Large
1.250mm/18.75-0.938:1
Tilt: 0.0
0.8s /HE/06.02

TongJi Hospital 2
HUANG CU QING
M56Y
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.21
FL:
ROT:

P 162

P 162

WW: 400WL

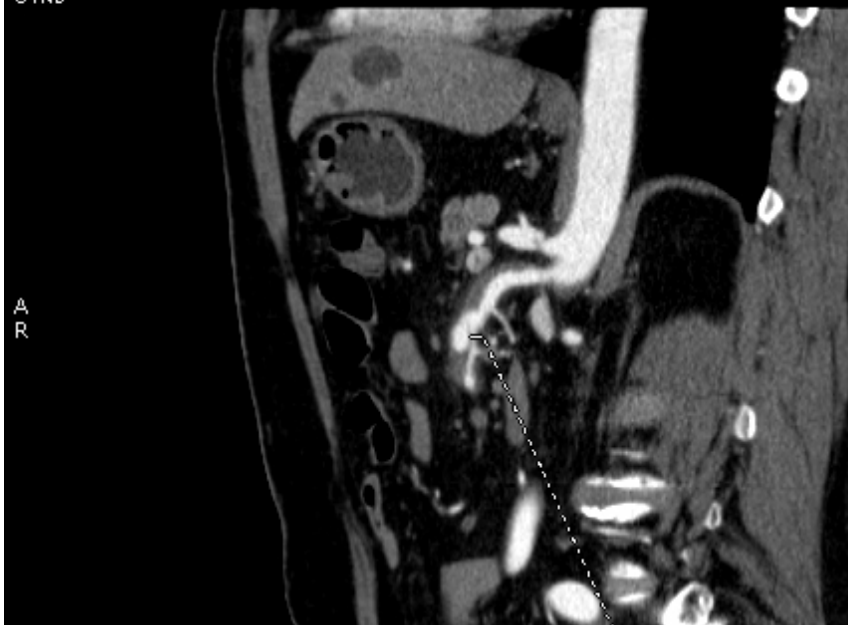
WW: 400WL: 40

GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 104 RFMT
Im: 5+C
XY 0 L14.9 (coi)
DFOV 39.3cm
STND

S 7

TongJi Hospital 2
HUANG CU QING
M56Y
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.00
FL:
ROT:



kV 120
mA 311

Large
0.768mm/18.75 0.938:1
Tilt: 0.0
0.8s /HE

4.6 mm

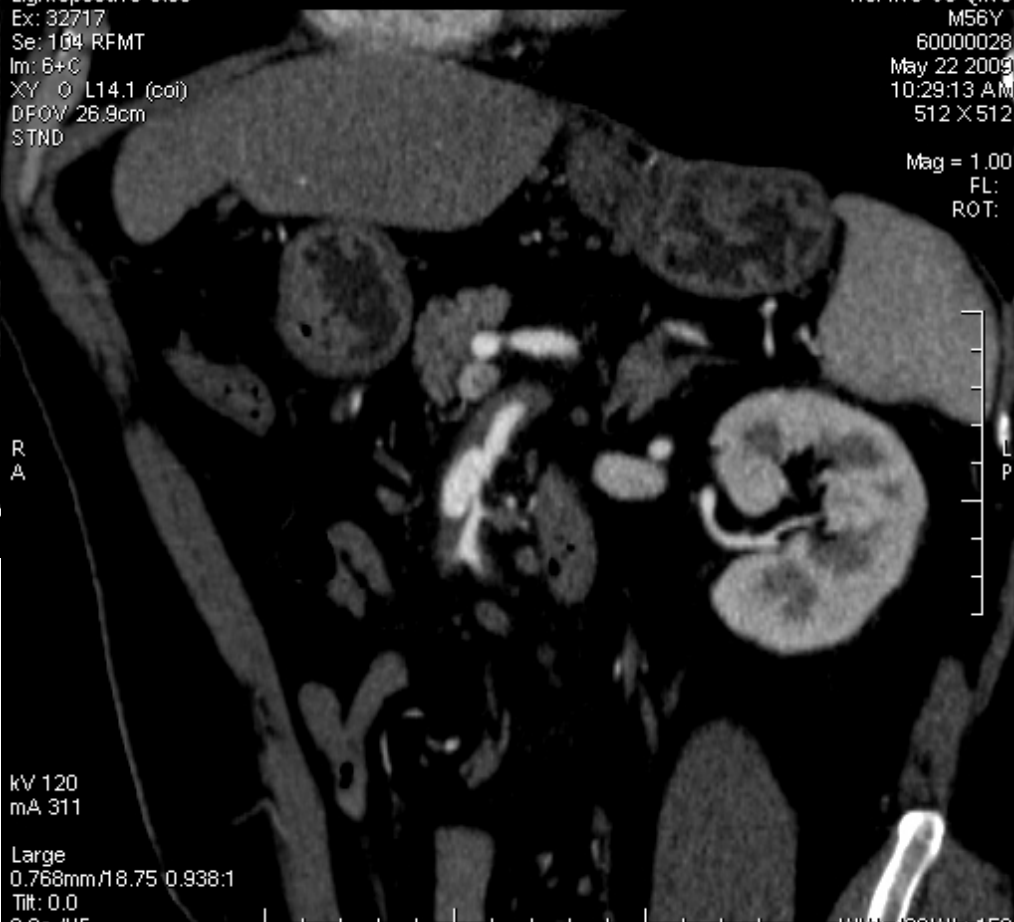
1386

GE MEDICAL SYSTEMS
LightSpeed16 ct99
Ex: 32717
Se: 104 RFMT
Im: 6+C
XY 0 L14.1 (coi)
DFOV 26.9cm
STND

SRP

TongJi Hospital 2
HUANG CU QING
M56Y
60000028
May 22 2009
10:29:13 AM
512 X 512

Mag = 1.00
FL:
ROT:



kV 120
mA 311

Large
0.768mm/18.75 0.938:1
Tilt: 0.0
0.8s /HE

ILA

WWW: 426WL: 159

hypotension complex



- 外伤后低灌注综合征—小IVC、主动脉、休克肠 低灌注脾高灌注肾上腺

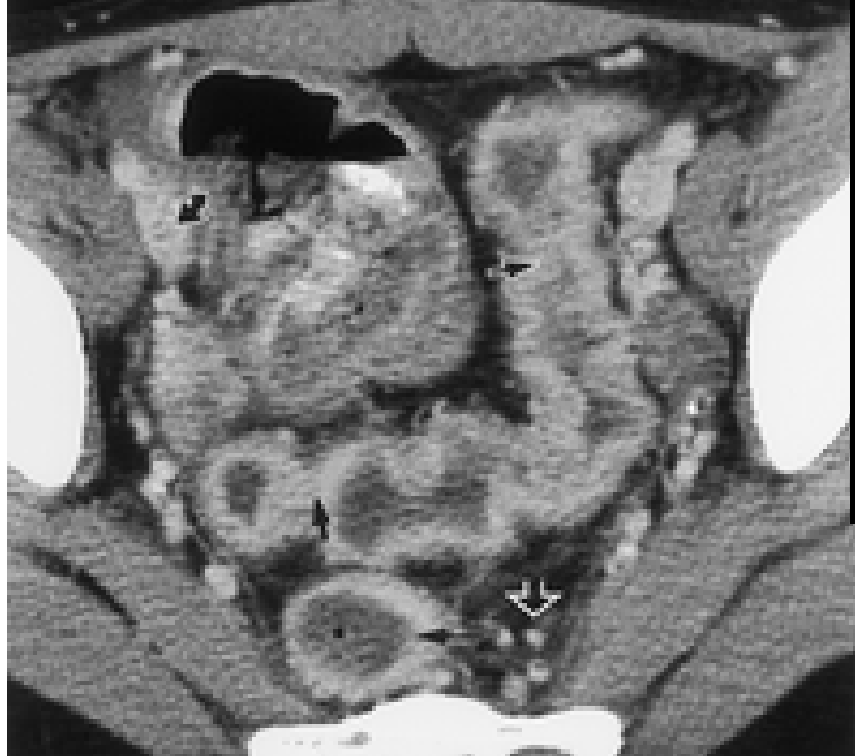


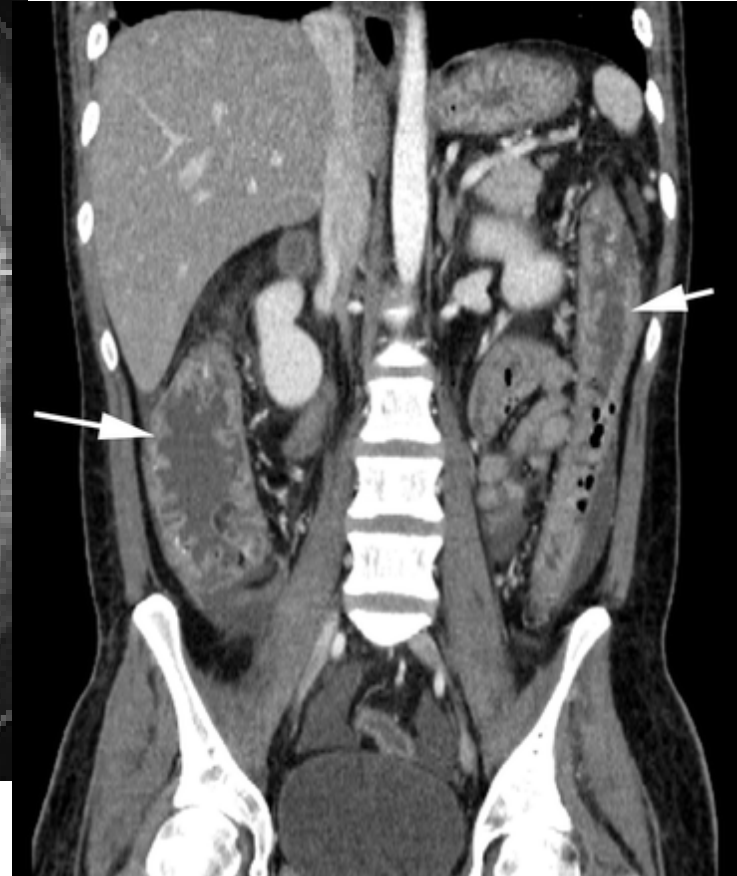
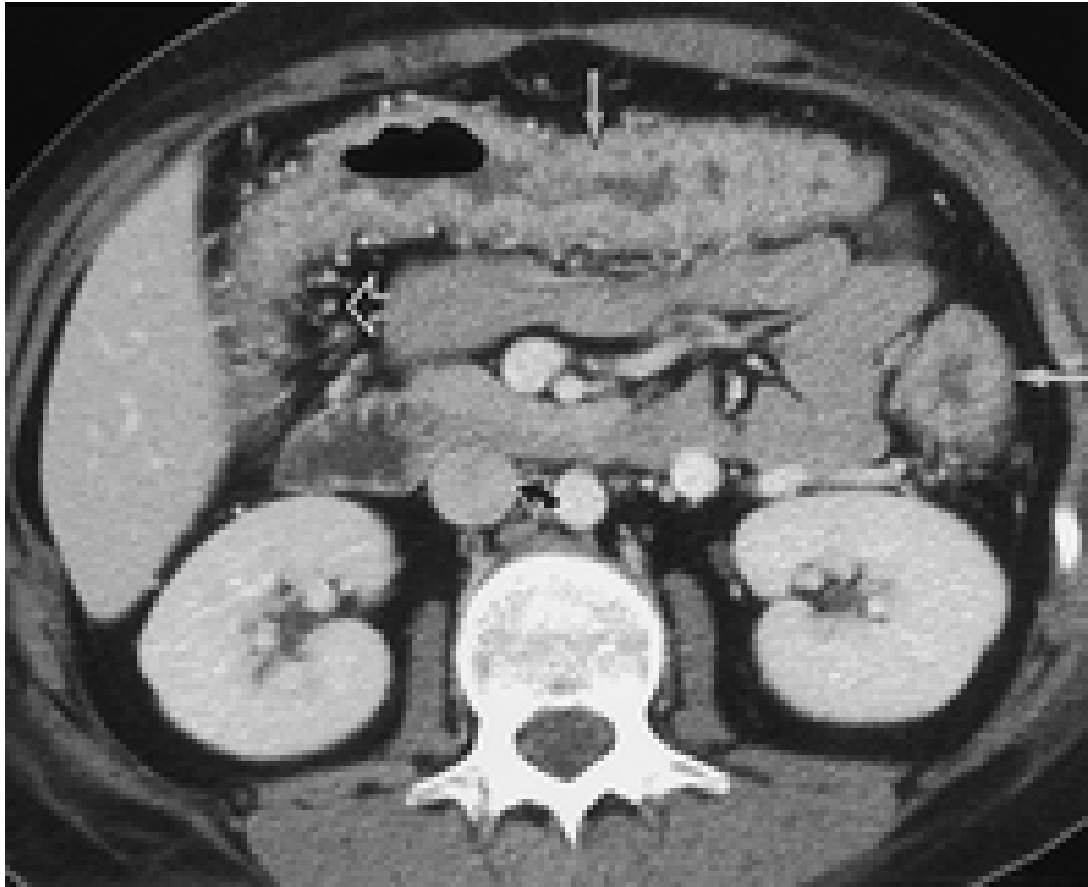
- 心跳停跳复苏后

急性溃疡性结肠炎

acute ulcerative colitis.

- 急性溃疡性结肠炎--后述



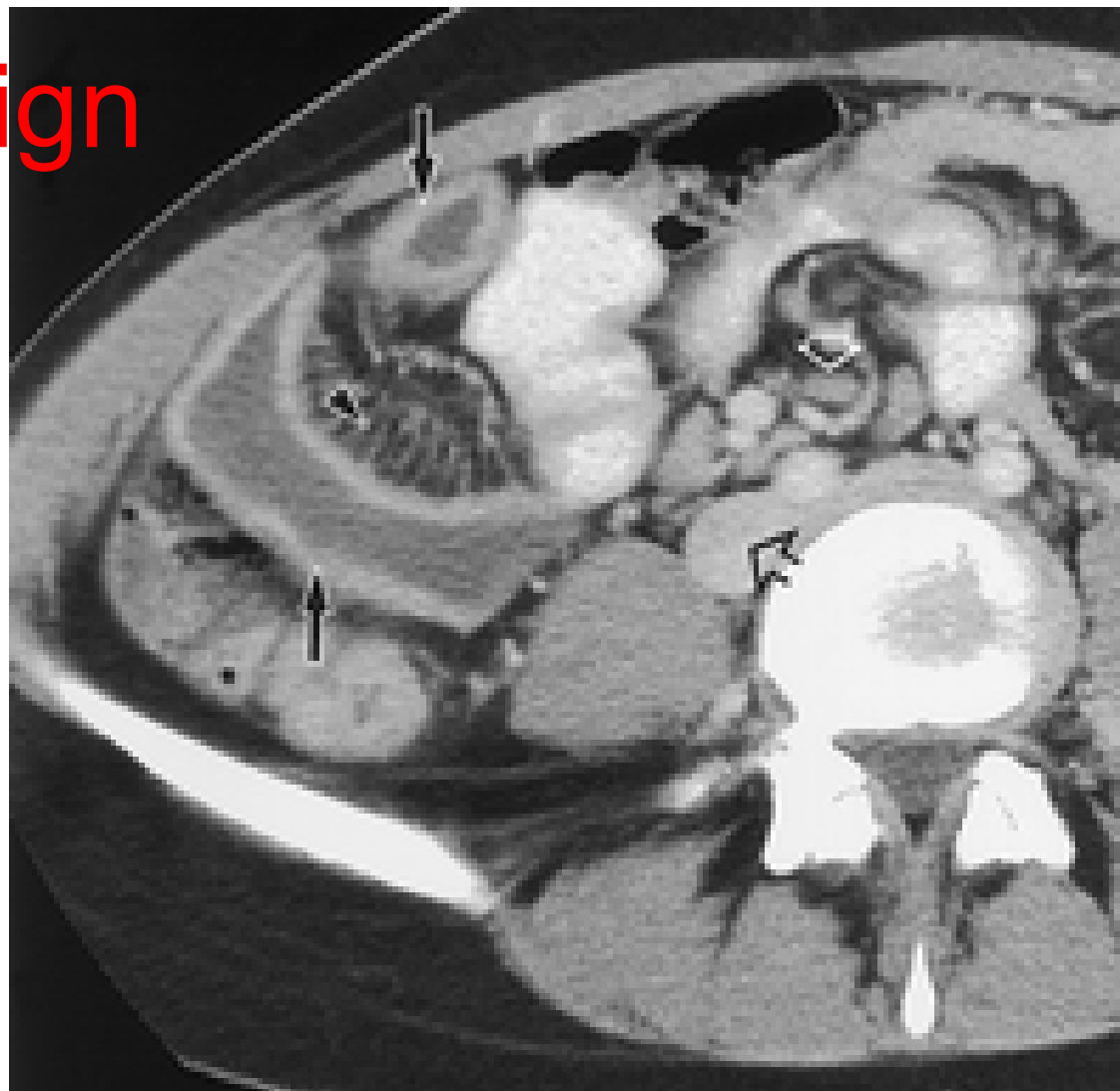


- **White attenuation:** enhancement in **acute ulcerative colitis.**

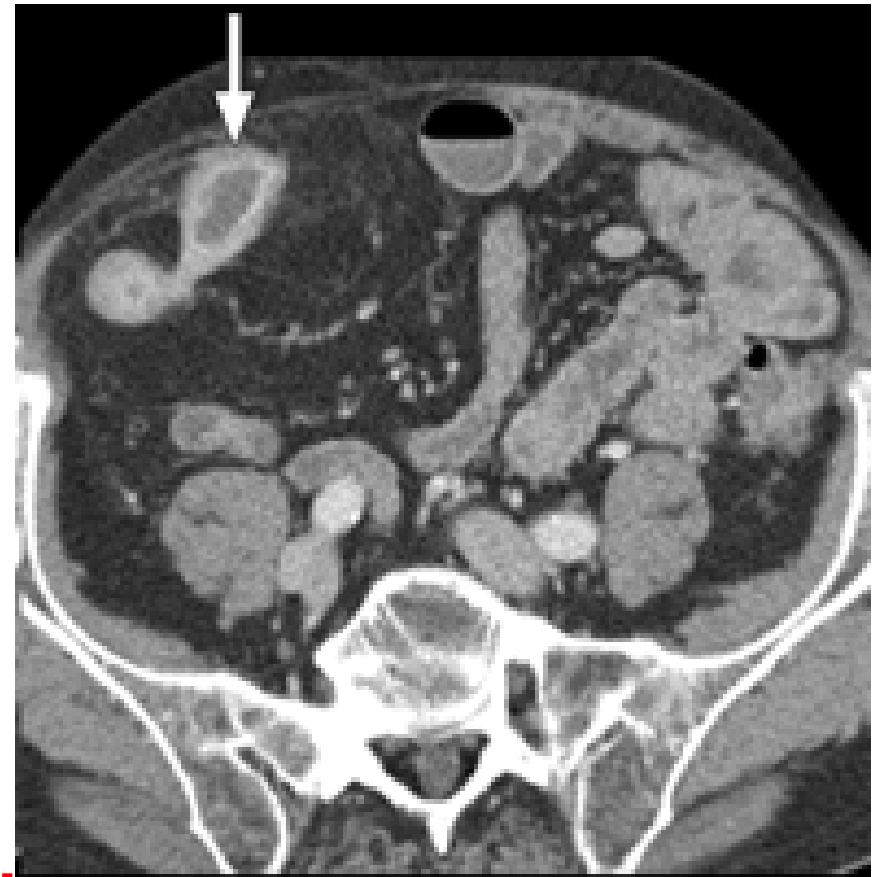
Crohn's disease

- 后述

Comb sign



- **White attenuation:** enhancement in ileal Crohn disease.



Crohn's disease

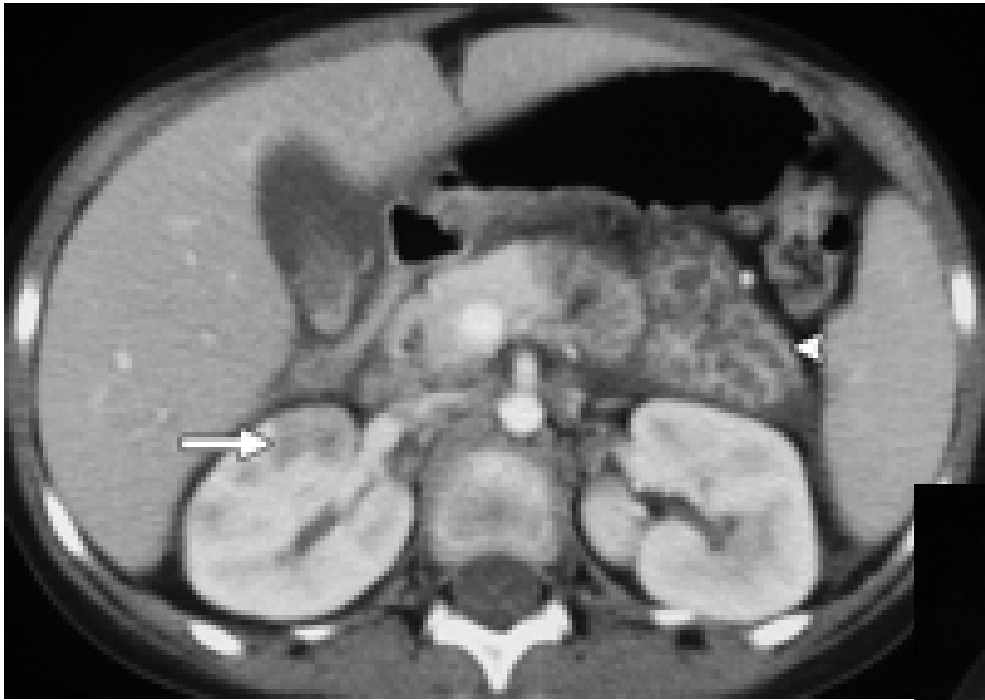


- **Comb sign.**

Collagen Vascular Disease 胶原血管病

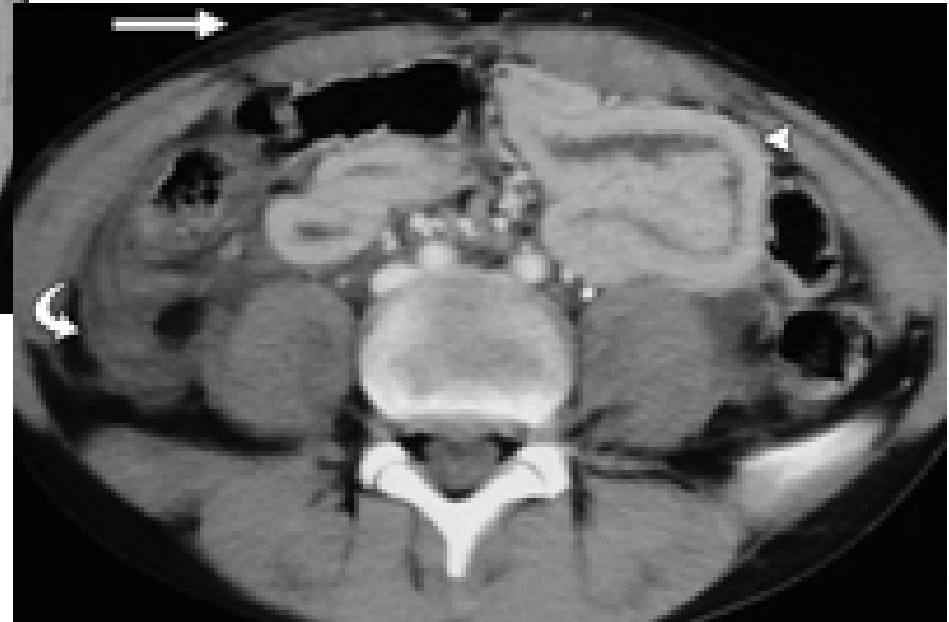
- 硬皮病 SLE 结节性动脉炎，过敏性紫癜—GVHD 常见.
- 小肠常见—常为同心状的，节段性、弥漫性多浆膜炎 polyserositis
- 肾累及 renal involvement
- 肝脾大 hepatosplenomegaly

SLE

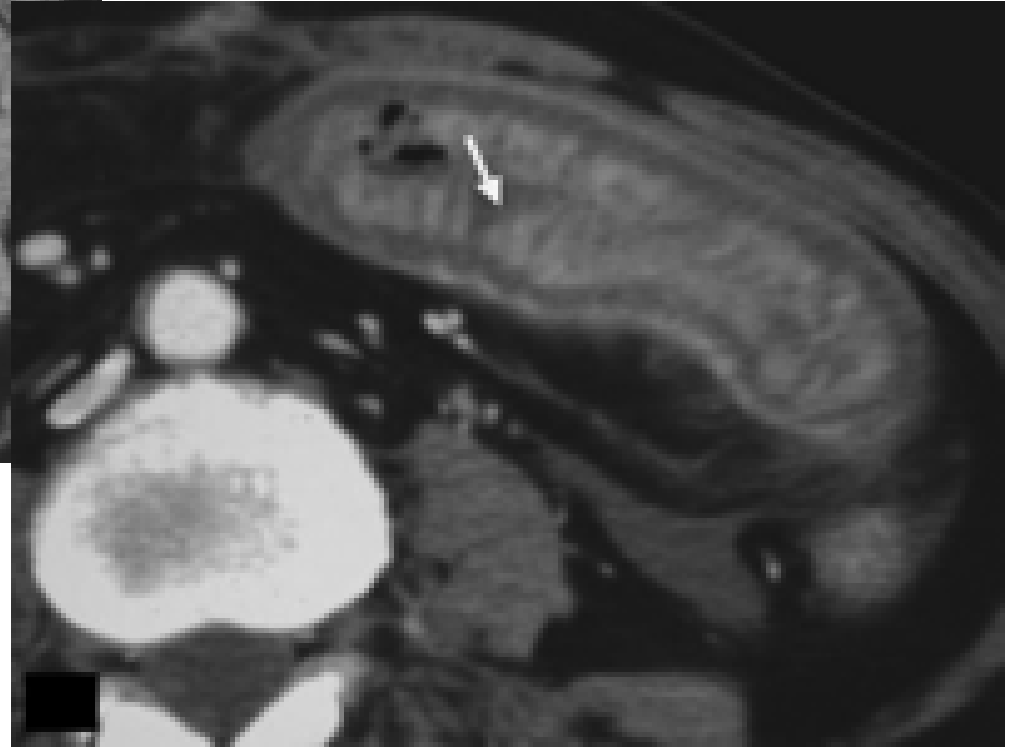




- Duodenal hematoma



Jejunal hematoma



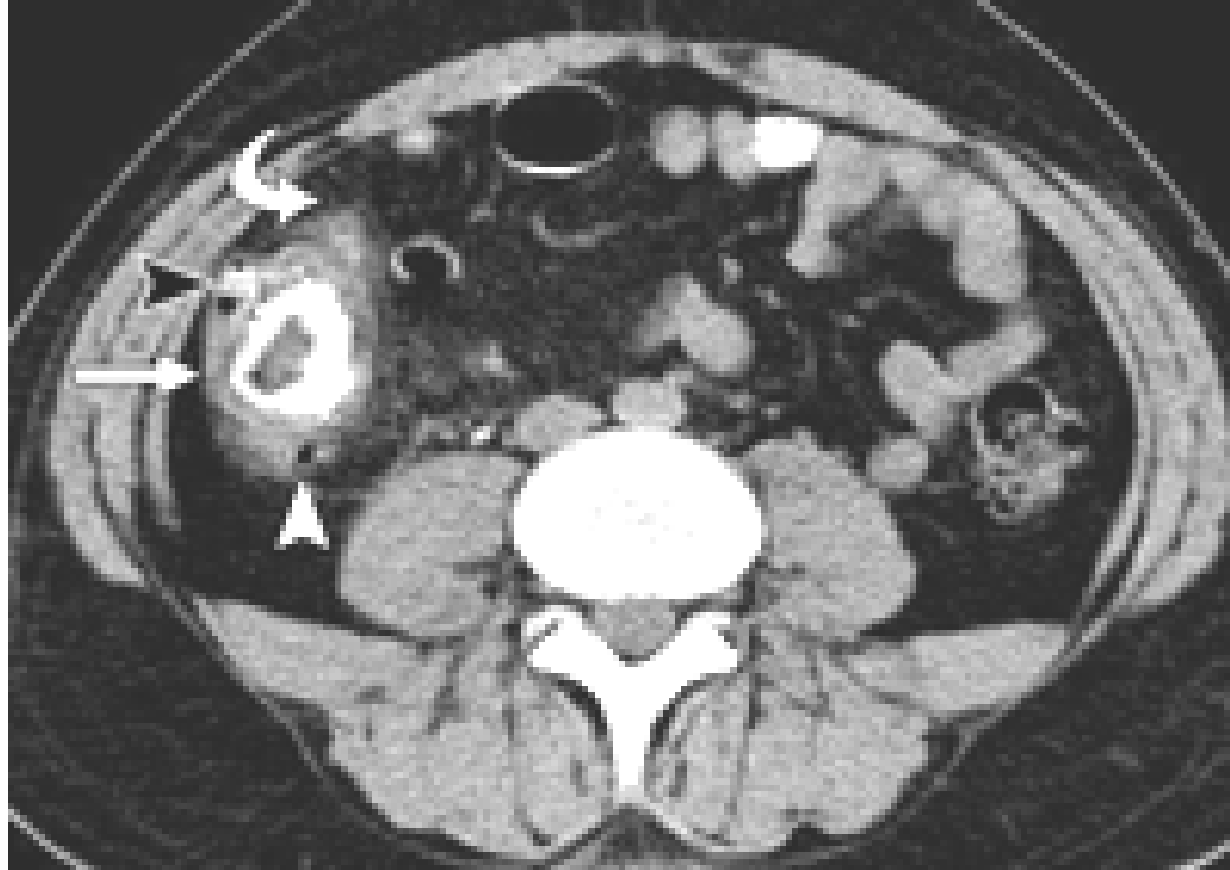
粘膜强化 **sepsis**

伤寒

- 伤寒 ***Typhlitis***盲肠炎.—
- 伤寒Typhlitis 常累及盲肠
- 中性白细胞减少症的
- 通常在骨髓移植后immunocompromised

CT表现

- 肠道扩张
- 肠道穿孔
- 盲肠扩张、局部肠壁增厚
- 盲肠周脂肪浸润明显



- 伤寒. moderate circumferential **wall thickening of the cecum** with surrounding fat stranding (curved arrow).
- Pneumatosis

Vascular Tumors血管瘤

- 血管瘤 ***Vascular Tumors***亦可累及***GI***.
- 大多数血管瘤有蒂，腔内息肉病变-强化最明显
- 如弥漫累及则为**血管瘤病--静脉钙化**
- 易累及小肠、特别是空肠

CT findings

- 1、可弥漫累及小肠-为血管瘤病
- 2.肠壁增厚偶尔有静脉石.
- 3. 病变明显强化

回肠粘膜下海绵状血管瘤



绵状血管瘤

Wang Guang Chai,

60043810

40 年
M

A

Wuhan Tongji Hosp 64
COLON+3D

2010-3-3 15:52:01
60043810

LOC: -213.50
THK: 1.25
FFS



Wang Guang Chai,

60043810

40 年
M

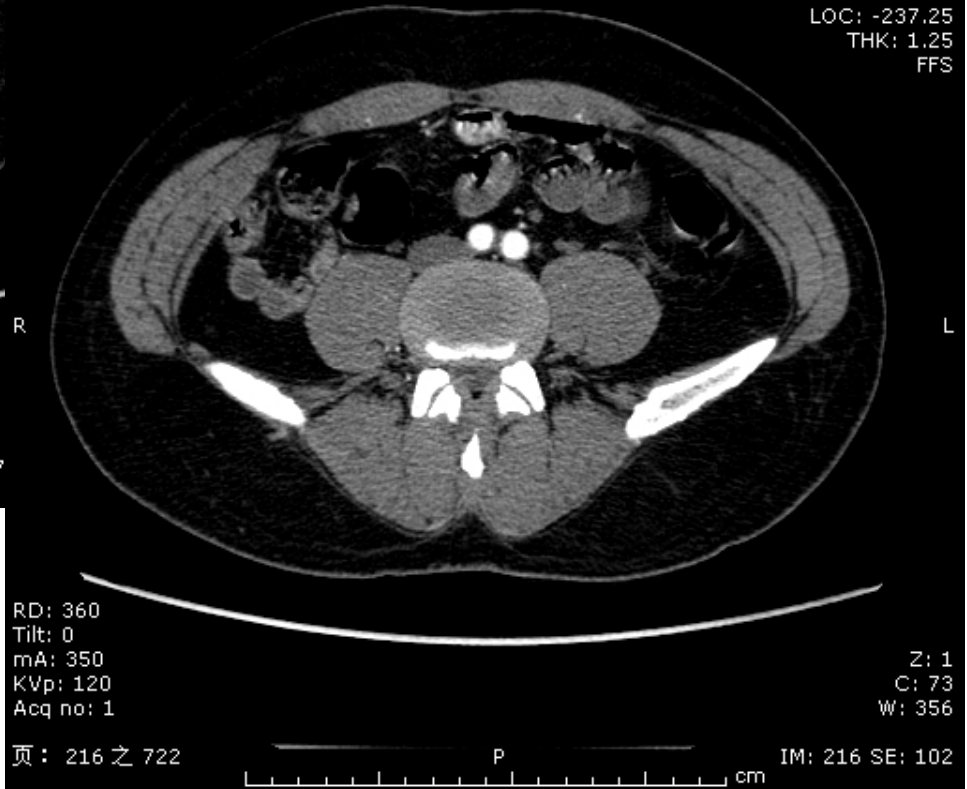
A

Wuhan Tongji Hosp 64
COLON+3D

2010-3-3 15:52:01
60043810

LOC: -237.25
THK: 1.25
FFS

R



Wang Guang Chai,

A

Wuhan Tongji Hosp 64
COLON+3D

60043810

2010-3-3 15:52:28
60043810

40 年
M

LOC: -224.75
THK: 1.25

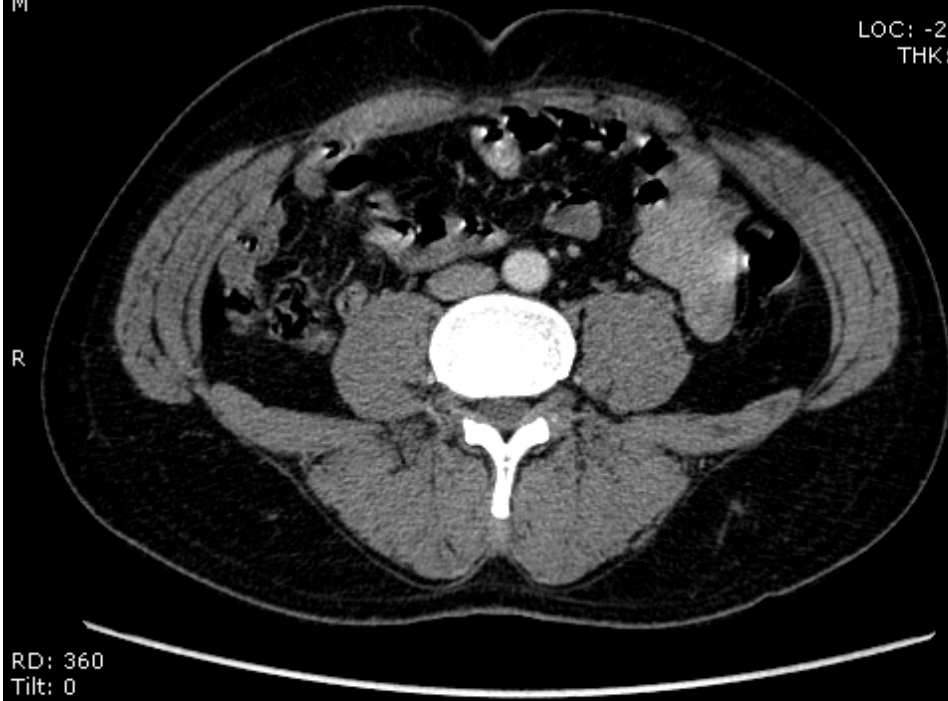
FFS ai,

A

Wuhan Tongji Hosp 64
COLON+3D

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LOC: -249.75
THK: 1.25
FFS



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Tilt: 0
mA: 350
KVp: 120
Acq no: 2

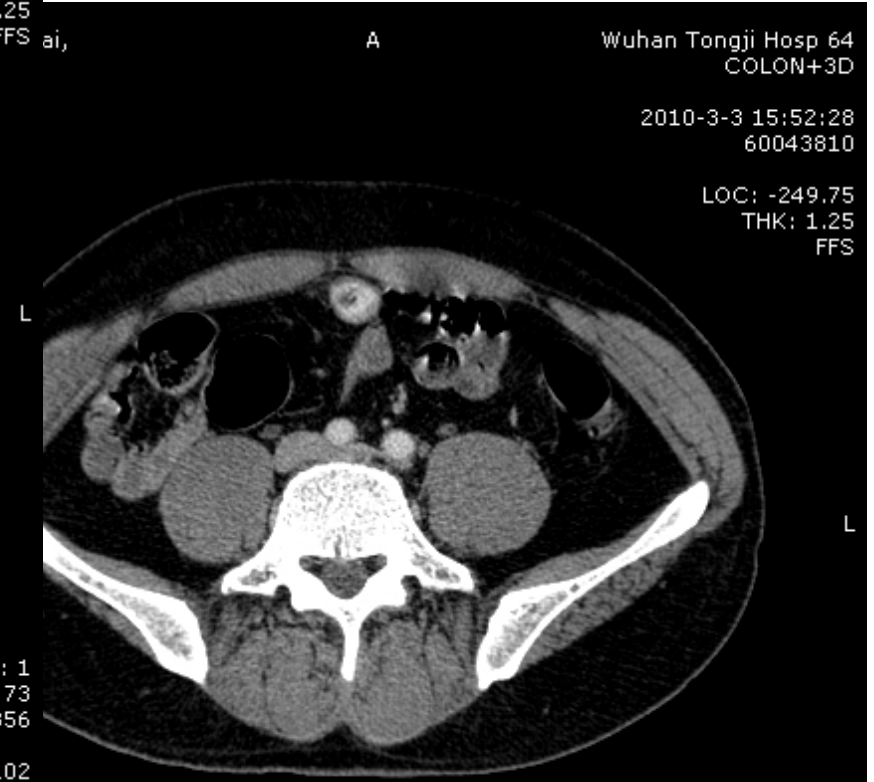
页: 567 之 722

P

cm

Z: 1
C: 73
W: 356

IM: 567 SE: 102



RD: 360
Tilt: 0
mA: 350
KVp: 120
Acq no: 2

页: 587 之 722

P

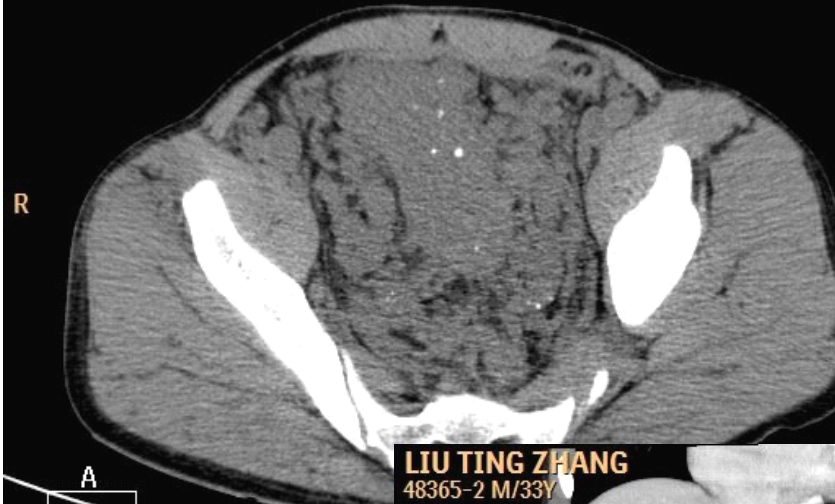
cm

Z: 1
C: 73
W: 356

IM: 587 SE: 102

LIU TING ZHANG
48365-2 M/33Y
10280-20

Shishi Hospital
Philips, Brilliance 16
19 May, 2010 15:57:45.00
Z 1.00



LIU TING ZHANG
48365-2 M/33Y
10393-21
C

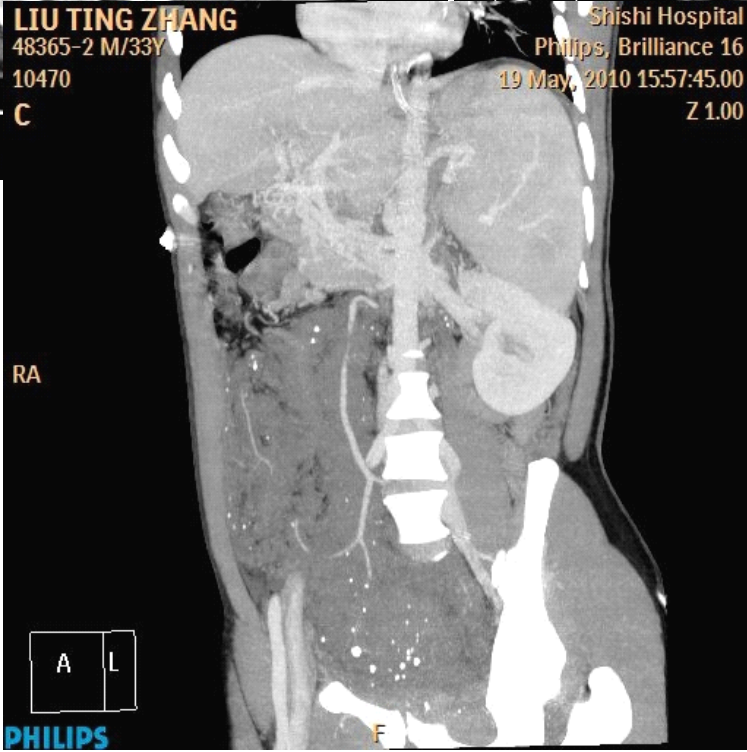
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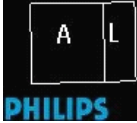
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RA



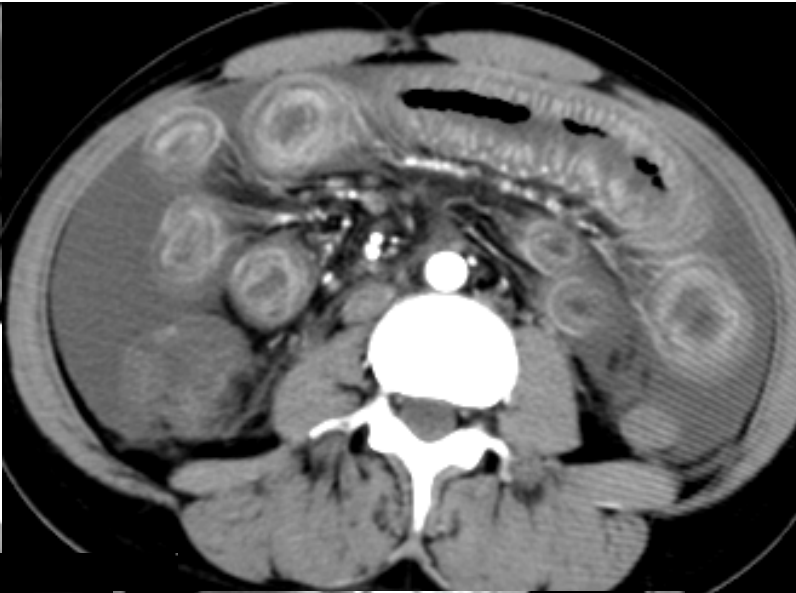
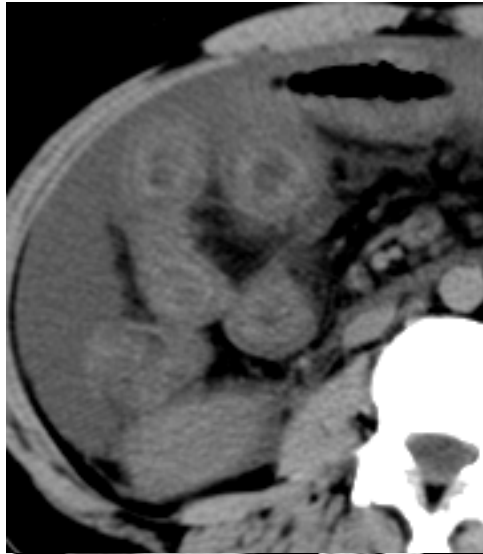


- Hemangiomatosis.

过敏性疾病

- 过敏性紫癜Henoch-Schönlein purpura usually manifests with abdominal pain due to edema and intramural hemorrhage of the bowel preceding the skin rash.
- 食物过敏Food allergies with gastrointestinal manifestations frequently diagnosed in children are included in this category.



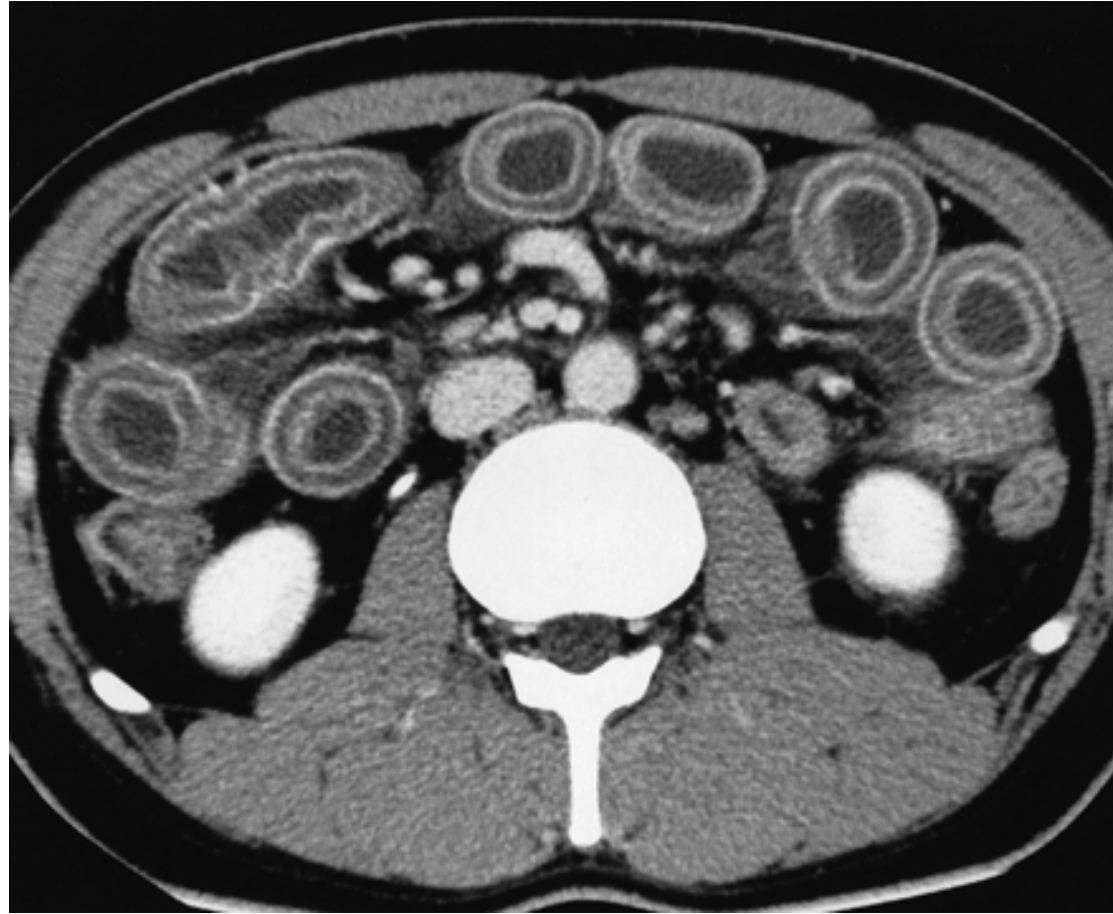


胶原性疾病CT表现特点

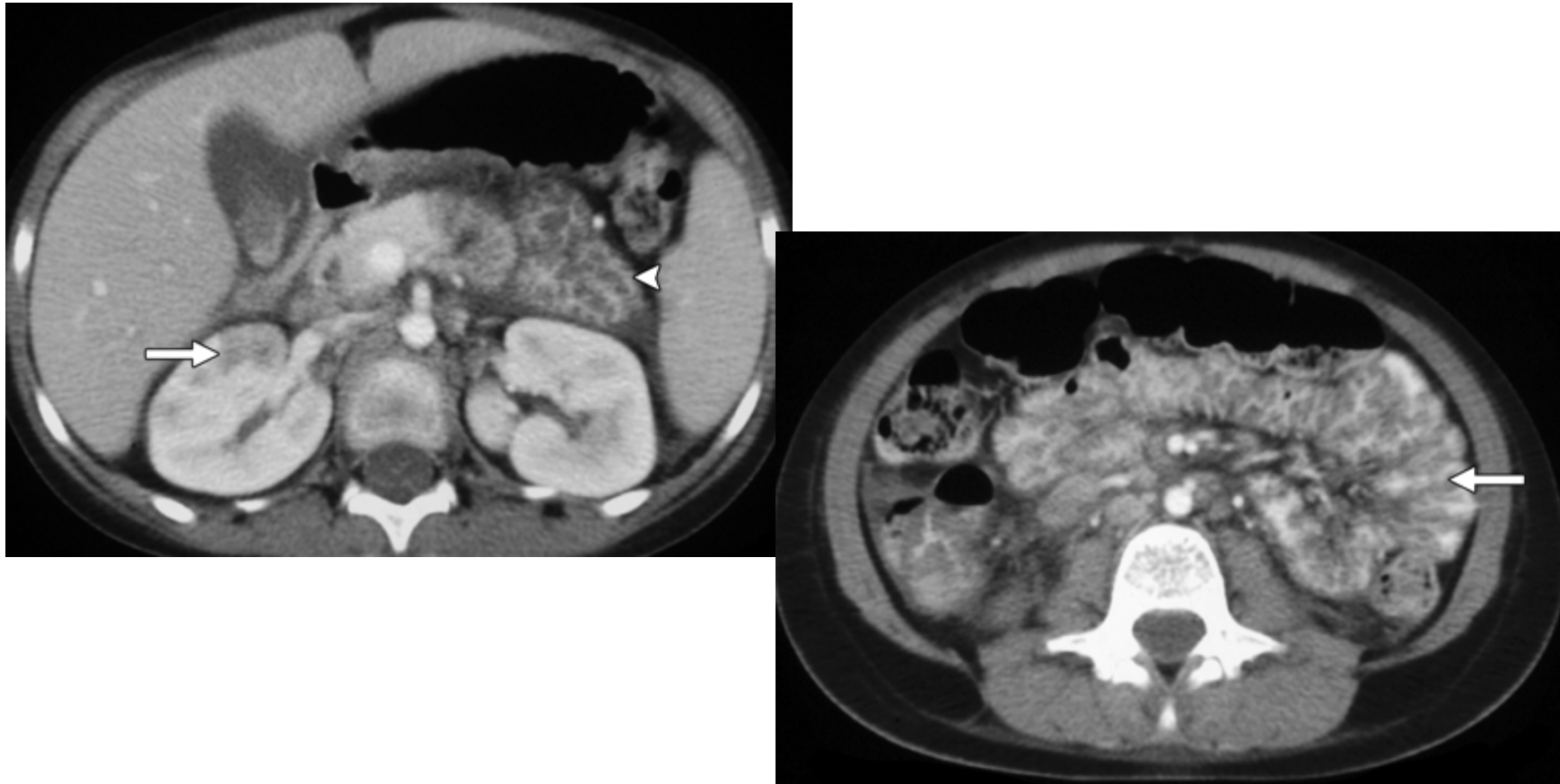
- 胃肠道累及为50% CT表现特点：
 1. 多发跳跃性肠壁增厚 multifocal bowel wall thickening with skipped areas,
 2. 高密度肠道 hyperattenuating bowel wall due to hemorrhage,
 3. 肠腔扩张 bowel dilatation due to localized ileus,
 4. 血管充血 vascular engorgement (comb sign),
 5. 肠系膜水肿 mesenteric edema.
 6. 少数并发肠套叠、肠道缺血肠穿孔
 7. 有胶原性疾病的全身表现



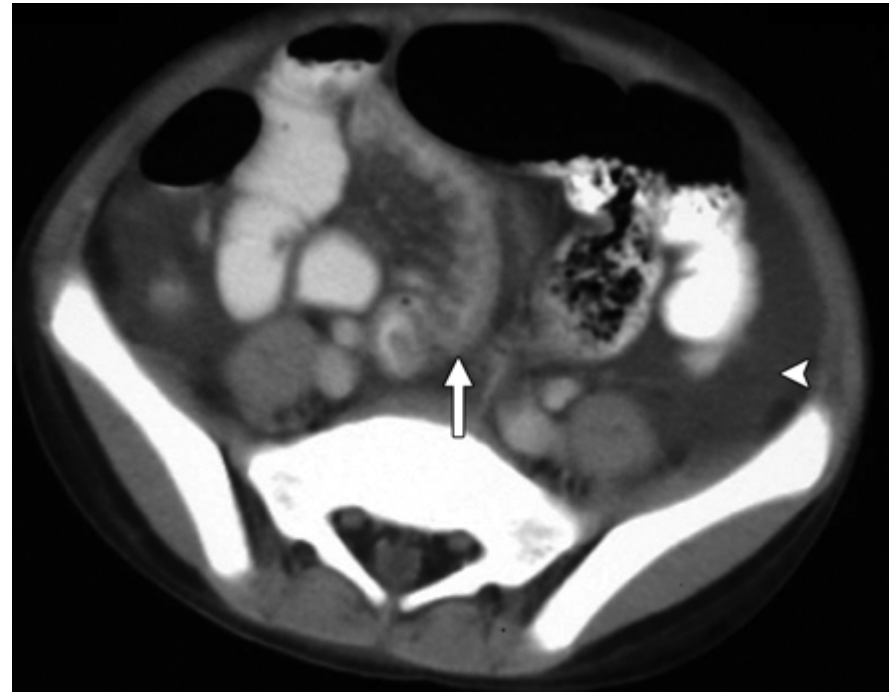
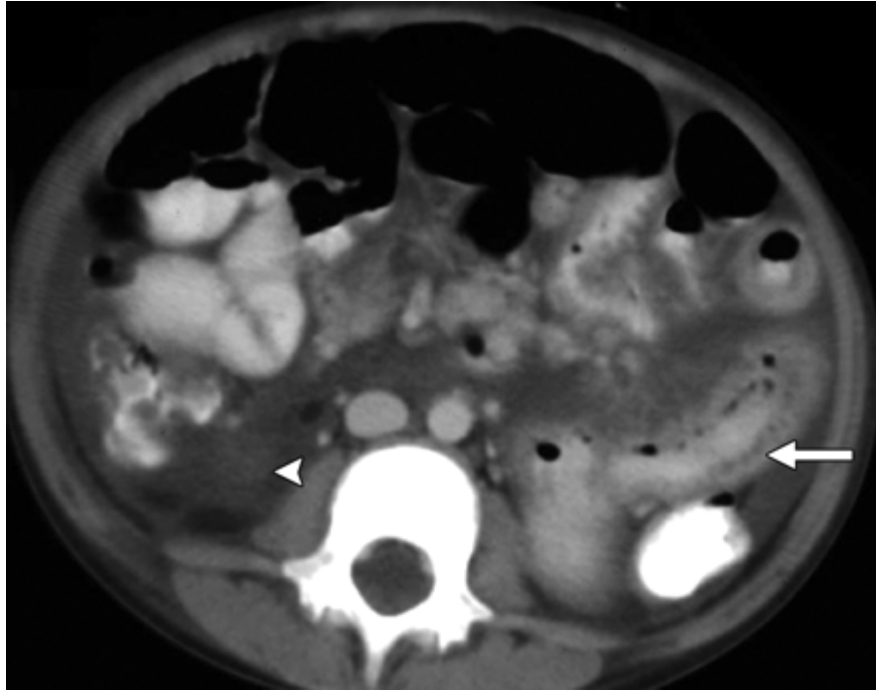
- 结节性大动脉炎



- 20岁男有LSE

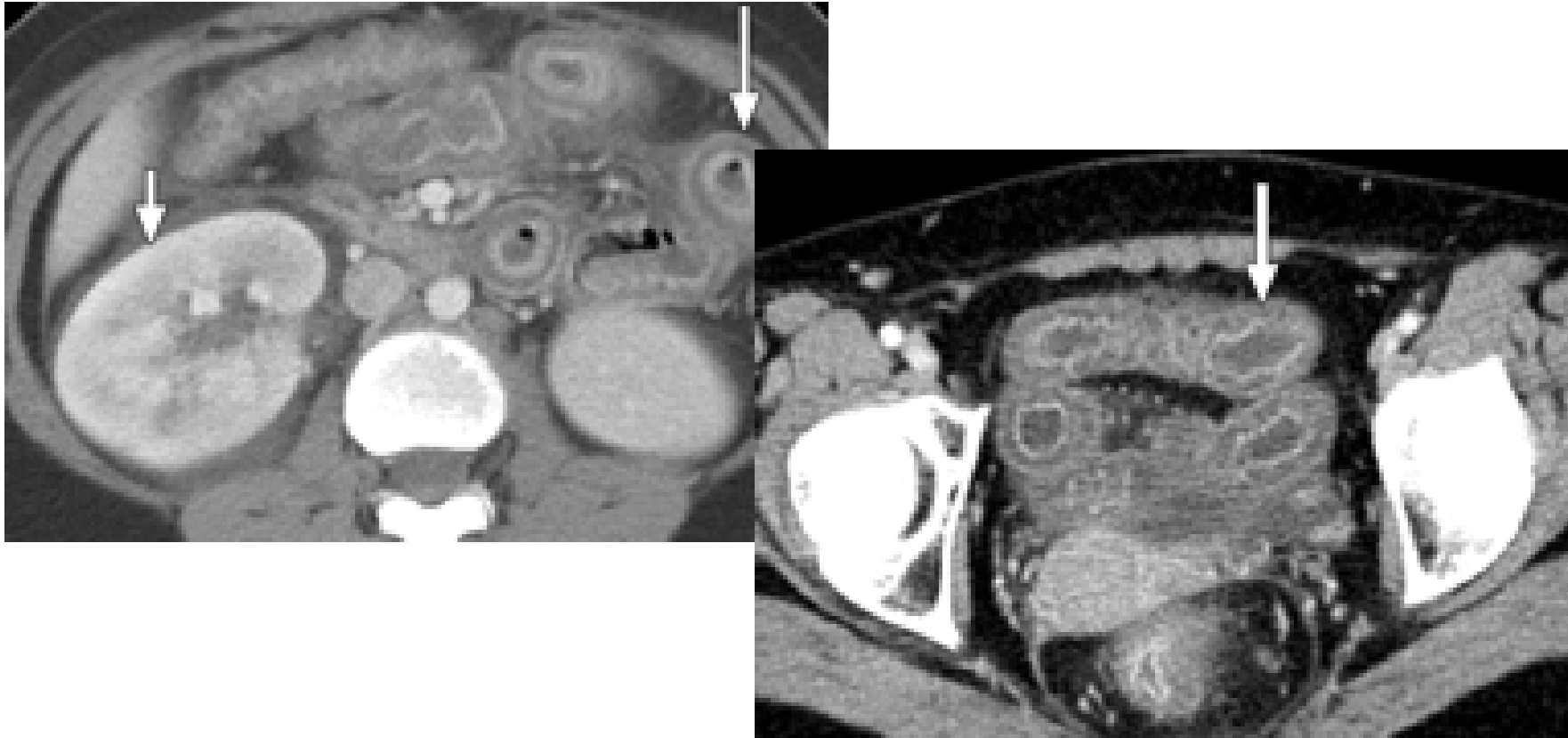


- **Figure 32a.** Systemic lupus erythematosus. **(a)** CT scan obtained with oral and intravenous contrast material shows thickened folds in the proximal jejunum (arrowhead). The peripheral cortical hypoattenuating area in the right kidney (arrow) represents a small infarct. **(b)** CT scan obtained with oral and intravenous contrast material shows diffuse wall thickening throughout the jejunum (arrow) secondary to active vasculitis.



- **Henoch-Schönlein purpura.** diffuse hyperattenuating **concentric wall** thickening of the jejunum (arrow) and ascites (arrowhead). diffuse hyperattenuating concentric wall thickening of a more distal jejunal loop (arrow), a finding that indicates the **presence of skipped areas.**

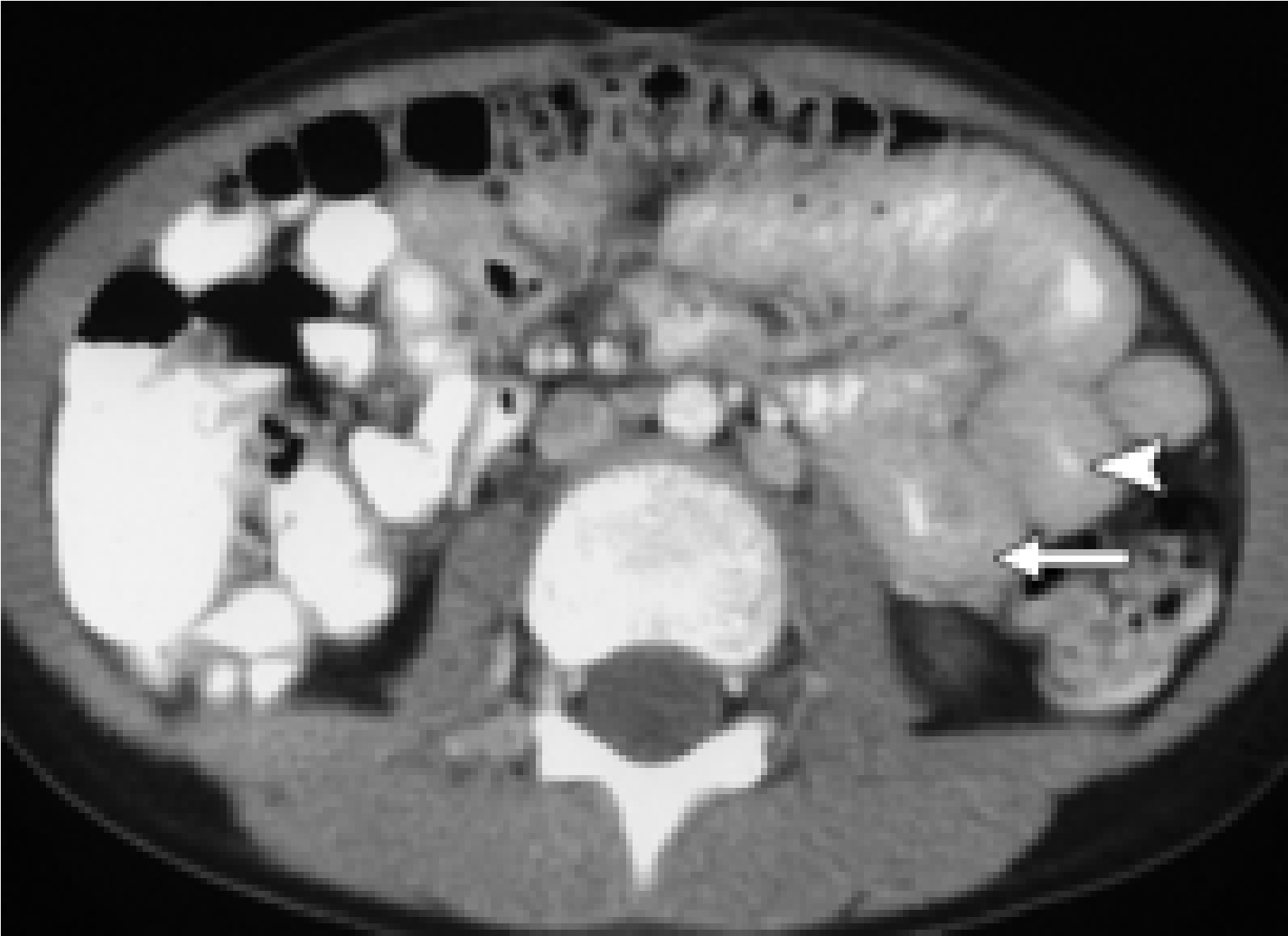
胶原疾病lupus vasculitis



- systemic lupus erythematosus shows marked mural thickening (> 1 cm)

LCH

- **Langerhans Cell Histiocytosis**朗格汉斯细胞组织细胞增多病.
- **LCH**累及**GI**可能为全身病变的一部分，极少单独累及
- **1.如累及肠道常累及末段回肠**
- **2.diffuse concentric jejunal wall thickening 3. luminal narrowing**
- **4.中等均匀强化**
- **5.肺、骨有典型改变**





- **Hypoproteinemia** in a patient with chronic renal failure. CT scan obtained with oral and intravenous contrast material shows concentric wall thickening of the jejunum (arrow). Multiple cysts are incidentally seen in the atrophic right kidney (arrowhead).

鉴别诊断DDX

- 少数恶性肿瘤
- 注意要点：
- ”白色”是主观分的，相对的，无固定CT值范围
推荐应用的标准-大于或等于静脉强化。



Archer Q' s
qiutrip.blog.163.com

第2类 灰色密度 (Gray Attenuation)

- 灰色密度为肠壁强化密度等同肌肉密度
- 灰色密度—特异性差些，良恶性都可为灰色密度
- 肠壁厚度有帮助—
- 肠壁厚度<2mm--良性
- 肠壁厚度>2mm-恶性--the considerable overlap between these two groups
- morphologic criteria

常见的良性疾病benign disorder:

- 1. 炎性假肿 *Inflammatory Pseudotumor.*
- 2. 慢性肉芽肿 *Chronic Granulomatous Disease*
- 3. 肠系膜上静脉血栓 (thrombosis of superior mesenteric vein)
- 4. 溃疡结肠炎+假性息肉A Pseudopolyps in a patient with proved ulcerative colitis
- 5. 移植对宿主疾病 *Graft-versus-Host Disease* (GVHD)



- Water halo sign in ischemic colitis following administration of intravenous contrast material.



- Gray attenuation: enhancement of colonic walls in ischemic colitis.

移植对宿主疾病 *Graft-versus-Host Disease.*

- ***Graft-versus-Host Disease.***—
- ***GVHD***是骨髓移植的并发症，为献髓者移植骨髓内淋巴细胞免疫攻击宿主所致。
- 皮肤 GI、肝脏常累及。

CT表现

- 小肠扩张dilated small bowel loops
- 弥漫性肠壁增厚
- 粘膜强化
- 肠壁强化
- 明显腹水

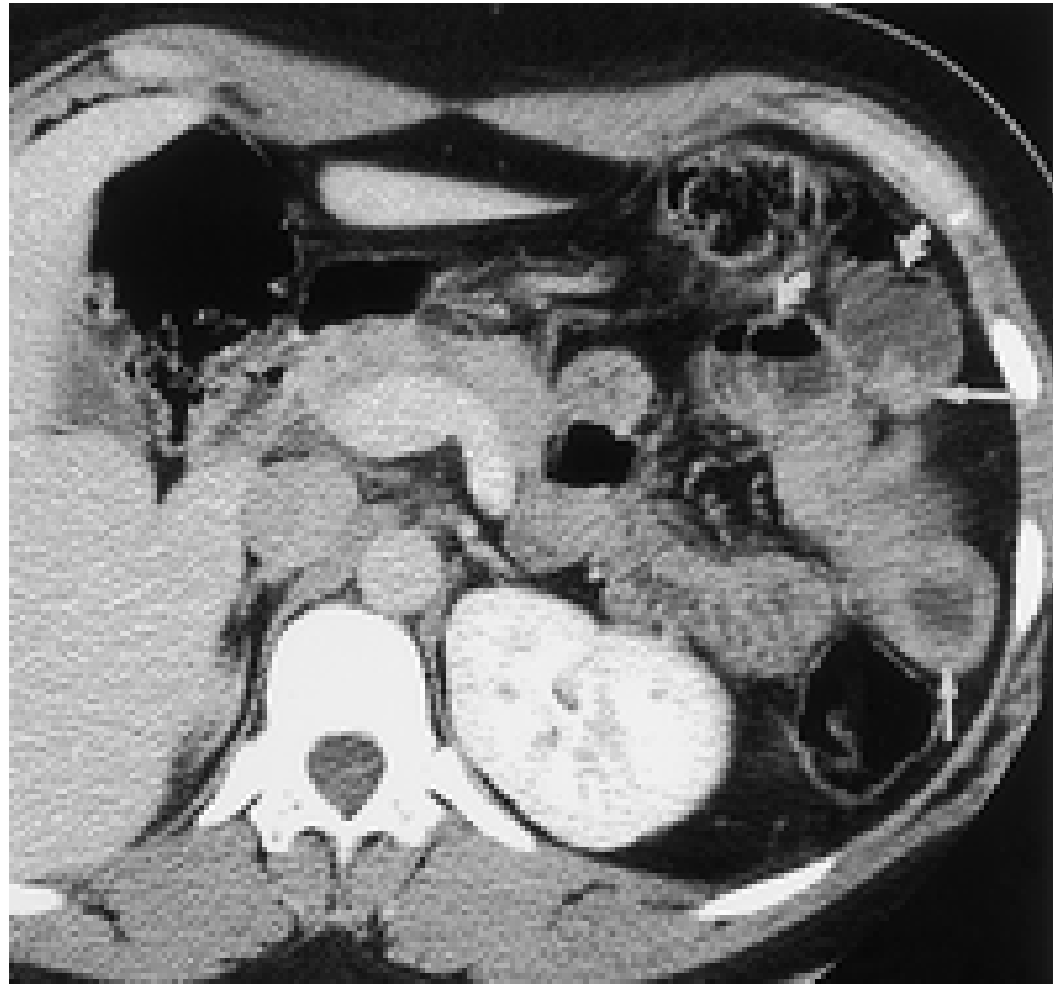


- Acute GVHD. diffuse small and large bowel wall thickening with a hyperattenuating mucosa (straight arrow) in the right lower quadrant. Associated **dilated small bowel loops (curved arrow) and ascites**



- Acute GVHD.

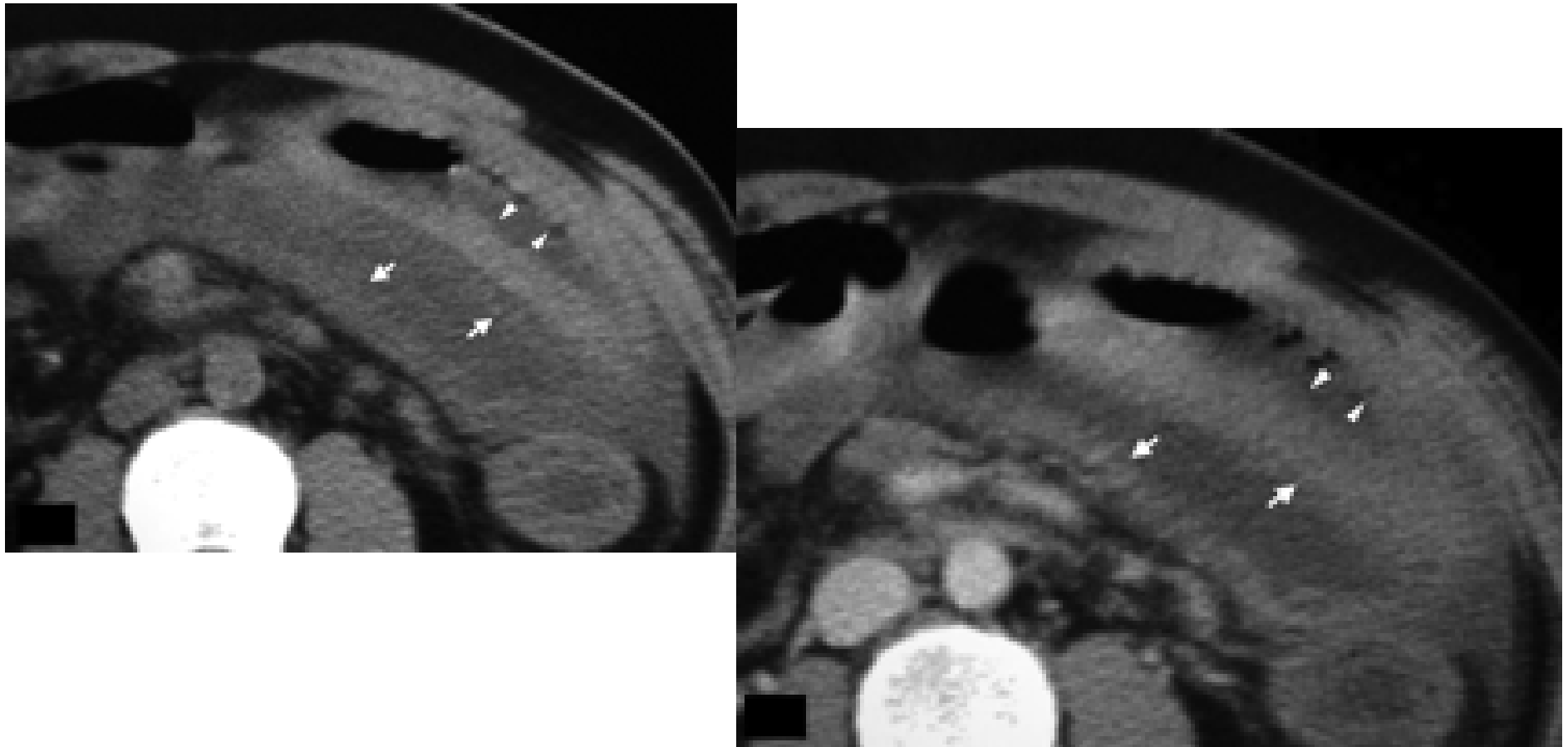
- 注意要点：小肠或结肠无扩张时——假阳性——CT enteroclysis



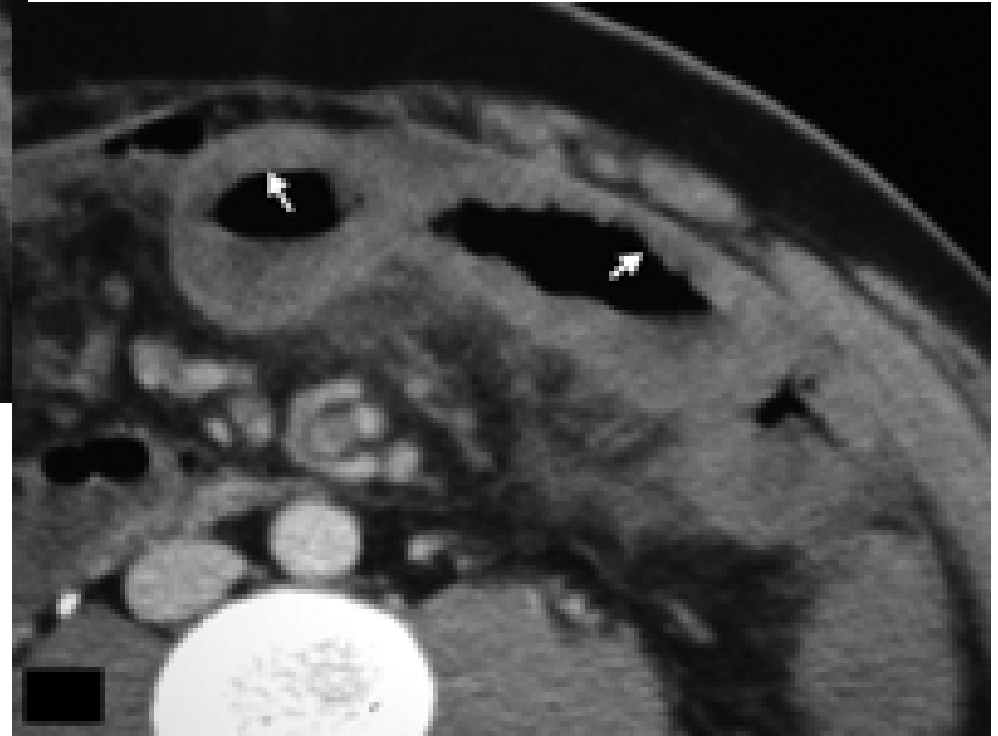
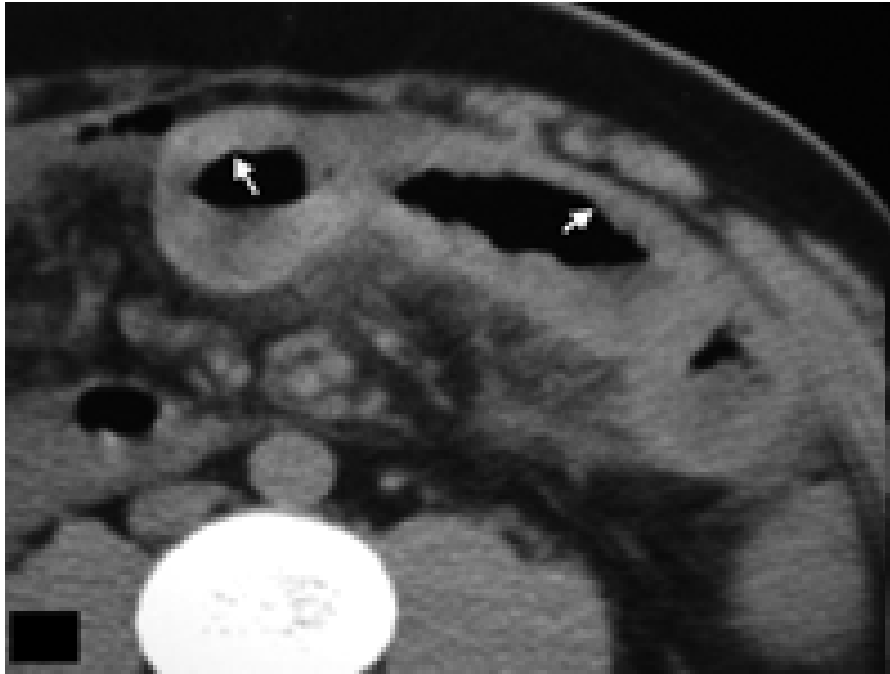
- Pseudotickening of the jejunum.

thrombosis of SMV等—肠梗塞

- 肠壁增厚wall thickening
- 肠道扩张
- 弥漫性肠道出血diffuse intramural hemorrhage
- 内层强化或无强化
- 有梗死—强化微弱 faint whole-layer enhancement
- 肠道周脂肪浸润
- MSCT--V内血栓或闭塞



- 53-year-old man with **thrombosis of superior mesenteric vein**.
- . Soft-tissue-density **hemorrhagic wall** (*arrowheads*) does not show **inner-layer enhancement**. Less damaged small bowel (*arrows*) shows **faint whole-layer enhancement**. —Unenhanced
- Less damaged small bowel (*arrows*) shows faint whole-layer enhancement.



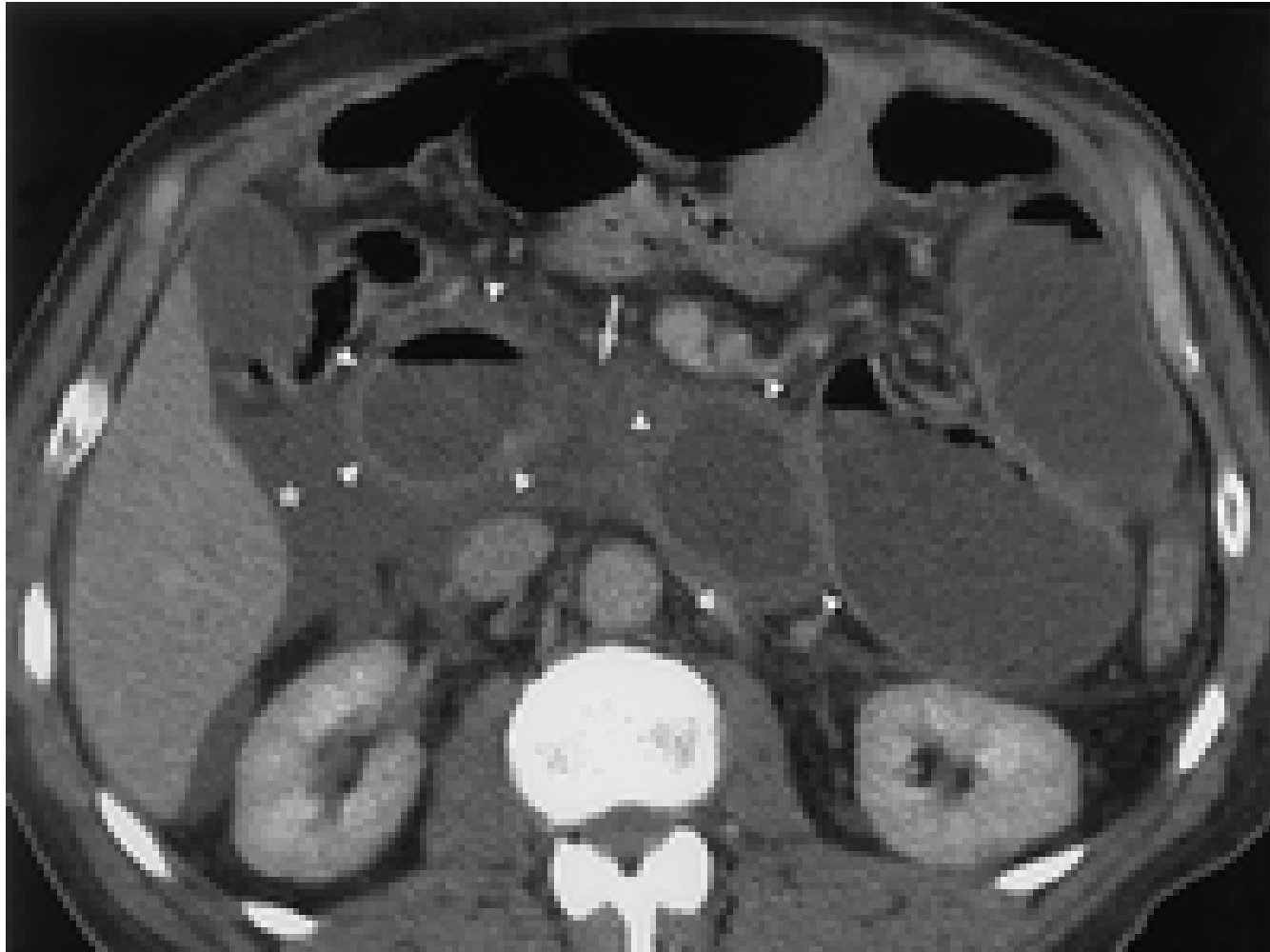
- . absence of inner-layer enhancement. Hemorrhagic wall was nearly **isodense to abdominal wall muscles** on unenhanced image and became hypodense on enhanced image.



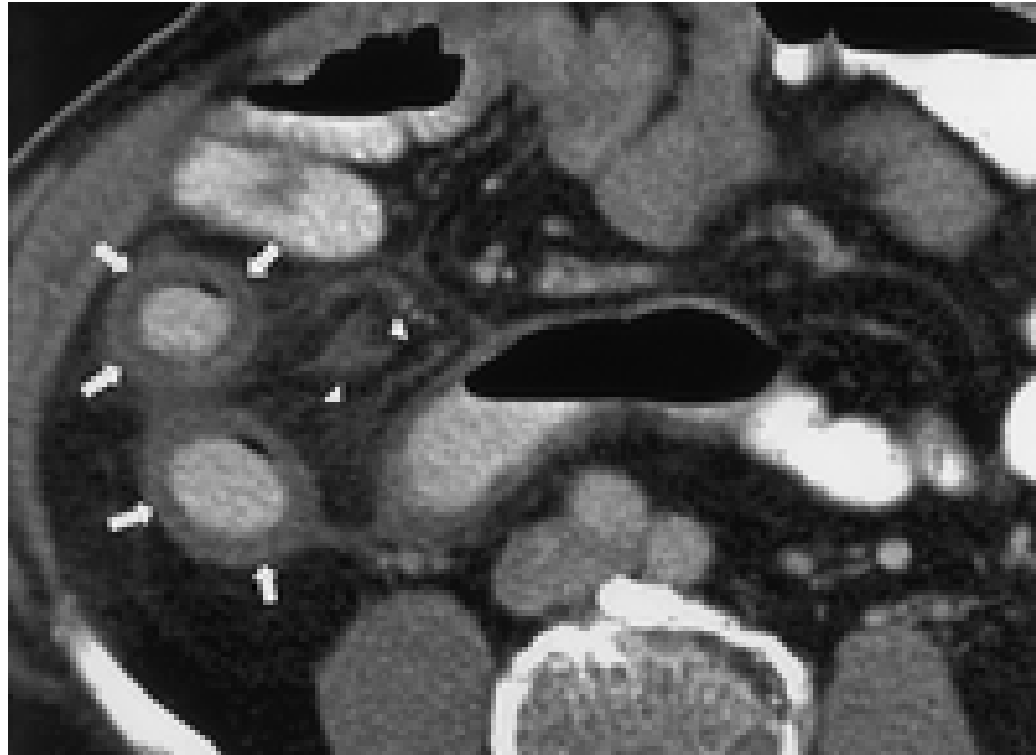
- shows pronounced homogeneous **cecal wall thickening** (arrows), representing **transmural necrosis with superinfection** in a patient with isolated cecal infarction.



- pronounced circumferential thickening of rectal wall (arrows) and pararectal fat stranding (arrowheads) in a patient with nonocclusive ischemic proctitis 直肠炎, which is well depicted following rectal administration of contrast material and luminal distention.



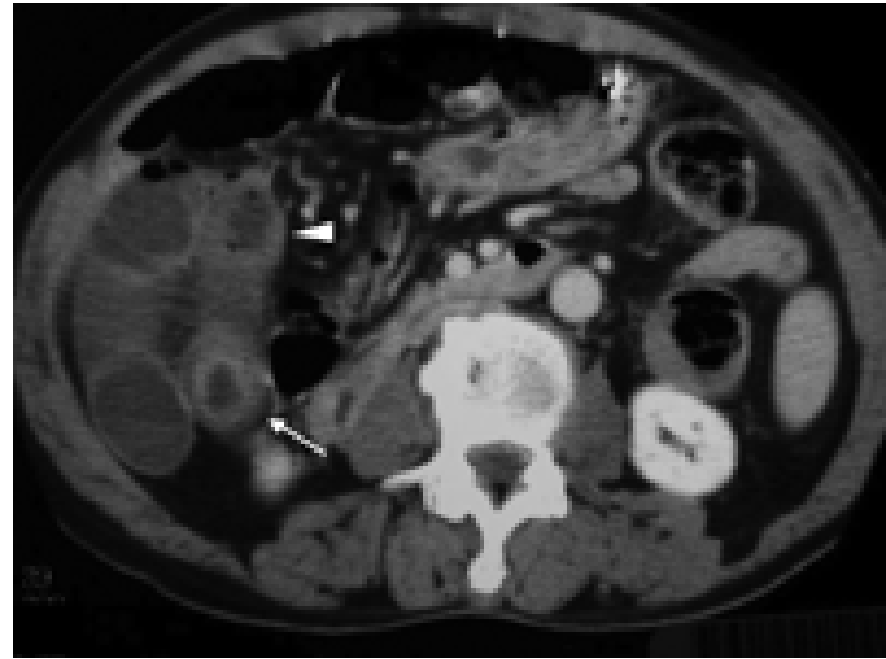
- Contrast-enhanced transverse CT scan shows diffuse **mild wall thickening and prolonged bowel wall enhancement** (arrowheads) in several dilated small-bowel loops. Also present are mesenteric and peritoneal fluid (arrow) and ascites in this patient with **cardiac shock** who was treated with a high dose of intravenous blood pressure drugs. At autopsy, **diffuse mucosal and submucosal necrosis was revealed throughout the intestine**, but no transmural **bowel infarction** was found.



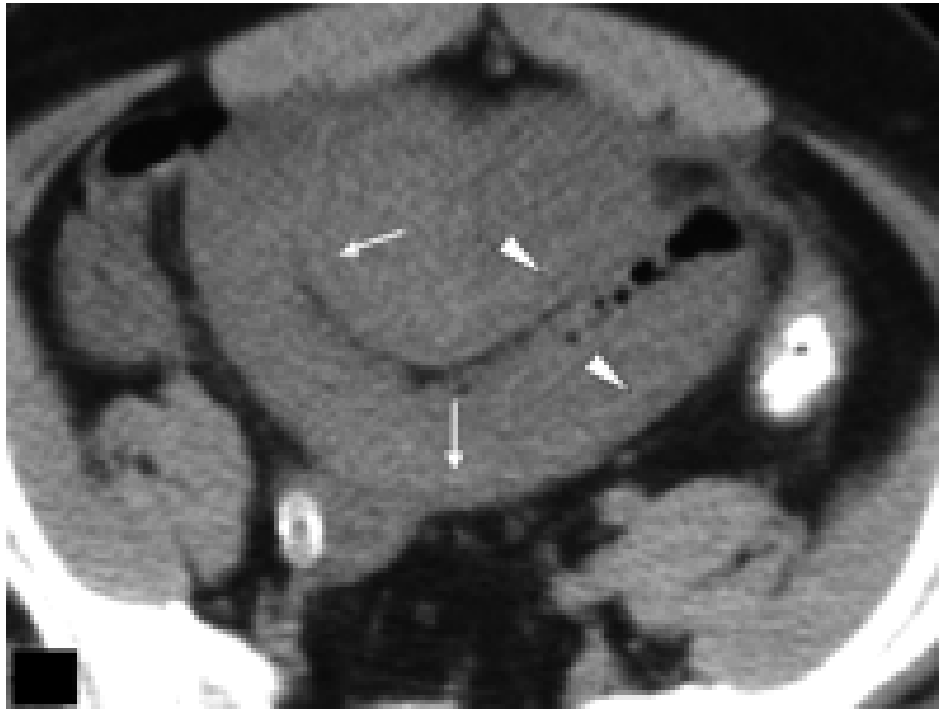
- acute radiation-induced enteritis.



- **pronounced heterogeneous colonic wall thickening** , as well as mild pericolic fat stranding along the splenic flexure due to **diffuse intramural hemorrhage** in a patient with **nontransmural ischemic colitis with diffuse intramural hemorrhage**.



- 76-year-old man **with internal hernia.**

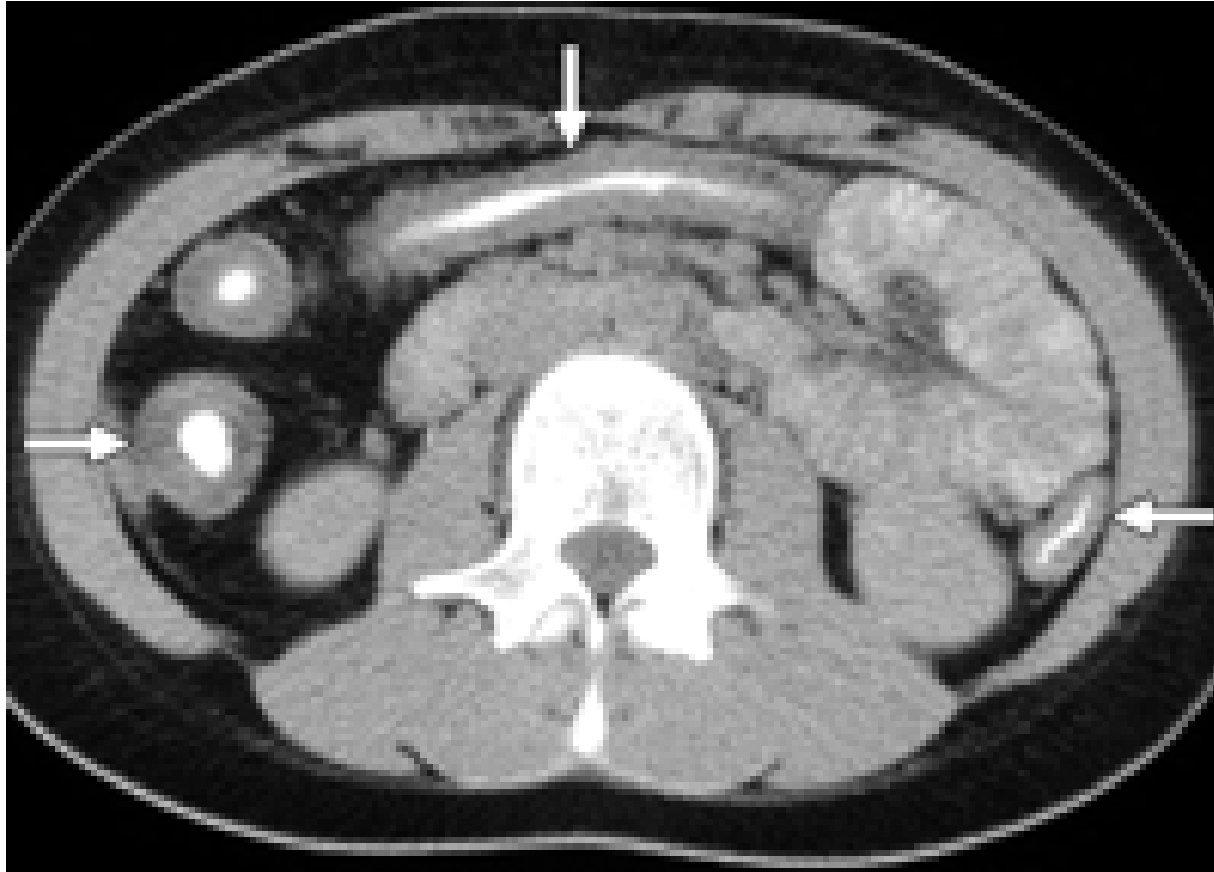


- 42-year-old man with **thrombosis of superior mesenteric vein**. Unenhanced (**A**) and enhanced (**B**) CT scans. Presence of inner-layer enhancement (*arrowheads*) is in distinct contrast from absence of inner-layer enhancement (*arrows*) in continuous small-bowel segment. **4B** Unenhanced (**A**) and enhanced (**B**) CT scans. Presence of **inner-layer enhancement (*arrowheads*) is in distinct contrast from absence of inner-layer enhancement (*arrows*)** in continuous small-bowel segment.

溃疡性结肠炎 acute ulcerative colitis

- 颗粒状粘膜 the grainy mucosal appearance
- 肠壁增厚。指压迹
- 偏心靶征 CT images .
- 边缘呈潜行性、坍塌、有假息肉.
- 蘑菇样粘膜
- 铅管征
- CT 还可发现脓肿、瘘管等。

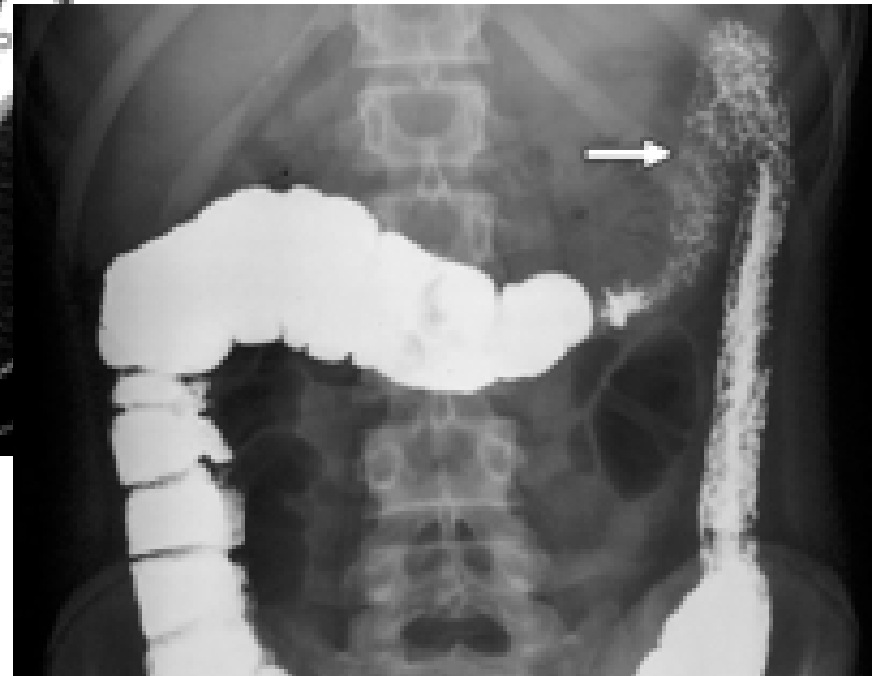
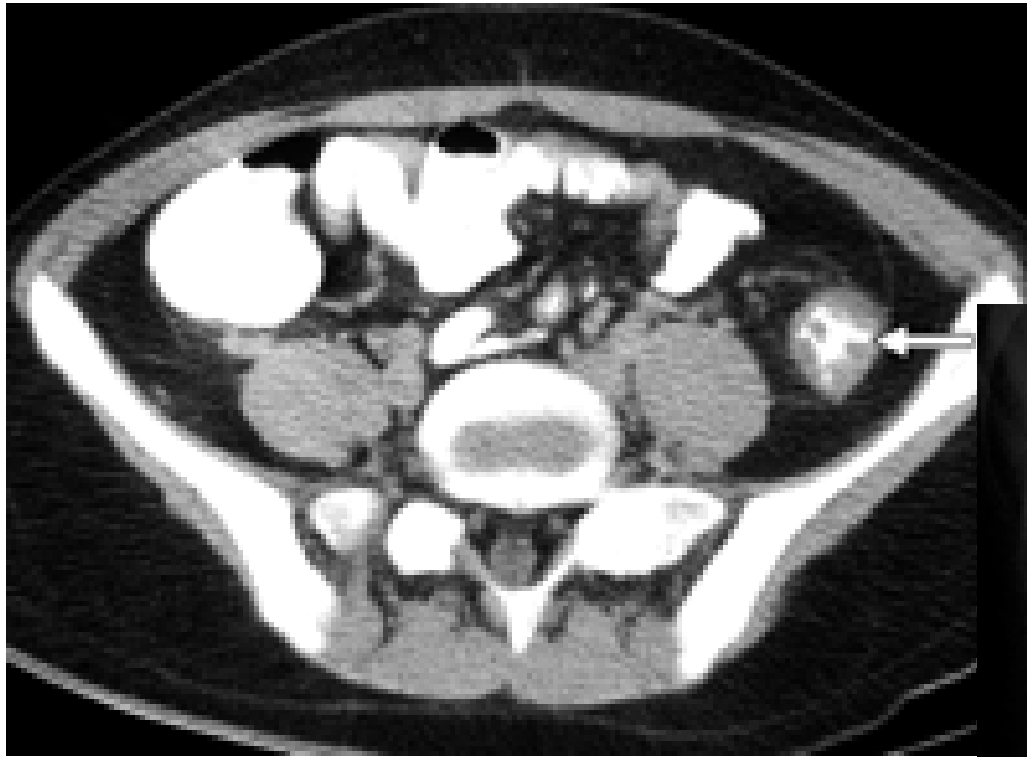
Ulcerative colitis



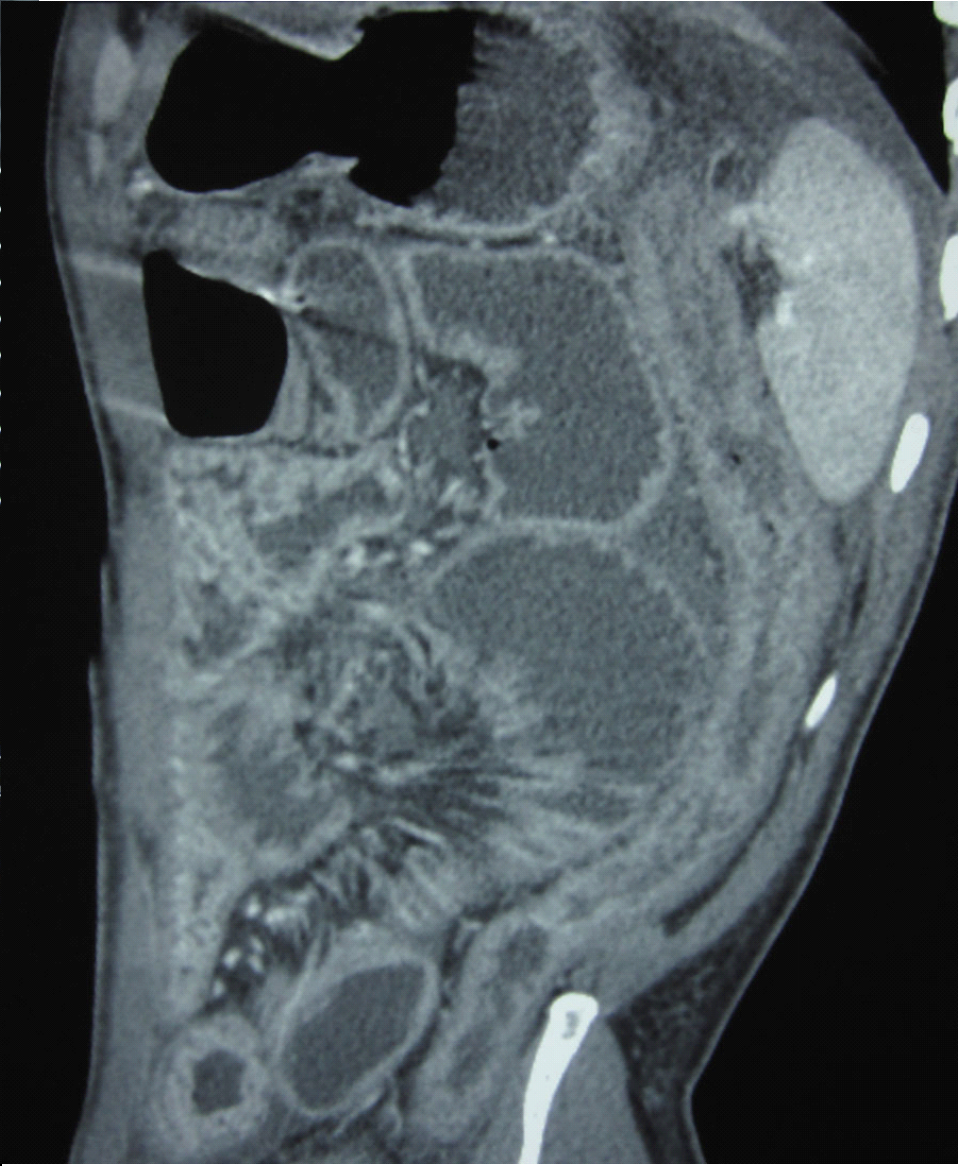
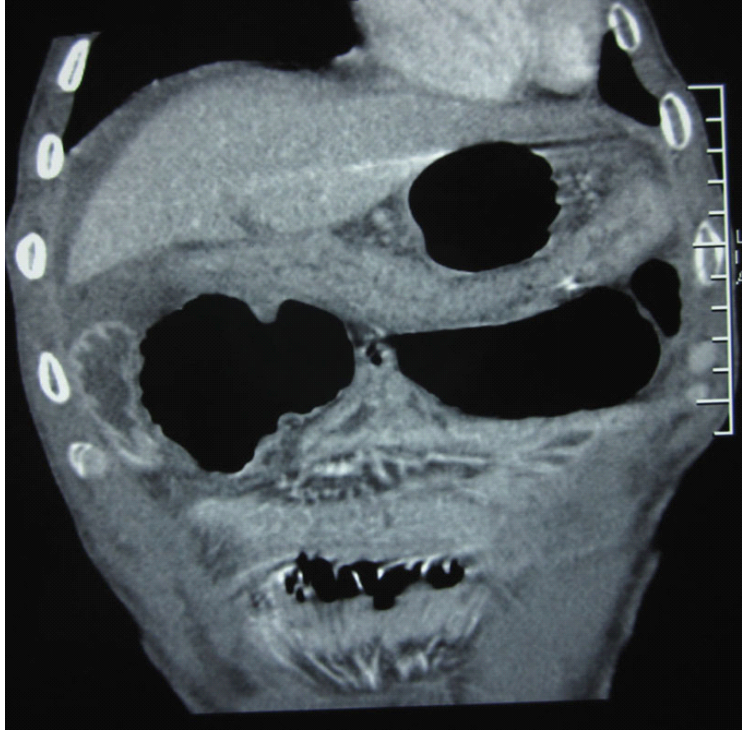
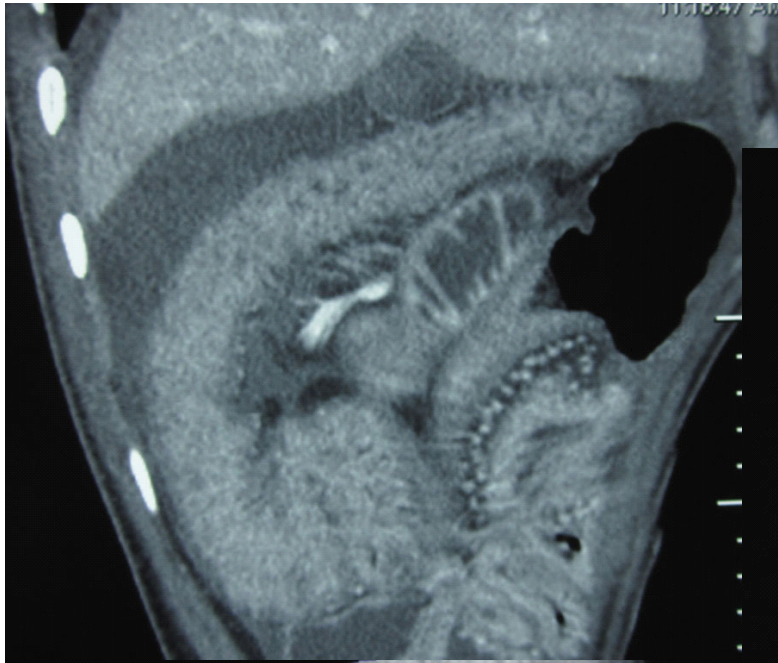
- Ulcerative colitis.



- 严重结肠炎 **Severe colitis**



- Pseudopolyps in a patient with proved ulcerative colitis.



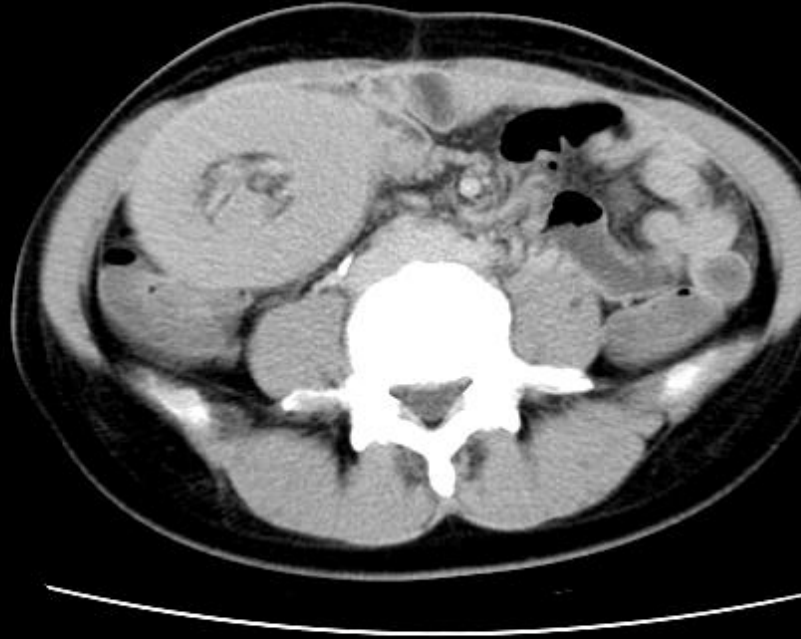


- **Acute Crohn disease** in a 22-year-old woman

aaa:魏玲玲
1013771
386309
SL: 10
FOV: 307
SP: -219
TP: 99
PP: FFS

(1/1)

09:39:46
Img: 71



KVP: 120
MAS: 150

(P)

aaa:魏玲玲
1013771
386309
SL: 10
FOV: 307
SP: -229
TP: 99
PP: FFS

(1/1)

09:39:46
Img: 72



(L)

8cm

KVP: 120
MAS: 150

(P)

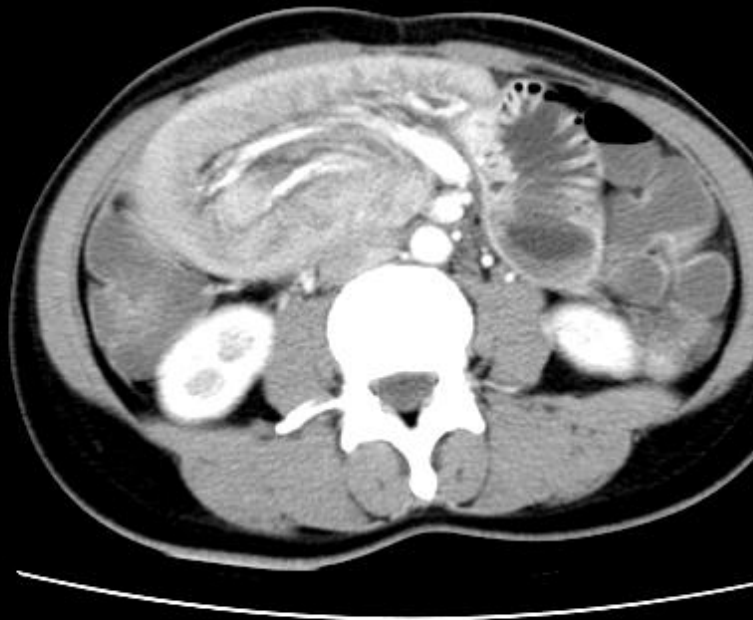
W: 230
L: 27

肠套叠

aaa:魏玲玲
1013771
386309
SL: 10
FOV: 307
SP: -189
TP: 99
PP: FFS

(1/1)

09:39:46
Img: 34



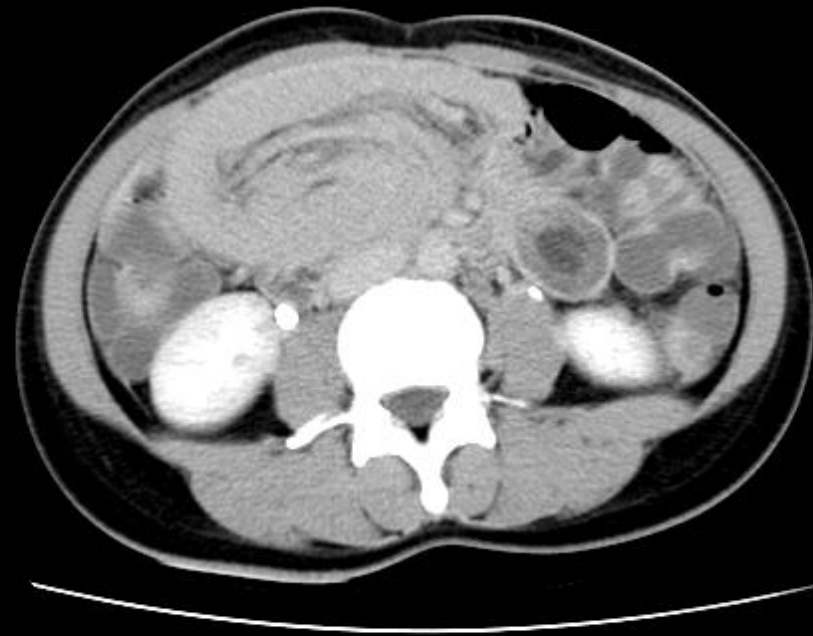
KVP: 120
MAS: 150

(P)

aaa:魏玲玲
1013771
386309
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TP: 99
PP: FFS

(1/1)

09:39:46
Img: 68



(L)

8 cm

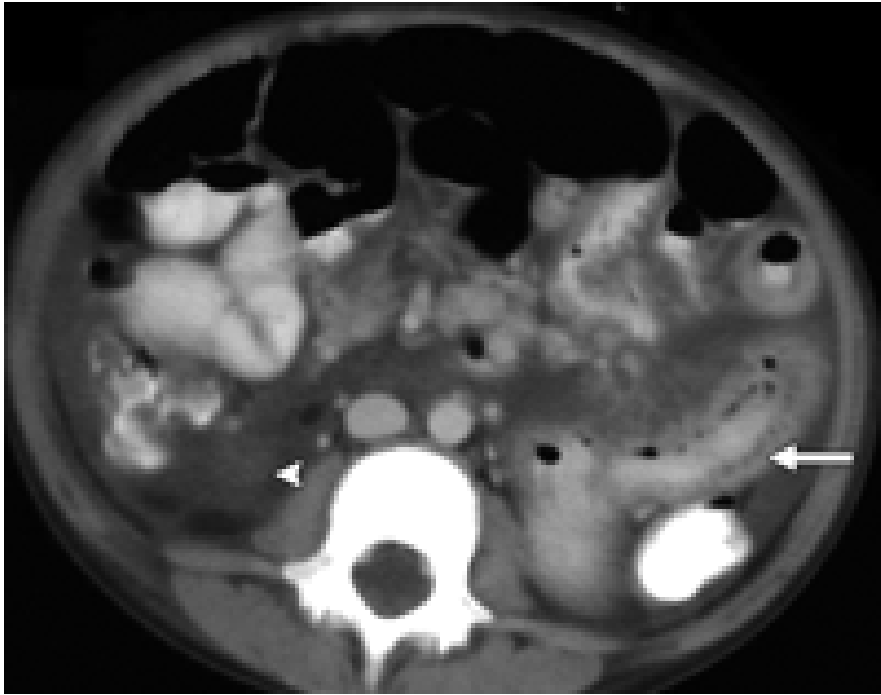
KVP: 120
MAS: 150

(P)

W: 230
L: 27

过敏性紫癜

- 过敏性紫癜Henoch-Schönlein purpura,紫癜usually manifests with abdominal pain due to edema and intramural hemorrhage of the bowel preceding the skin rash.
- GI累及50%
- 跳跃性肠壁增厚The presence of skipped areas may help differentiate Henoch-Schönlein purpura from other types of vasculitis.
- 肠壁高密度—出血
- 肠道扩张bowel dilatation due to localized ileus,
- 充血--梳征 vascular engorgement (comb sign),
- 肠系膜水肿and mesenteric edema.
- 可并发肠套叠、肠缺血、肠穿孔complications including intussusception, bowel ischemia, or perforation may be seen.



- 过敏性紫癜 **Henoch-Schönlein purpura**. 弥漫性肠壁增厚强化-+腹水

食物过敏



- 弥漫性肠壁增厚强化-+腹水

常见疾病恶性病变malignant disorder:

1.灰色密度

- 腺癌Adenocarcinoma
- 淋巴瘤
- 2、苹果核征
- 3、公牛眼征

常见恶性病变的征象

- 4. 偏向性肠壁增厚 **eccentric wall thickening**
- 5. 肠壁增厚与肠壁周围脂肪浸润程度成反比（肿瘤）；肠壁增厚与肠壁周围脂肪浸润程度成正比（炎症）
- 6. 分界--堆砌-突然。

*Lymphoma*淋巴瘤

- 1. Lymphoma儿童中常见.
- 2. 息肉样肿块，肠壁偏心性增厚as polypoid masses or eccentric wall thickening. 病变较长
- 3. 肠道扩张Aneurysmal dilatation secondary to destruction of the autonomic nerve plexus by tumor infiltration can be seen.
- 4. 肝脾大The presence of hepatosplenomegaly
- 5. 低密度明显肿大淋巴结hypoattenuating bulky adenopathy are supporting findings.
- 6. 可同时累及小肠和结肠

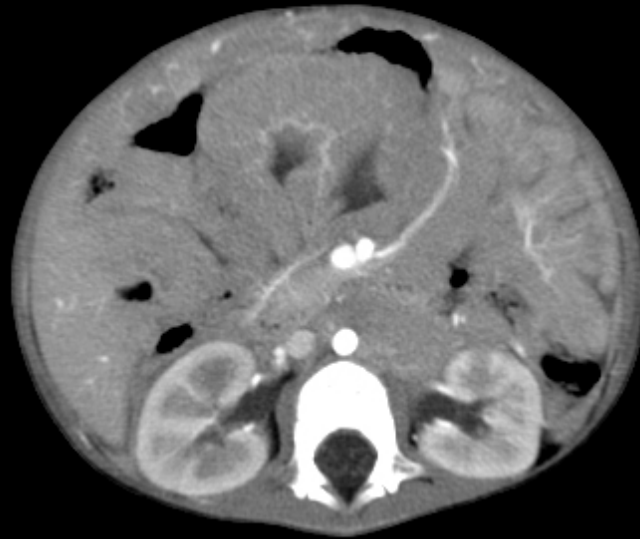
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60056174
2006-10-3
3 年
M

A

Wuhan Tongji Hosp 64
COLON

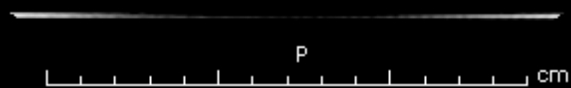
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THK: 5
FFS



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KVp: 120
Acq no: 1

页: 22 之 110



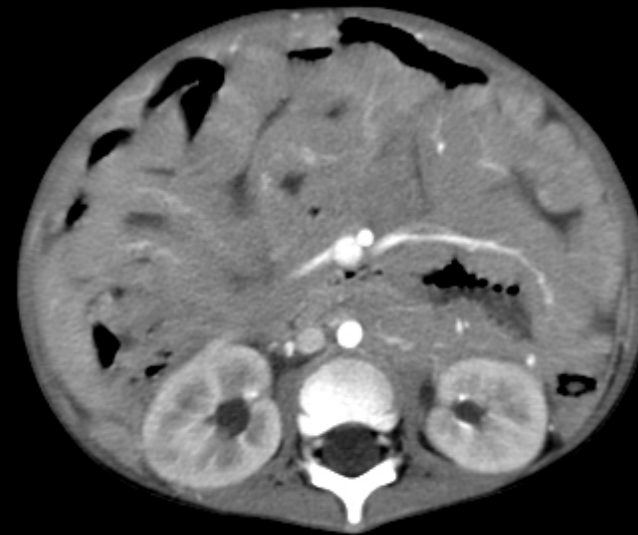
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2006-10-3
3 年
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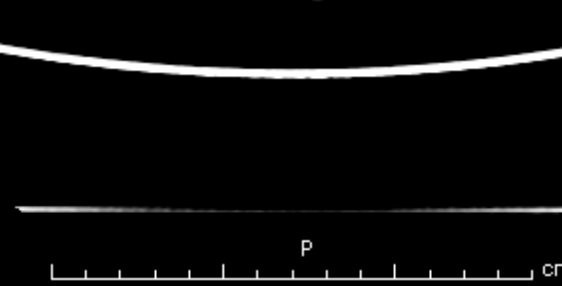
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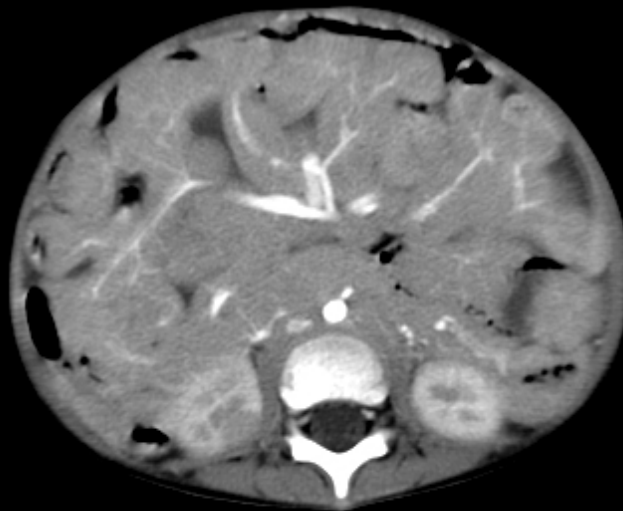
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FFS



R

瘤\胸部

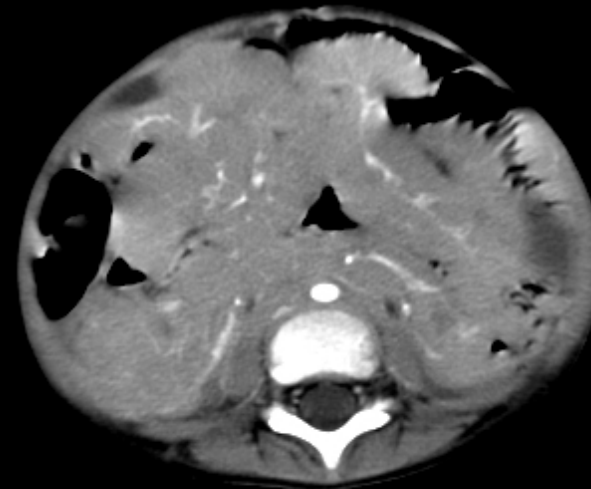
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L

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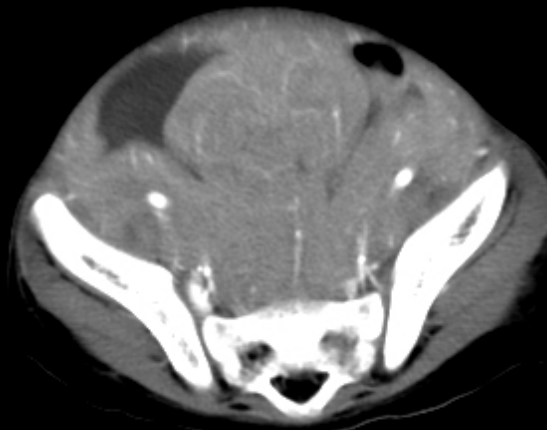
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cm

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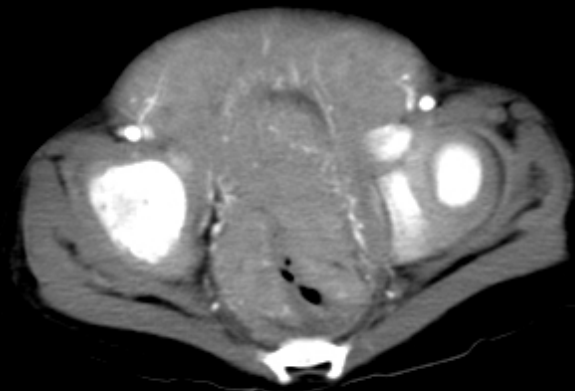
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R

L

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Acq no: 1

页: 42 之 110

P



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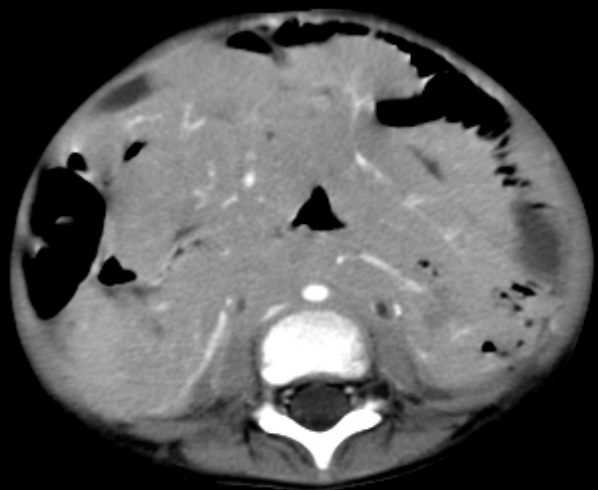
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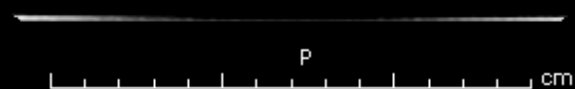
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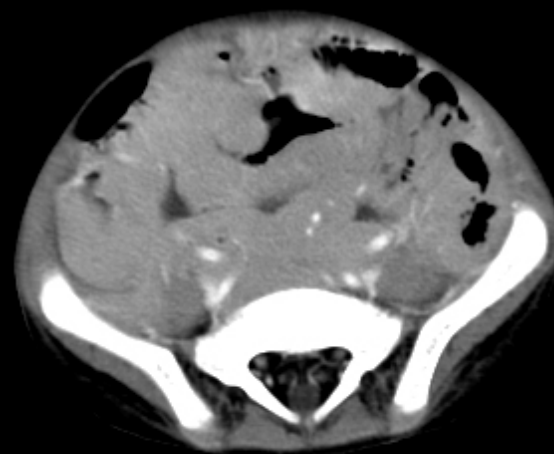
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THK: 5
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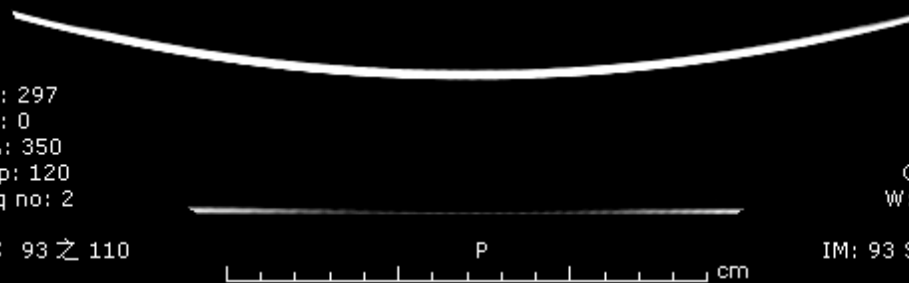
R

L

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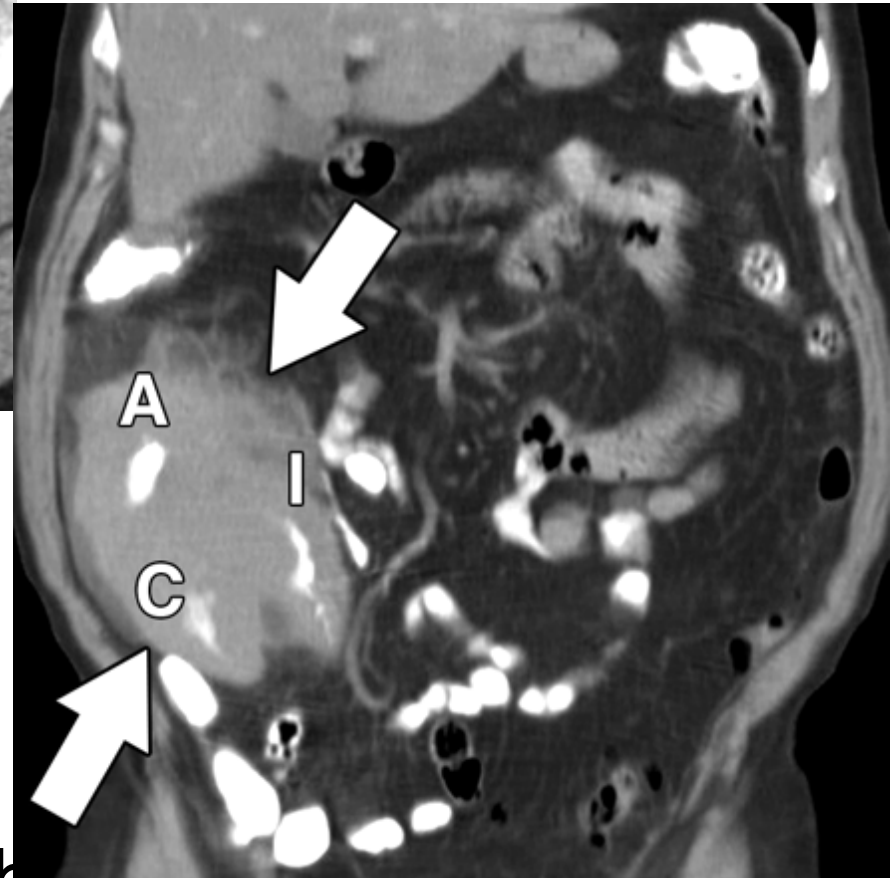
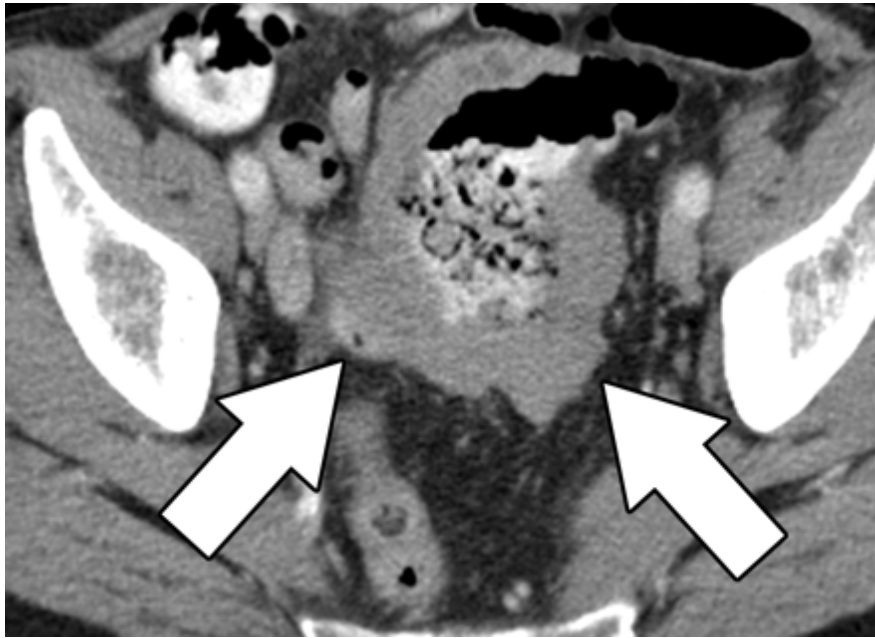


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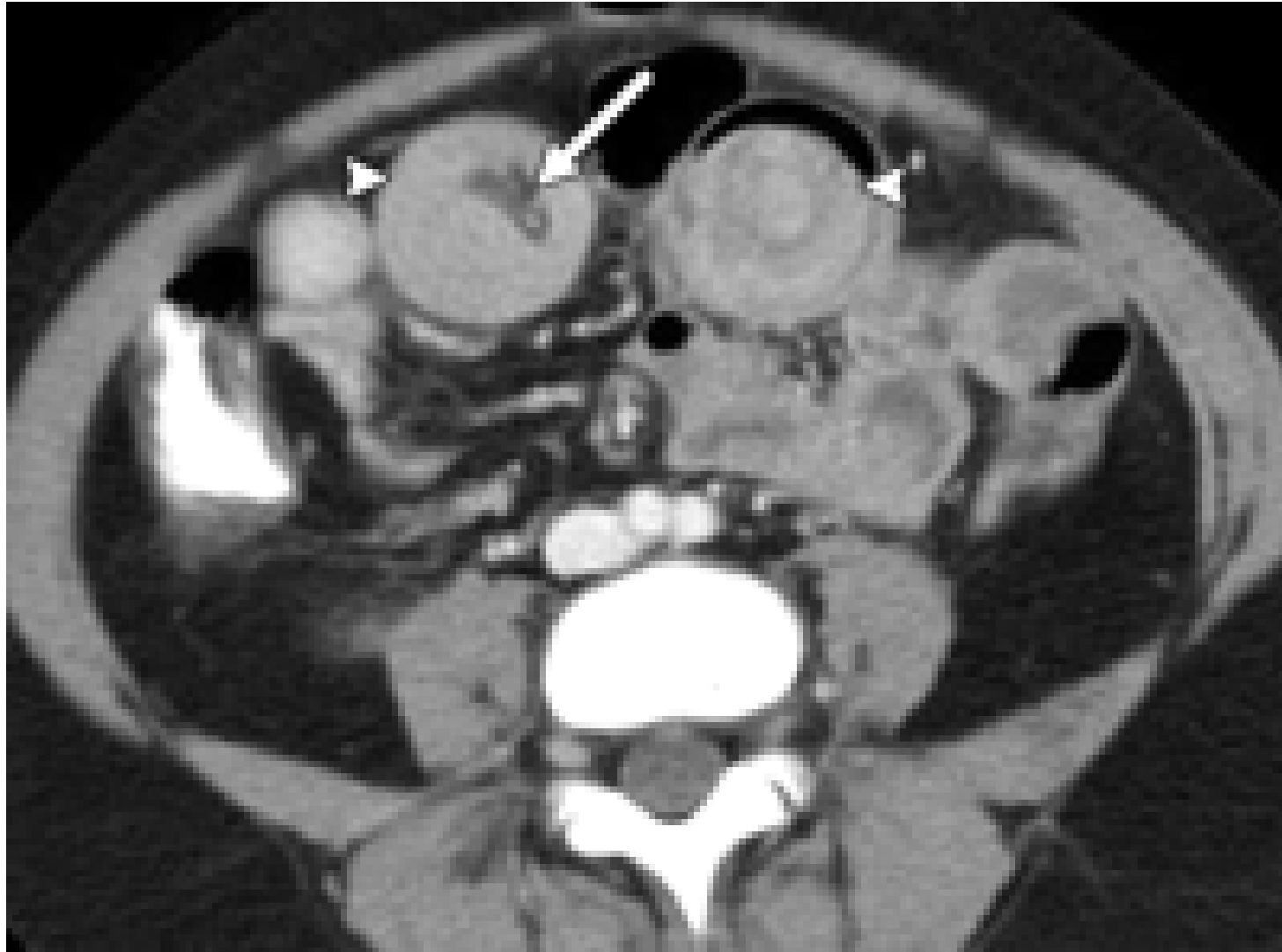
lymphoma







- lymphoma of small bowel

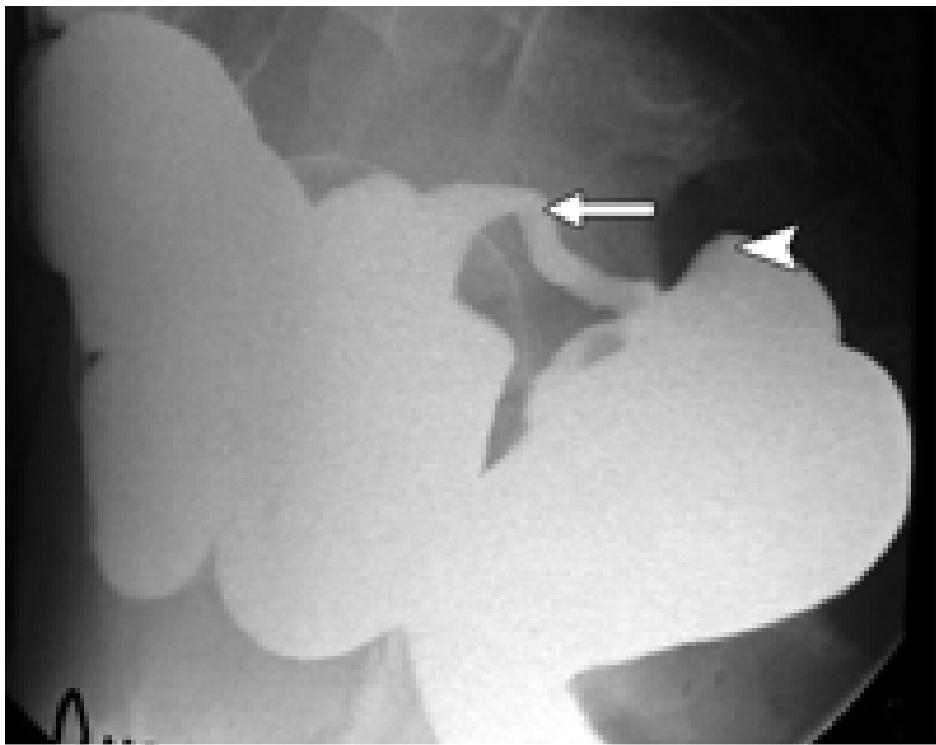


- Lymphoma.

结肠癌

- 不全肠梗阻
- CT局部肠腔扩大
- 不对称肠壁增厚
- 要仔细找肿块
- 分界突然
- 苹果核征
- 公牛眼征
- 肠壁增厚与肠壁周围脂肪浸润程度成反比（肿瘤）；

结肠癌



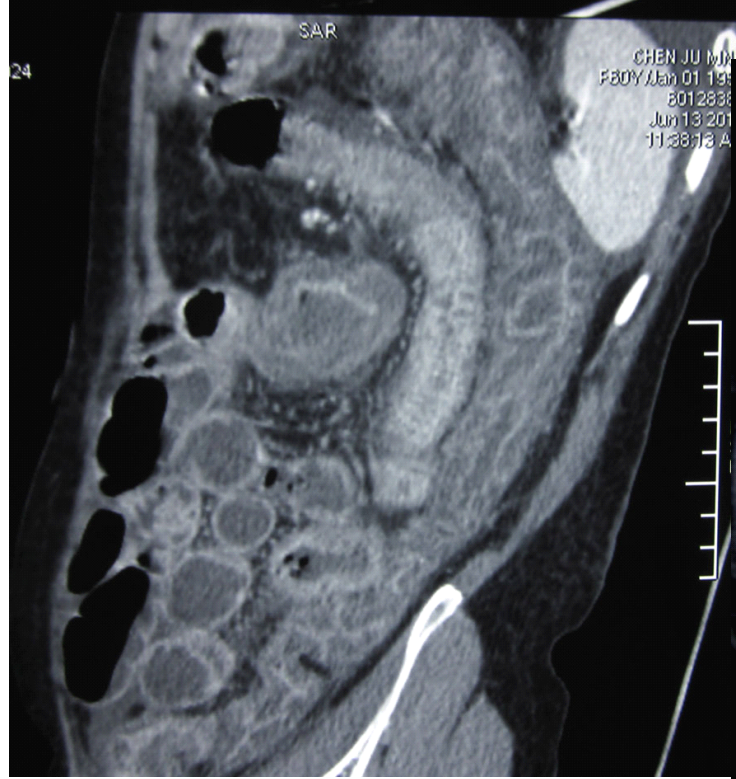
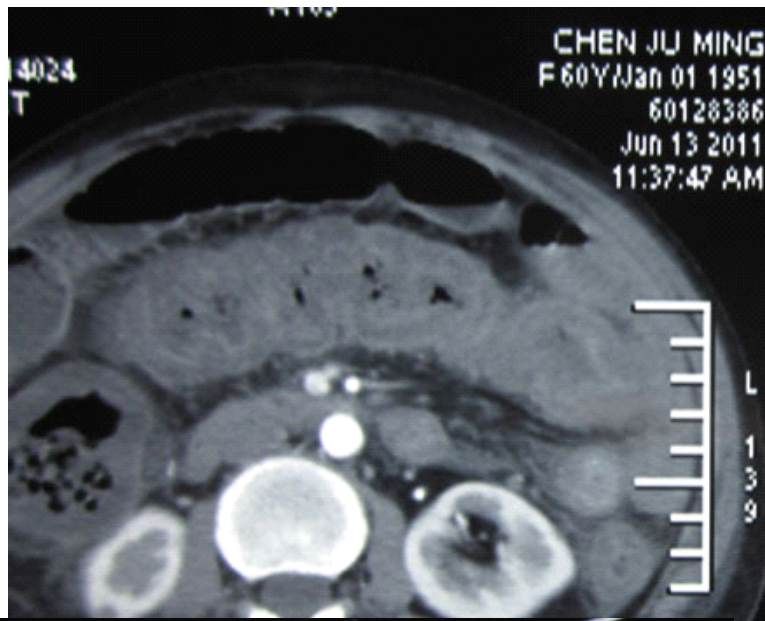
结肠癌
不全肠梗阻

- 苹果核征

CT局部肠腔扩大
要仔细找肿块

良恶性鉴别诊断

- 1. 重度增厚 **Marked Thickening**
- 2. 灰色密度
- 3. 不对称肠壁增厚 **Asymmetric thickening** along the circumference of the wall of the small bowel is usually seen with **neoplasms**. **Lymphoma** in the small bowel may show **symmetric thickening**。 Most conditions that cause **symmetric**均称的**thickening** along the circumference of the small bowel are **benign**. Crohn's disease and other granulomatous conditions such as tuberculosis may occasionally cause **asymmetric thicken**.
- 4. 分界突然，苹果核征
- 5. 公牛眼征
- 6. 肠壁增厚与肠壁周围脂肪浸润程度成反比（肿瘤）；肠壁增厚与肠壁周围脂肪浸润程度成正比（炎症）

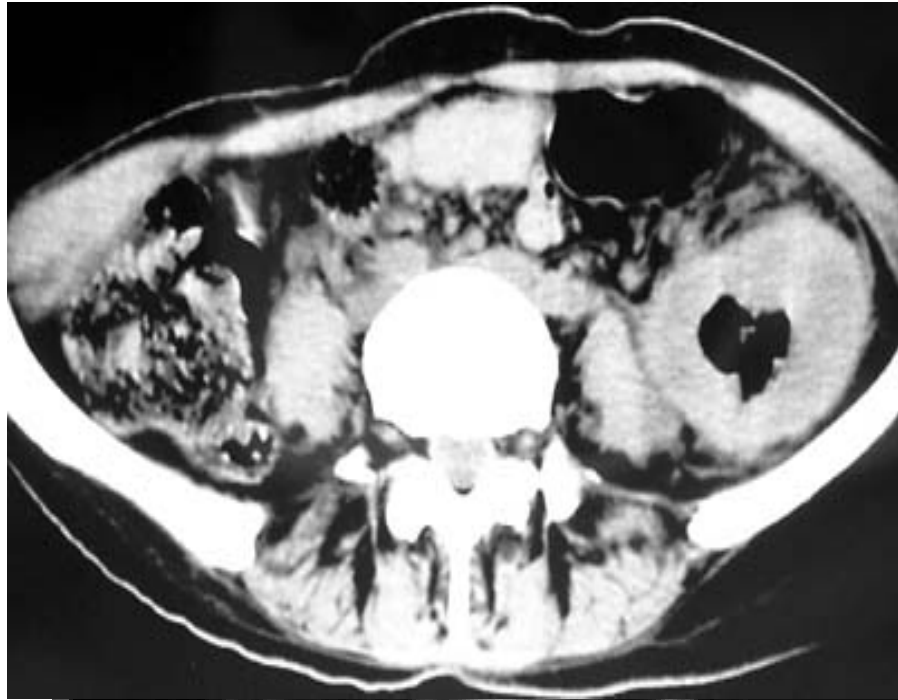


- 7. 良性有结肠带、粘膜、粘膜下 粘膜肌层保存， 粘膜增厚对称
- 8. 良性病变范围长， 恶性病变范围短



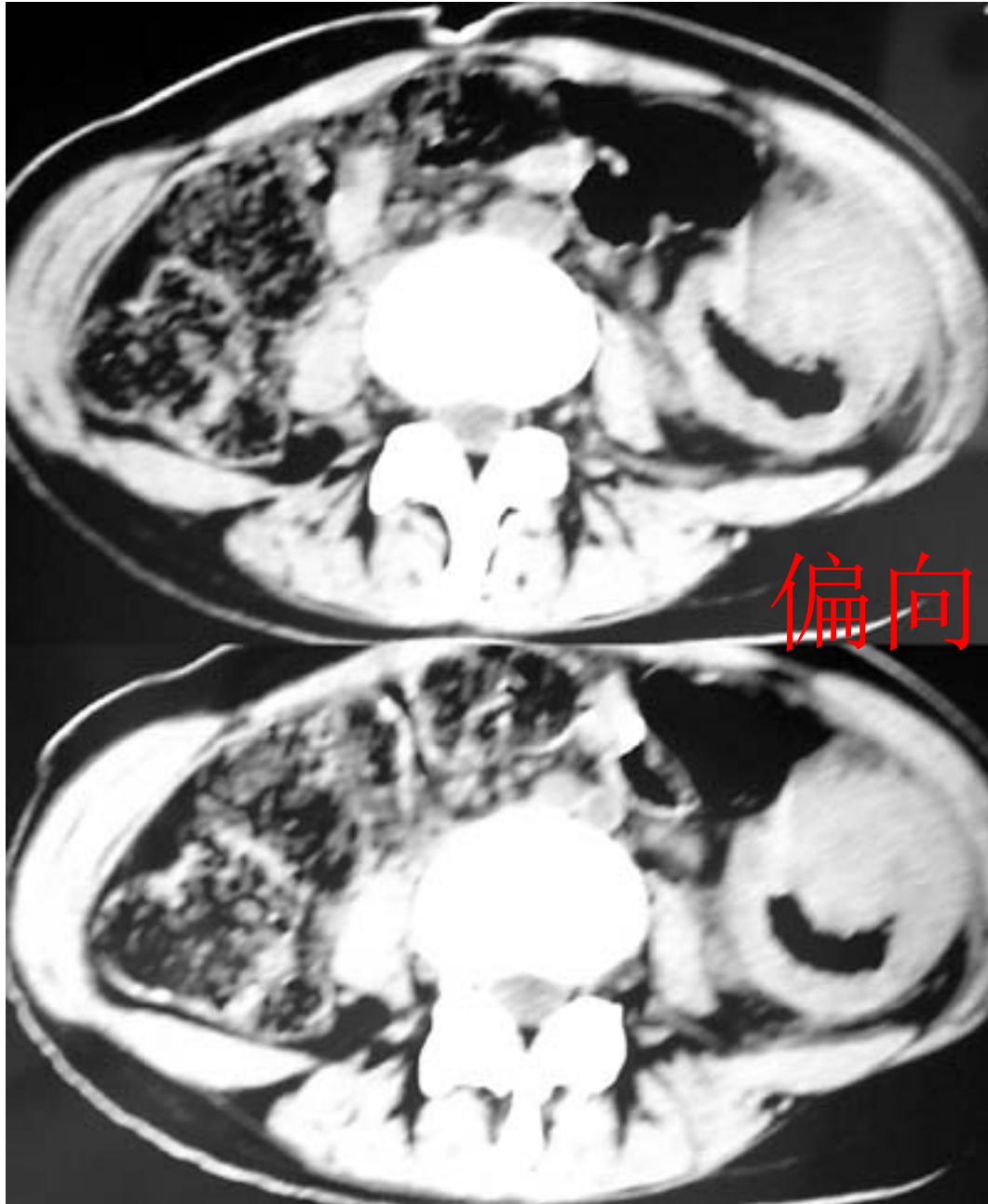


- Morphologic signs aiding diagnosis with Intravenous contrast-enhanced CT scan shows **segmental annular thickening of the sigmoid colon** (straight arrows) with sharp angular margins at either end (curved arrows) in **adenocarcinoma**.
- **(b)** Intravenous contrast-enhanced CT scan **shows smooth, tapered margins** (white arrows) at the edge of a mass in the sigmoid colon (black arrow) **affected by diverticulitis**.

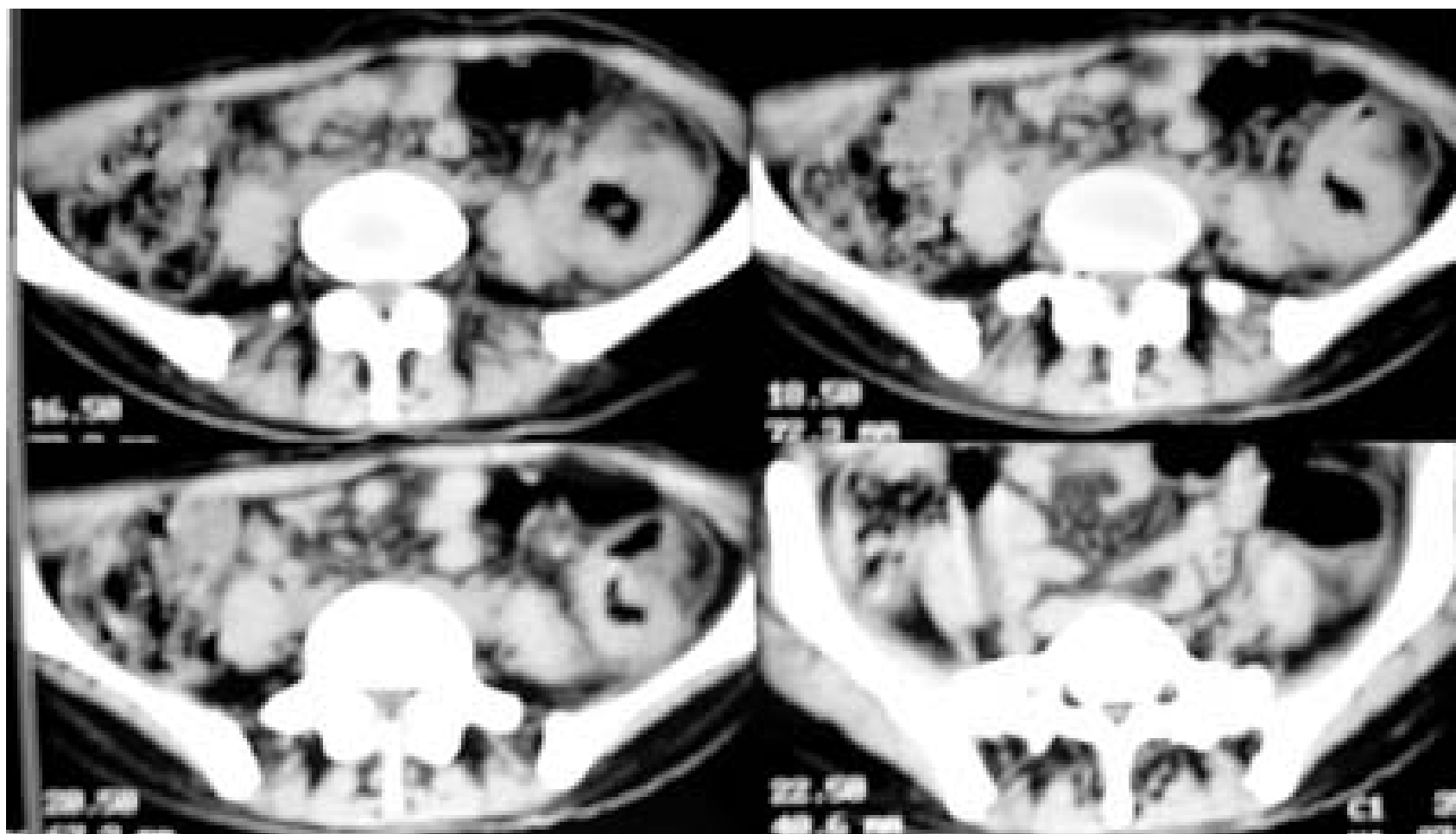


•公牛眼征

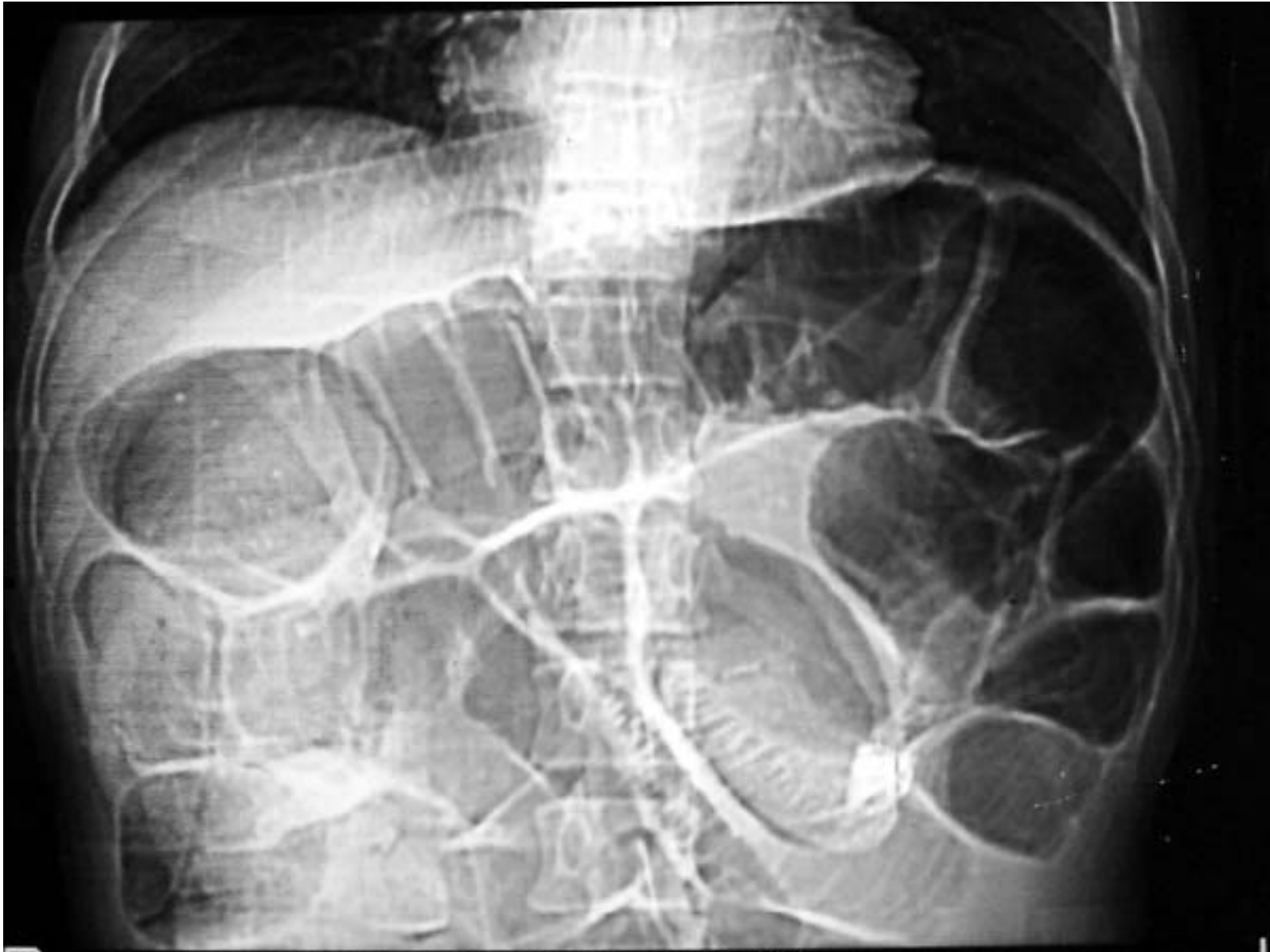


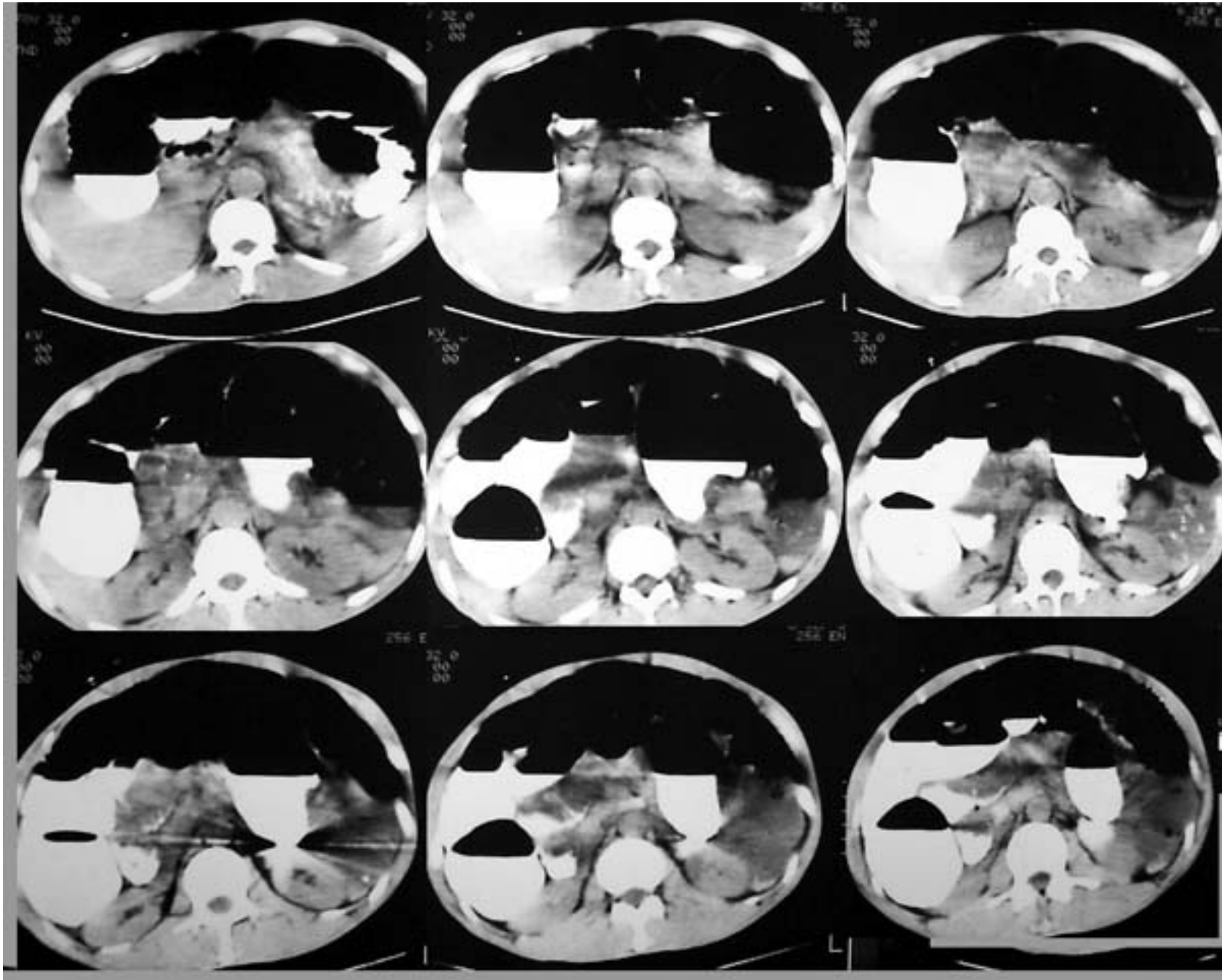


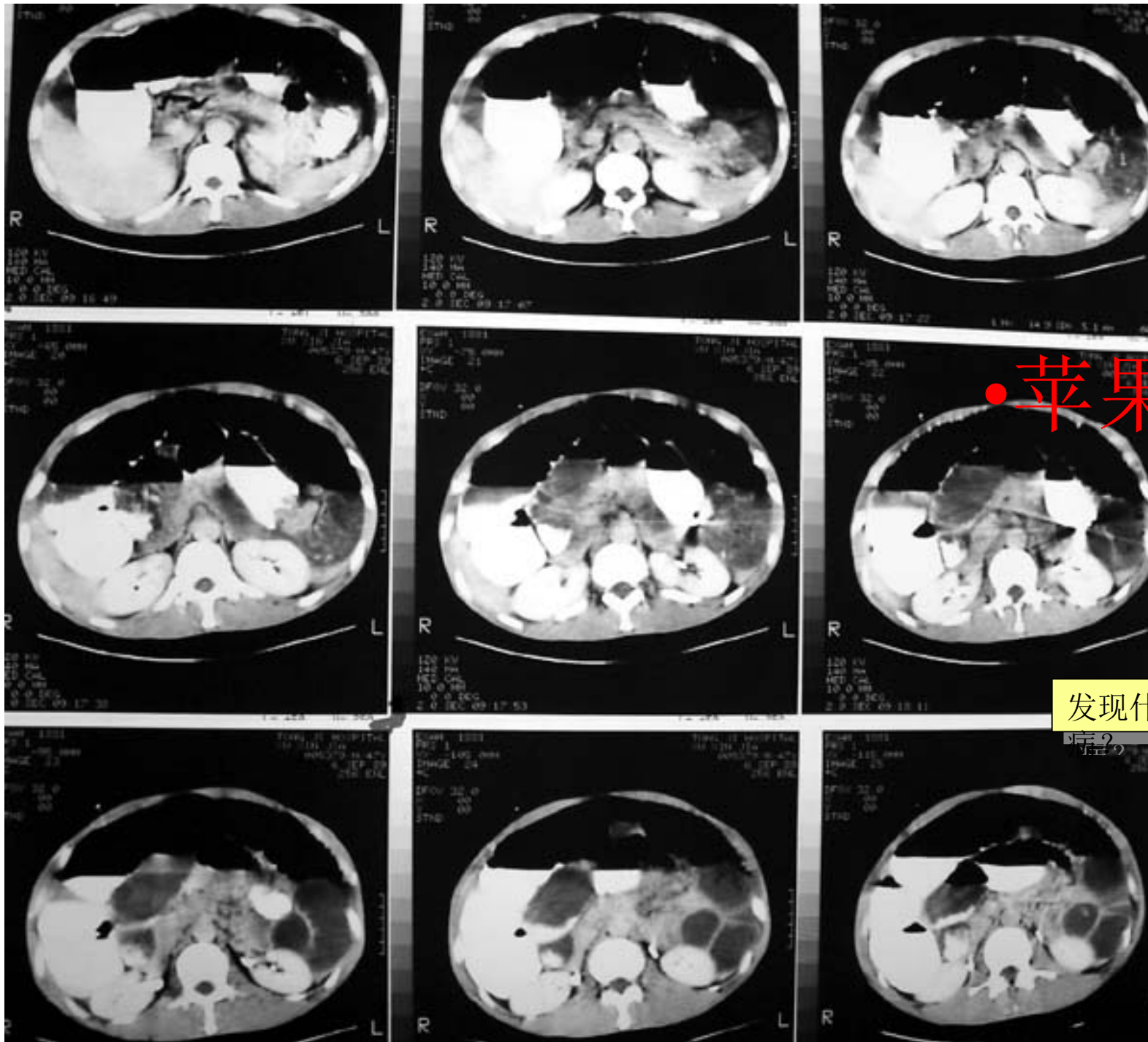
偏向性肠壁增厚



偏向性肠壁增厚





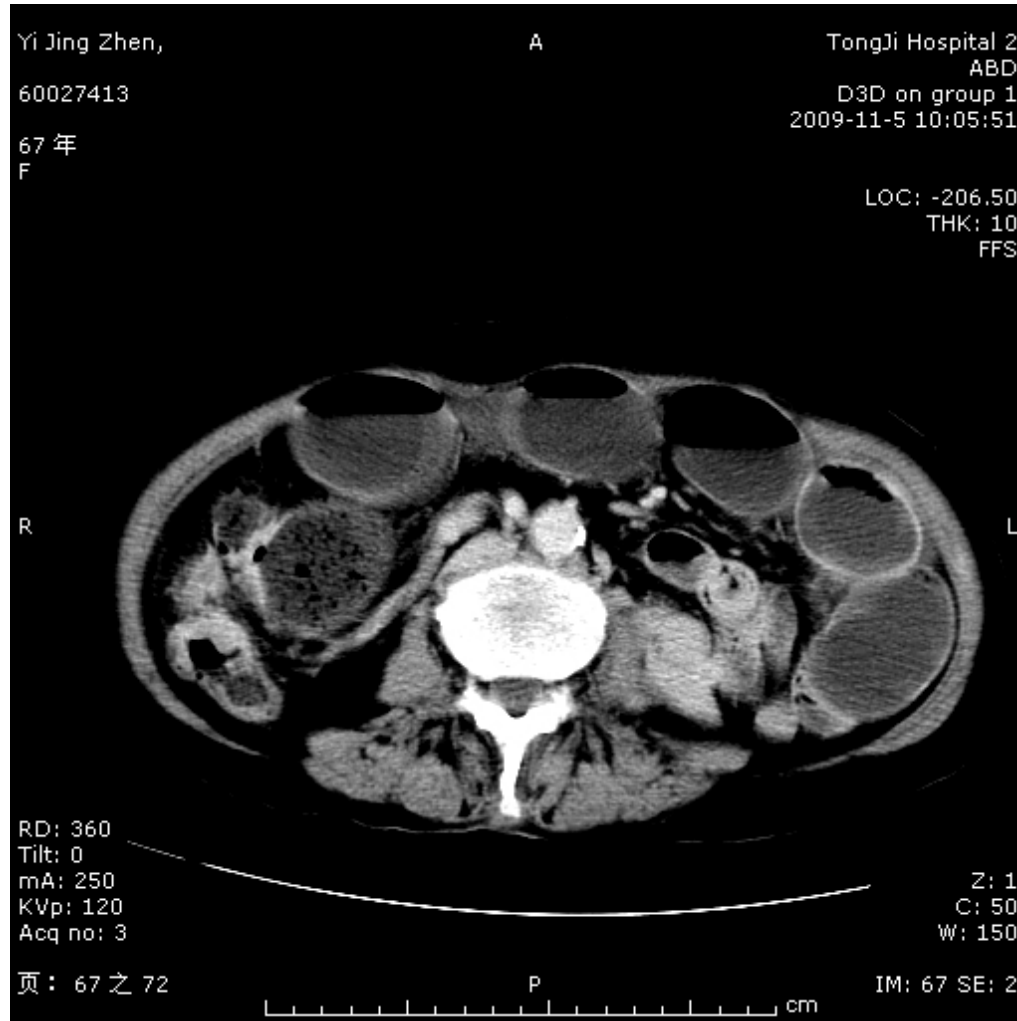


• 苹果核征

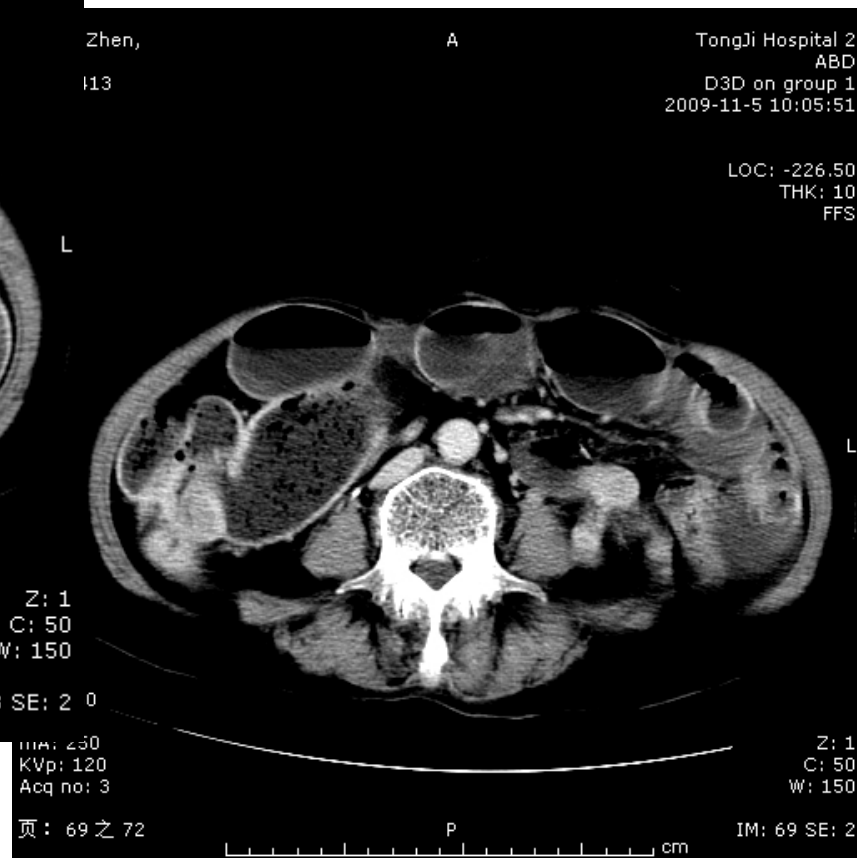
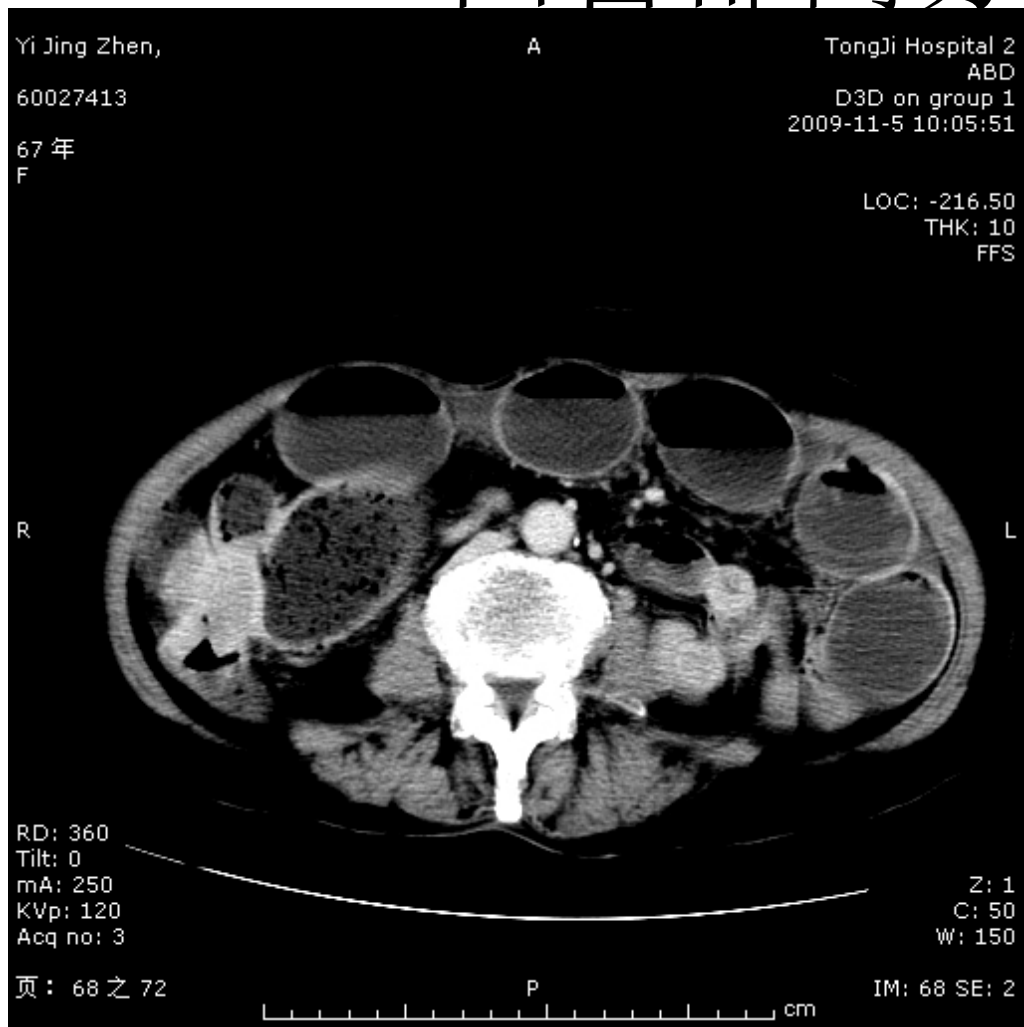
发现什么？是什么

胃癌？

回盲部高分化腺癌



回盲部高分化腺癌



同音部肉芽肿11

武汉同济医院
姓名: XU LU PING
ID: 473068
性别: F
年龄: 034Y

(1/1)



武汉同济医院
姓名: XU LU PING
ID: 473068
性别: F
年龄: 034Y

(1/1)





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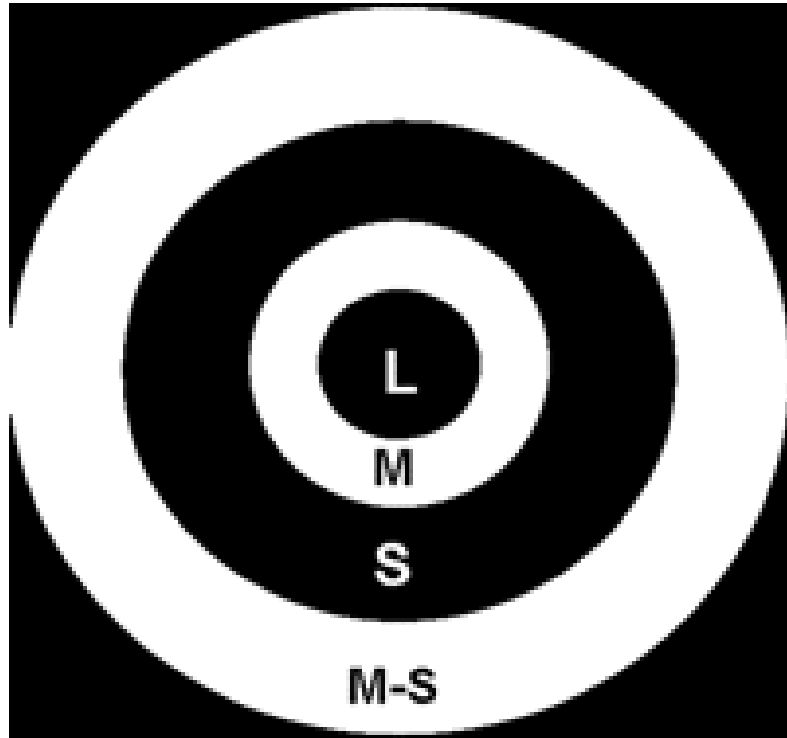
第三类.水晕密度**Water Halo Sign**

- 水晕密度肠壁分成增厚-也为晕征--共同CT特点
- 双晕征(double halo)
- 靶征**the target sign**—有三层:
- 外层--高密度肌层—浆膜
- 中层—灰色低密度-低密度—水晕—代表-水肿—位于粘膜下
- 内层—环形高密度—粘膜

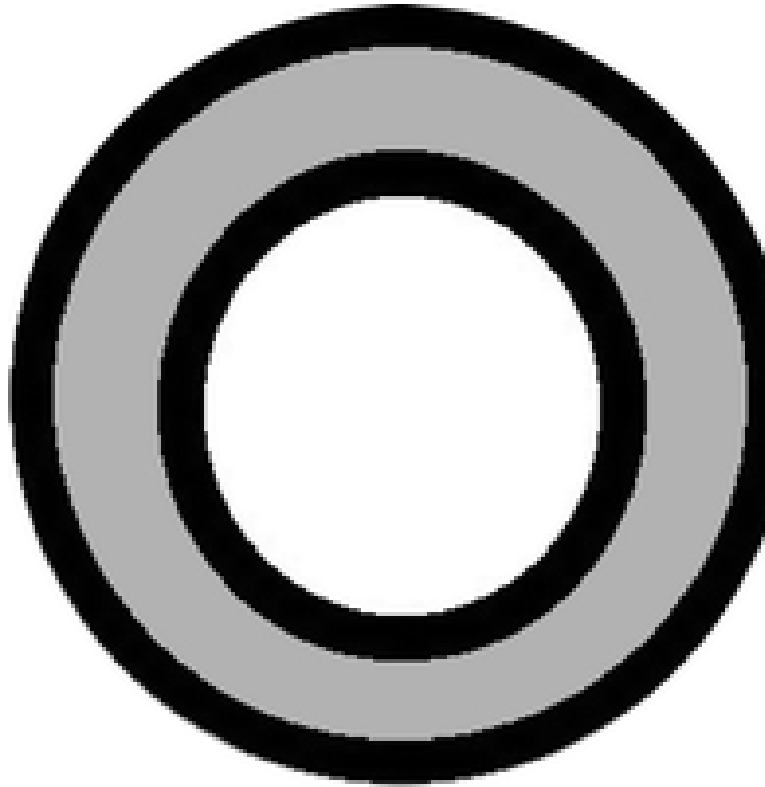
靶征—非肿瘤征象

- 1.克隆氏病Crohn's disease
- 2.感染infection
- 3.缺血ischemia 、血管闭塞、胶原性疾病
- 4.放射性肠炎radiation enteritis
- 5.血管性水肿angioedema
- 6.出血 hemorrhage
- 7.食物过敏

the fat halo sign



缺血性结肠炎



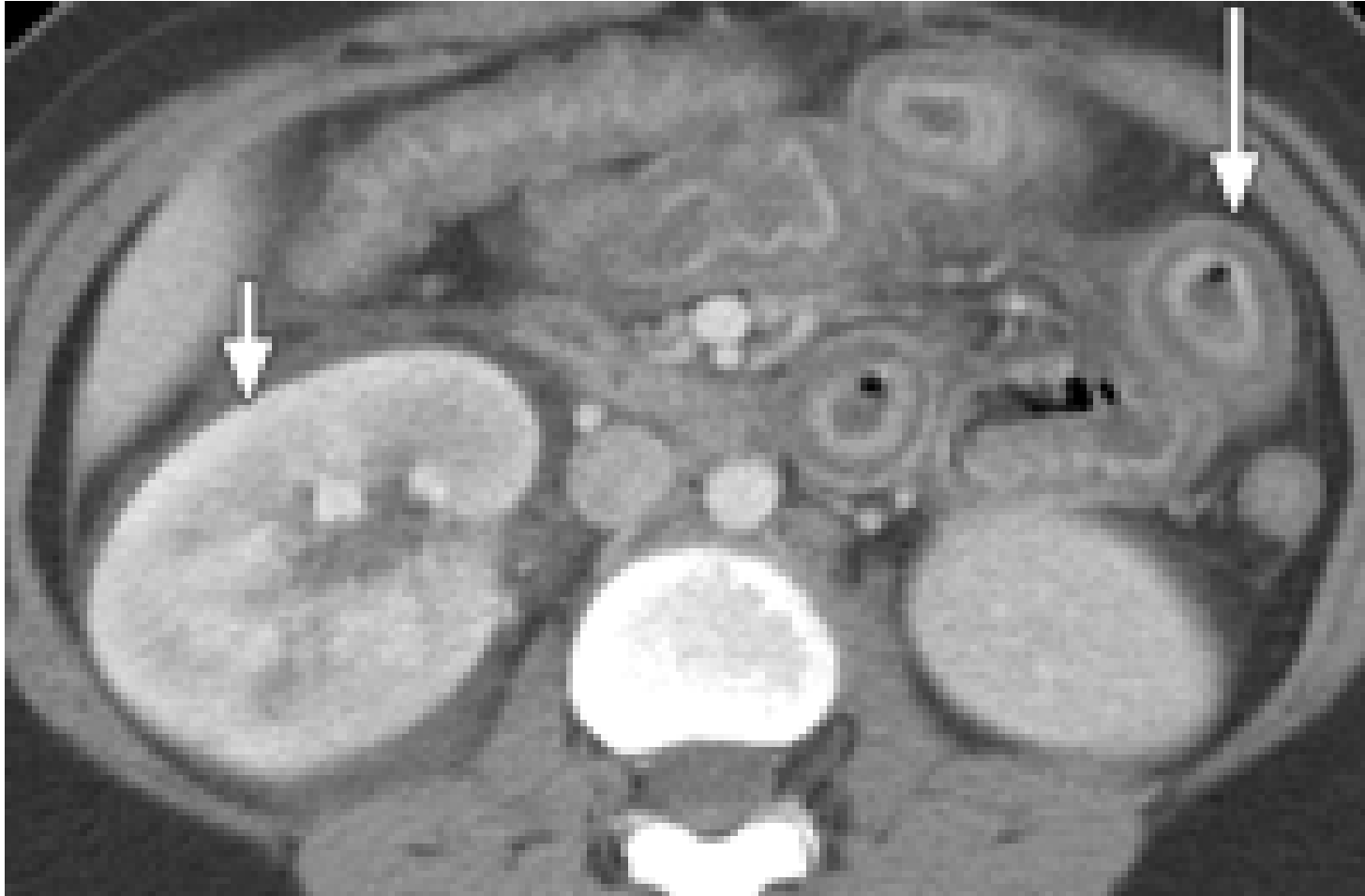
- man **with ischemic colitis**. Layers representing target sign grossly correspond to muscularis propria (straight white arrow), submucosa (curved arrow), and mucosa (black arrow).

血管闭塞



- Target sign.

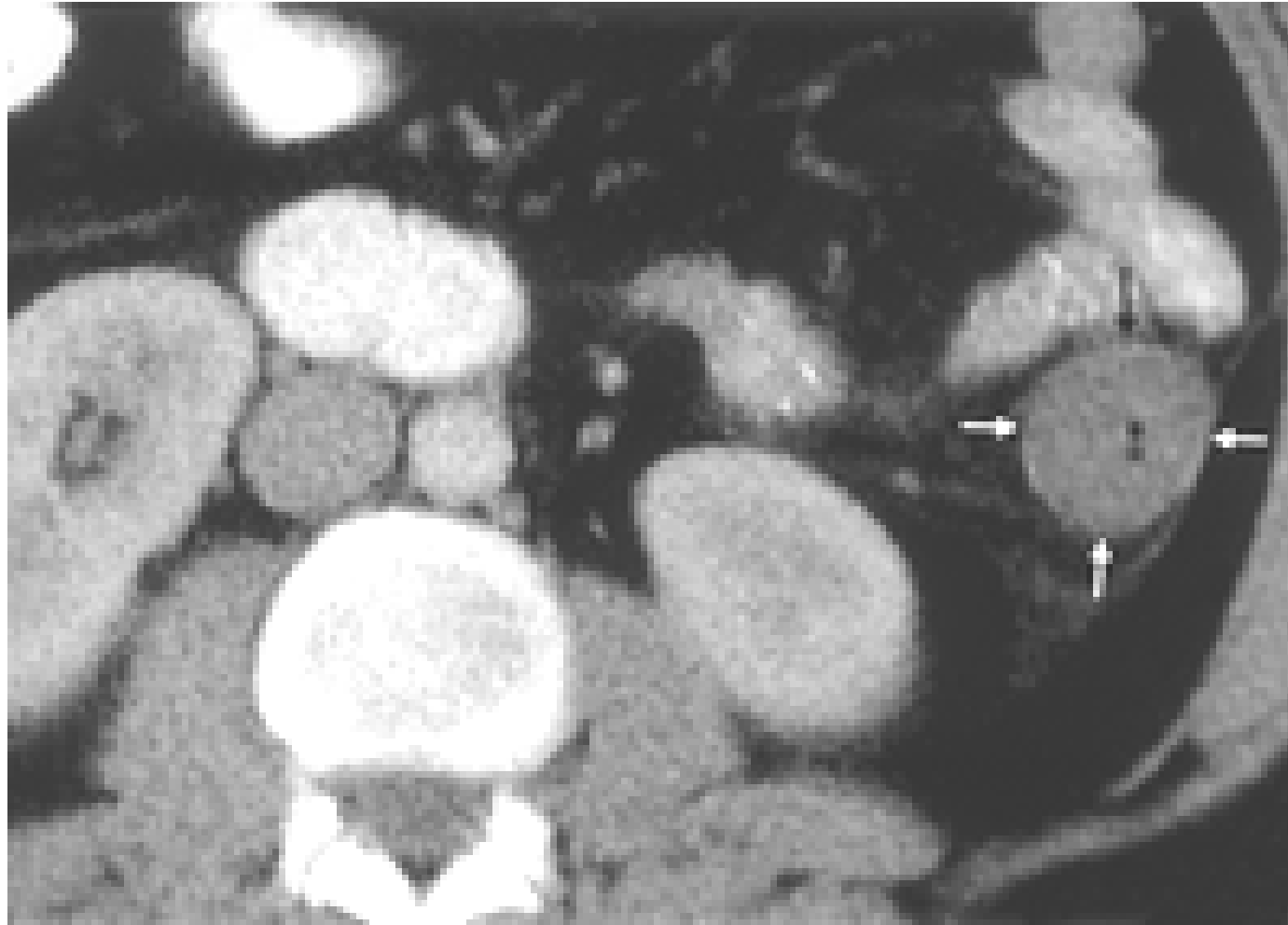
缺血ischemia



- LSE-缺血

vasculitis

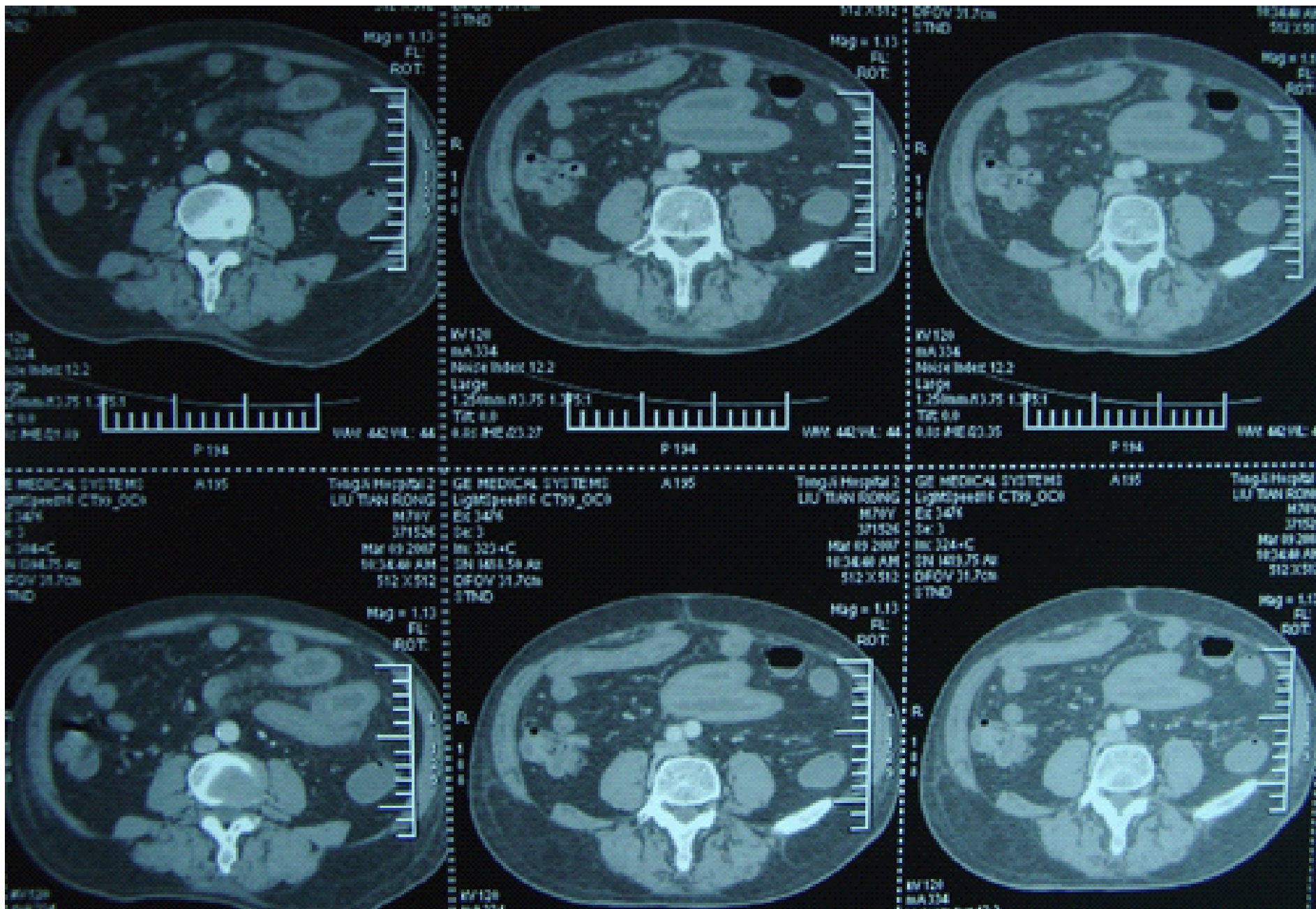




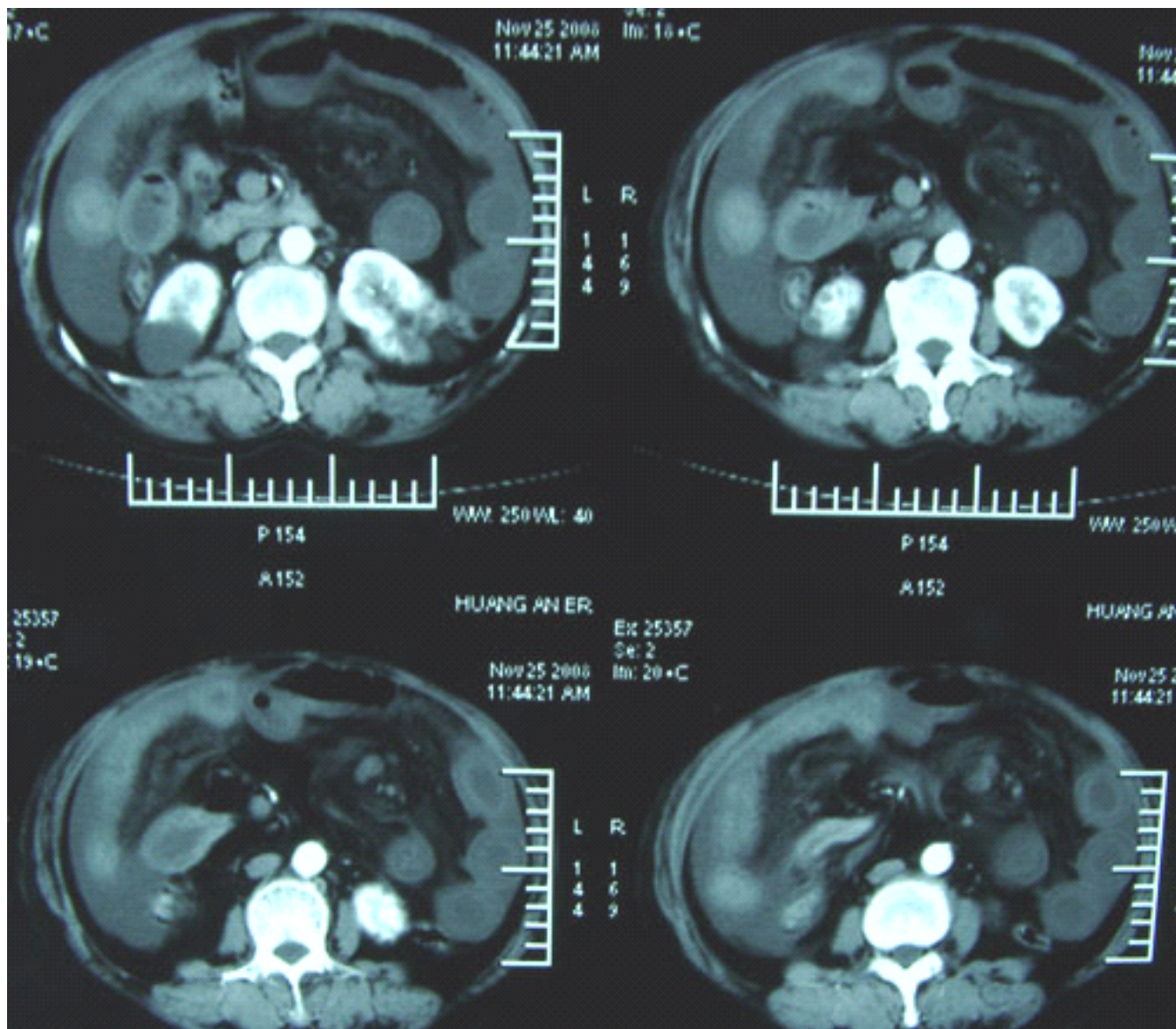
- mild homogeneous wall thickening (arrows) of the splenic flexure. The homogeneously hypoattenuating appearance is caused by pronounced mural edema.



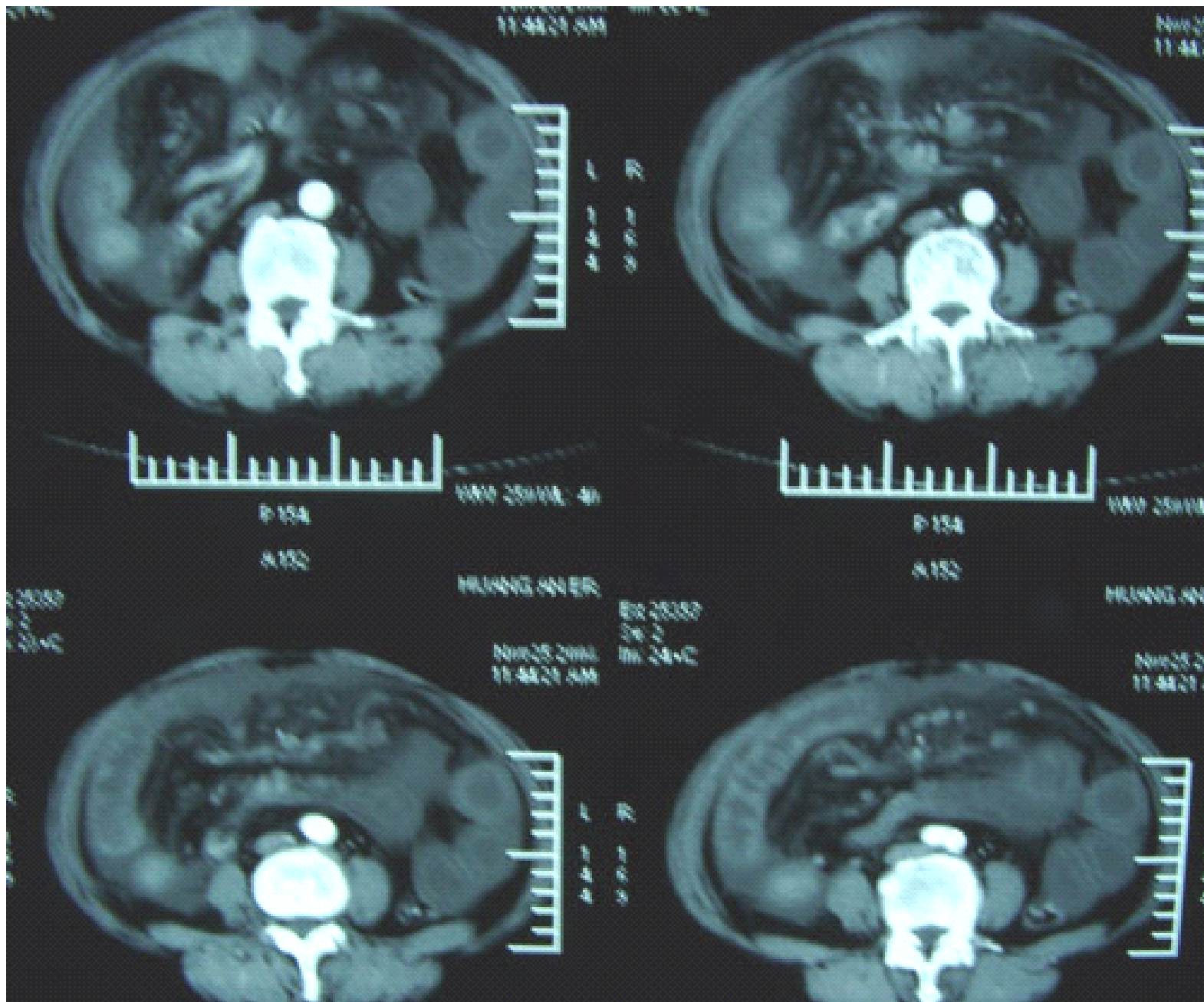
- **Water halo** sign in the small intestine and colon. **(a)** Intravenous contrast-enhanced CT scan shows an inner layer of a strangulated, ischemic segment of small bowel (small straight solid arrows) surrounded by a lower-attenuation layer (curved arrows). Note the brightness of the dilated, obstructed proximal small bowel wall (open arrow), which approximates the attenuation of the external iliac vein (arrowhead). However, since the wall of dilated bowel is not thickened, it would not be considered abnormal. Large straight solid arrow = ascites. **(b)** Water halo sign in pseudomembranous colitis. On an intravenous contrast-enhanced CT scan, the thickened inner layer of the rectosigmoid (straight arrows) is surrounded by a thicker outer layer (curved arrows).

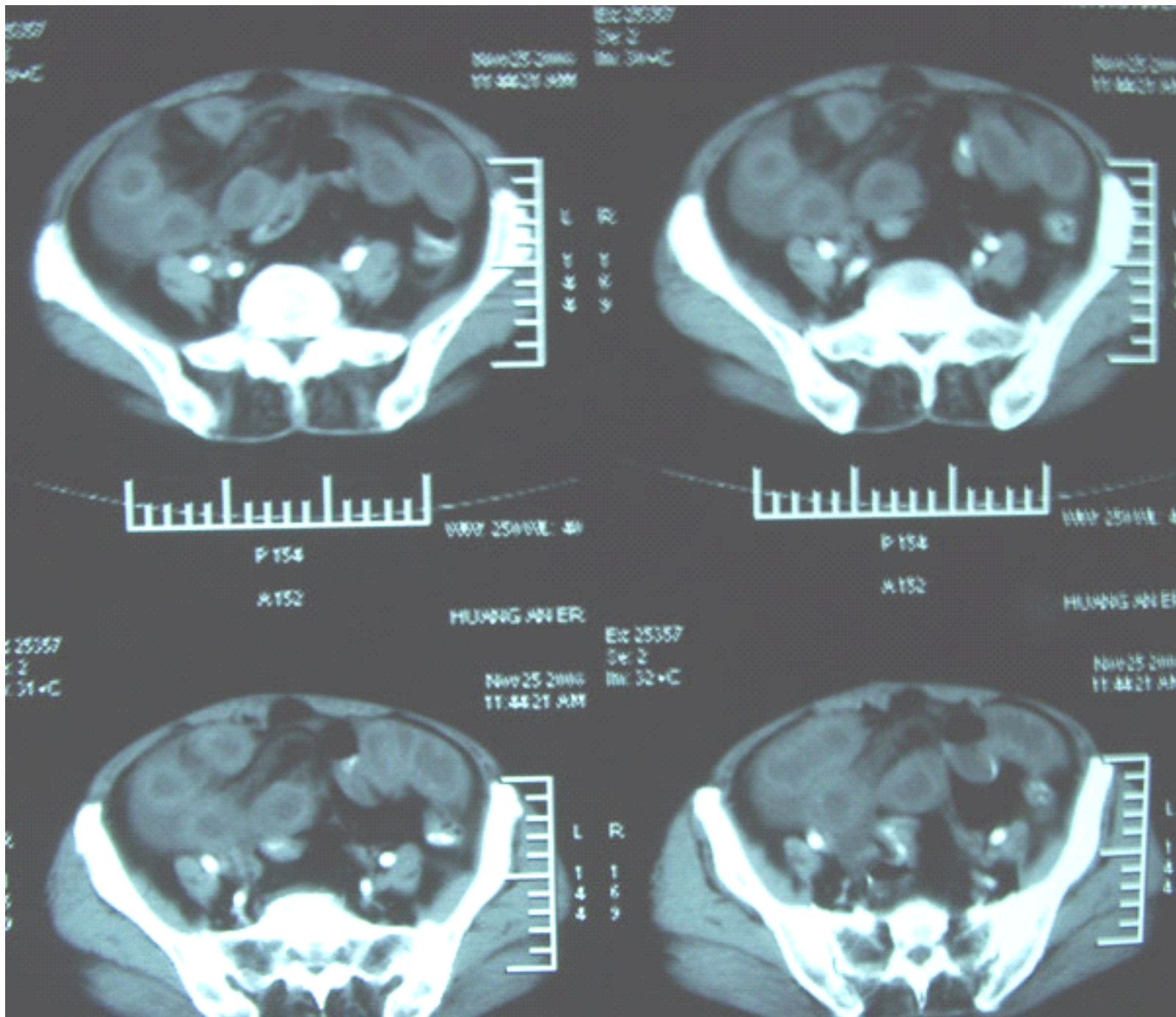






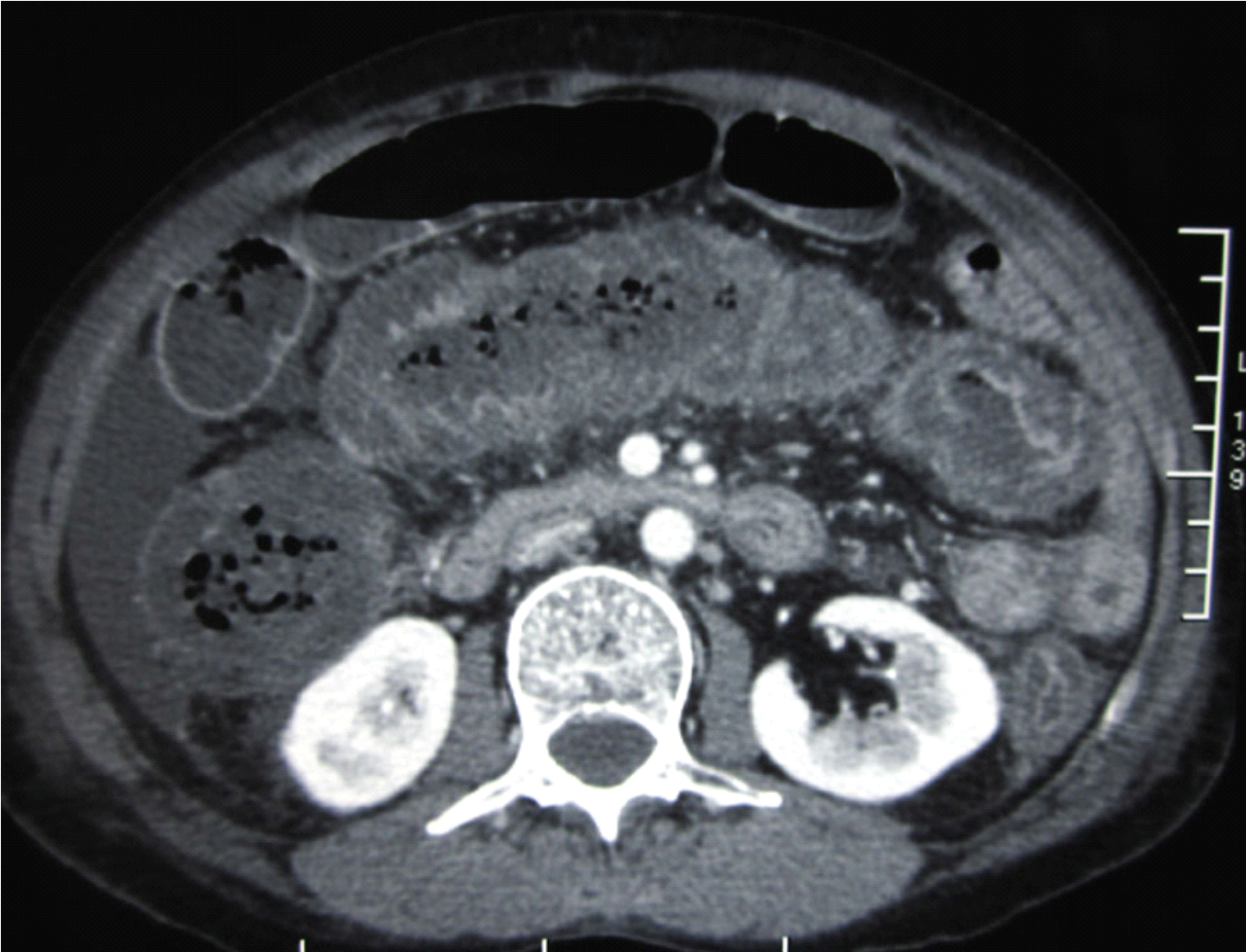
肠壁增厚



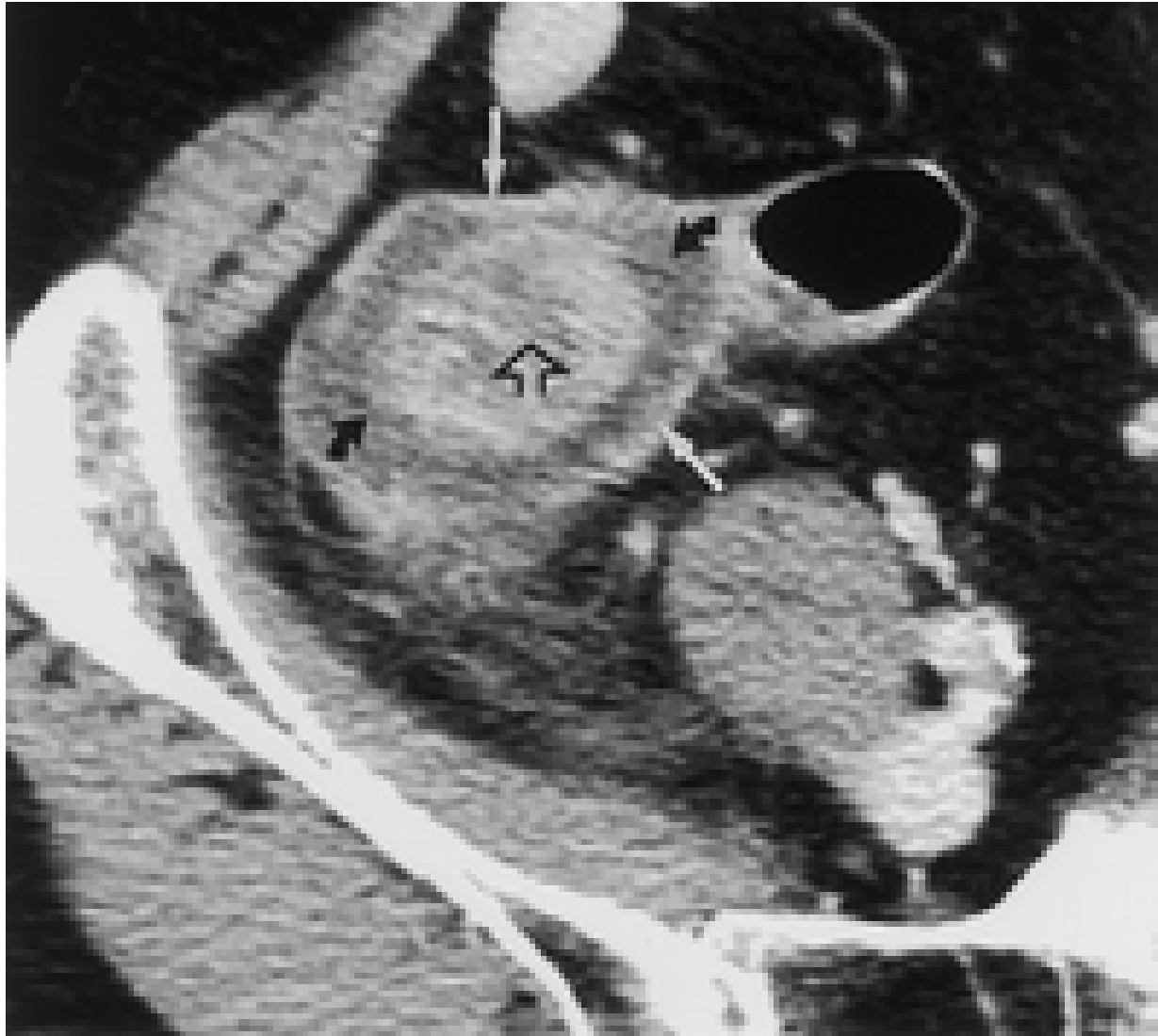


感染infection

- 感染infection ----脂肪浸润明显
- bacterial superinfection
- 慢性血吸虫病---钙化



- **Water halo sign.** pseudomembranous colitis



marked **bacterial superinfection**



- mild wall thickening , paracolic fat stranding along the right side of the colon, which, in addition to nontransmural ischemic bowel wall damage

回盲部慢性血吸虫病

Cao Jia Wan,
60042021
1946-2-21
64 年
M

A

Wuhan Tongji Hosp 64
PEL.
2010-2-22 9:03:16
60042021



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Tilt: 0
mA: 350
KVp: 120
Acq no: 1

页: 19 之 100

P

cm

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1946-2-21
64 年
M

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P

Z: 1
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IM: 20 SE: 2

cm

血吸虫病

Cao Jia Wan,

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Wuhan Tongji Hosp 64
PEL.

60042021
1946-2-21
64年

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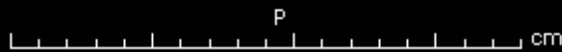
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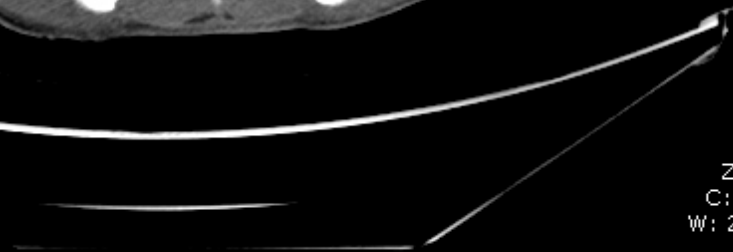
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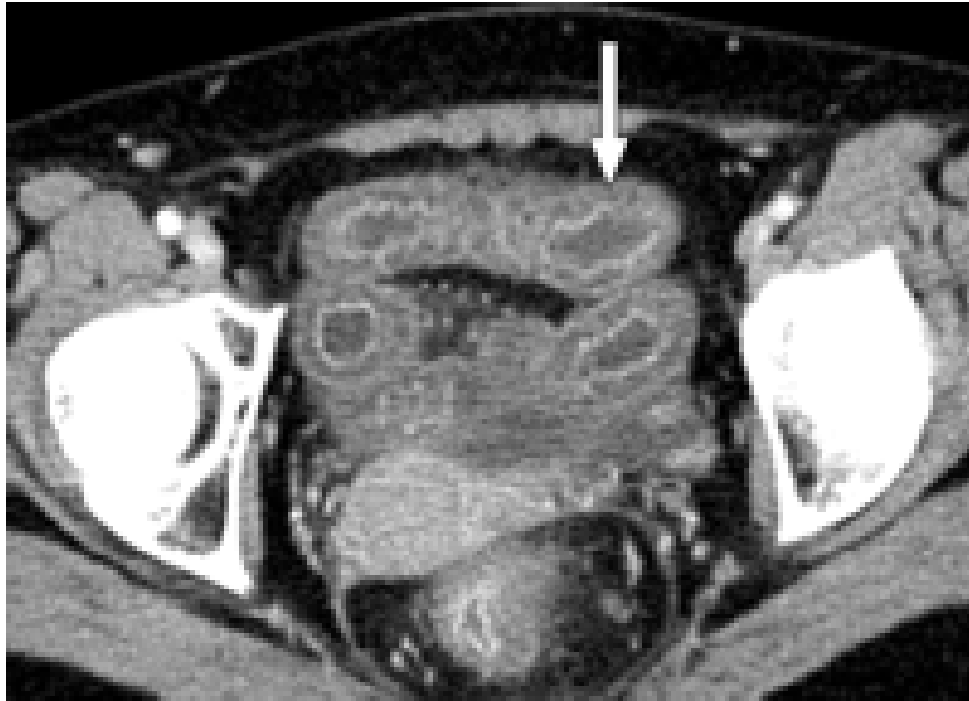


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IM: 74 SE: 2

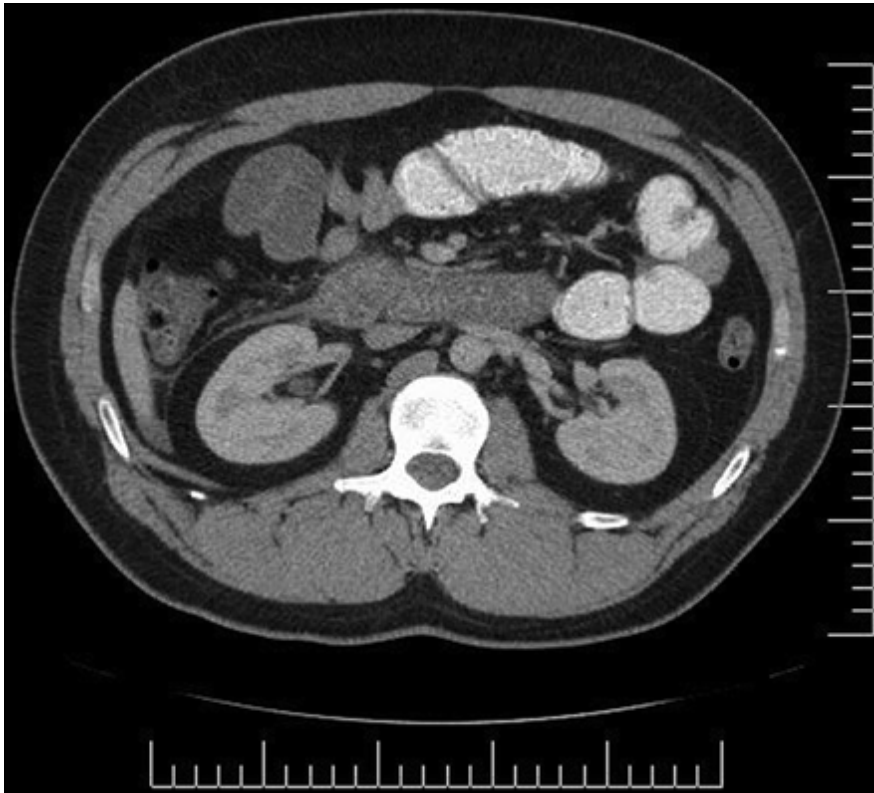
放射性肠炎radiation enteritis

- 放射治疗病史



- acute radiation enteritis.

- 血管性水肿 **angioedema**
- 来去块
- 粘膜完整、强化、粘膜下水肿、肠壁均匀增厚、可逆性

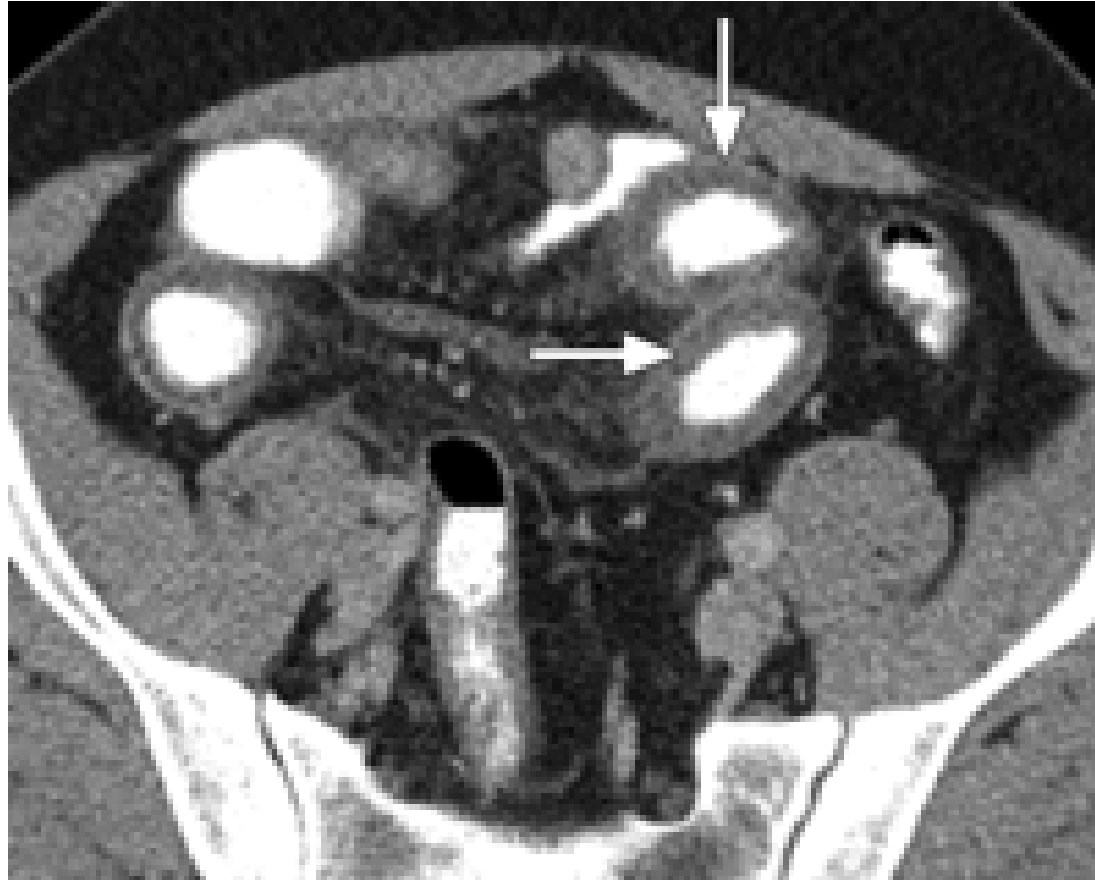




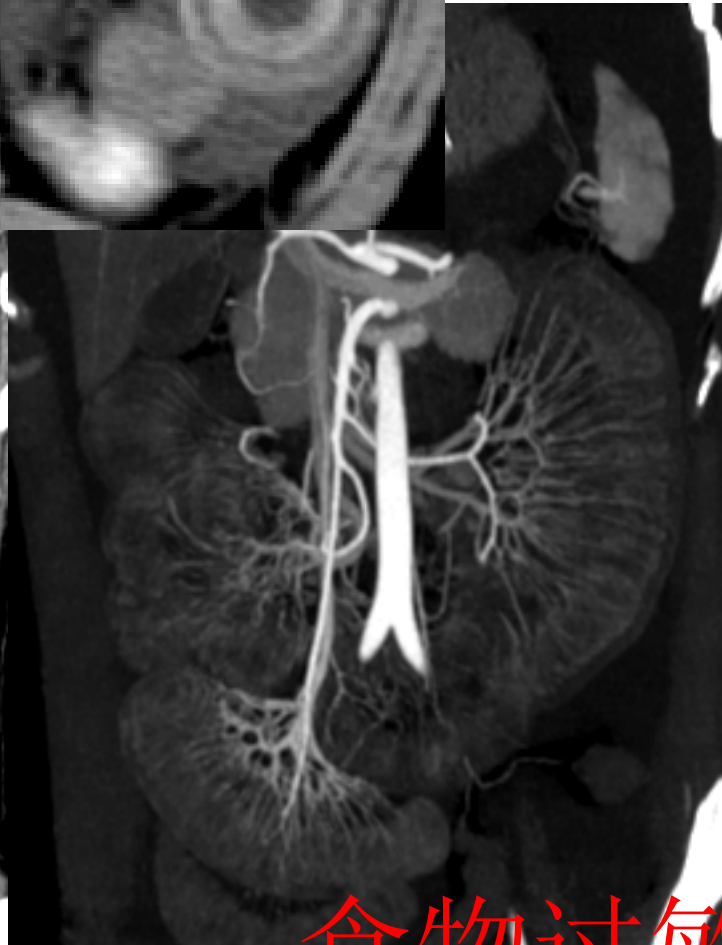
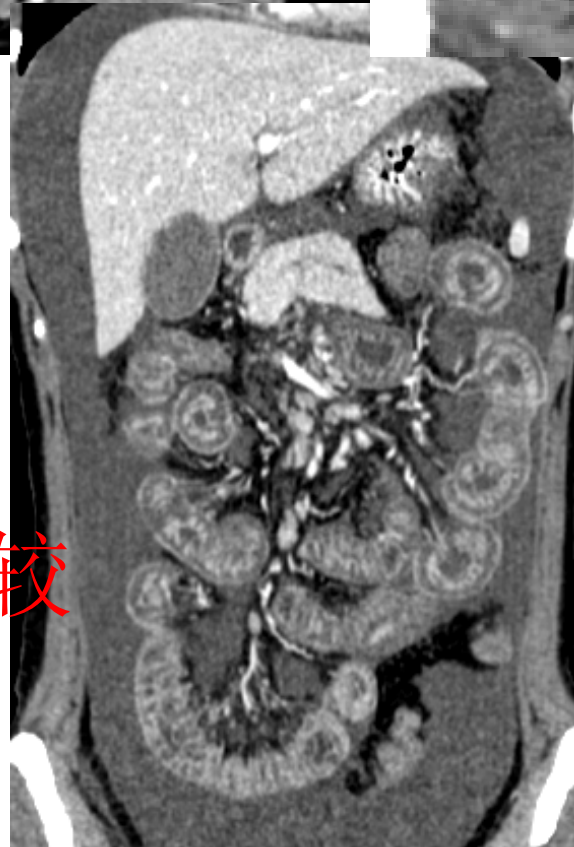
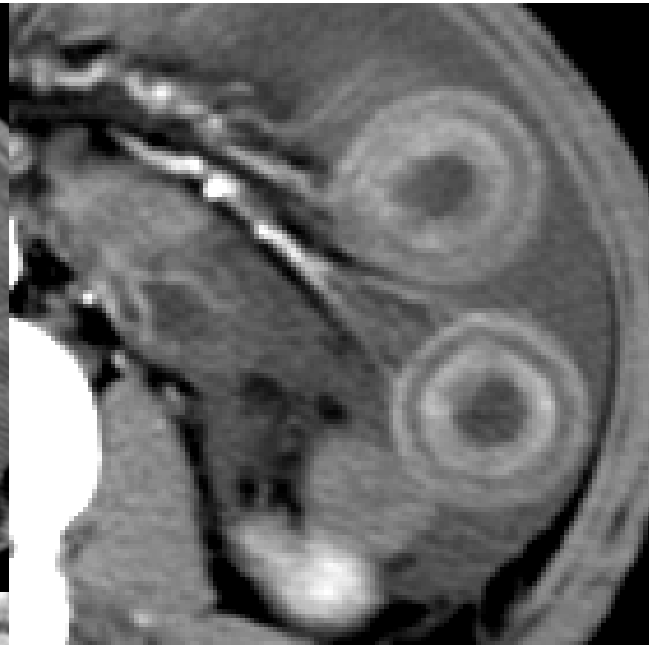
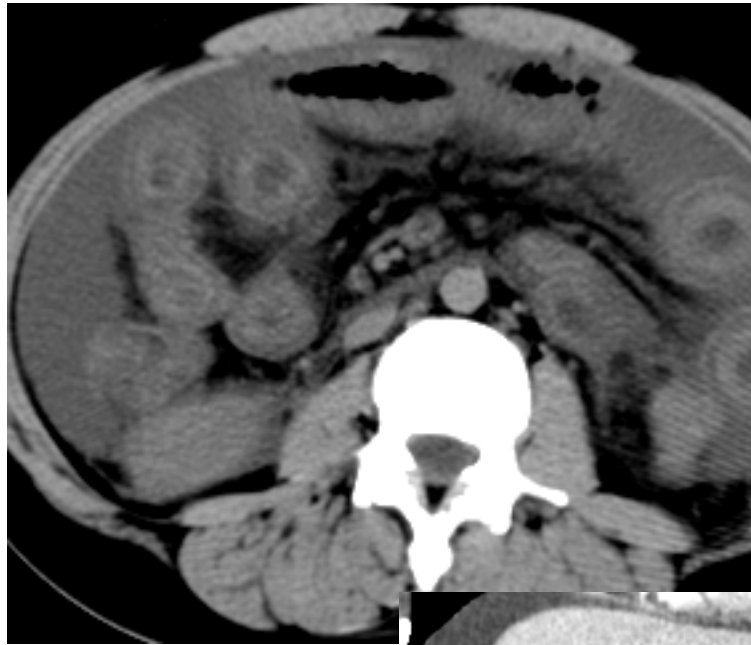


- Small bowel with target sign in **angioedema**.

allergic angioedema



- allergic angioedema.



F, 23YS

腹痛。起病较急

食物过敏

DDx

- 特发性肠炎
- 血管性疾病
- 感染性疾病infectious diseases,
- 放疗损伤.
- 恶性肿瘤极少有此征象



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第4类：脂肪晕征 **Fat Halo Sign**

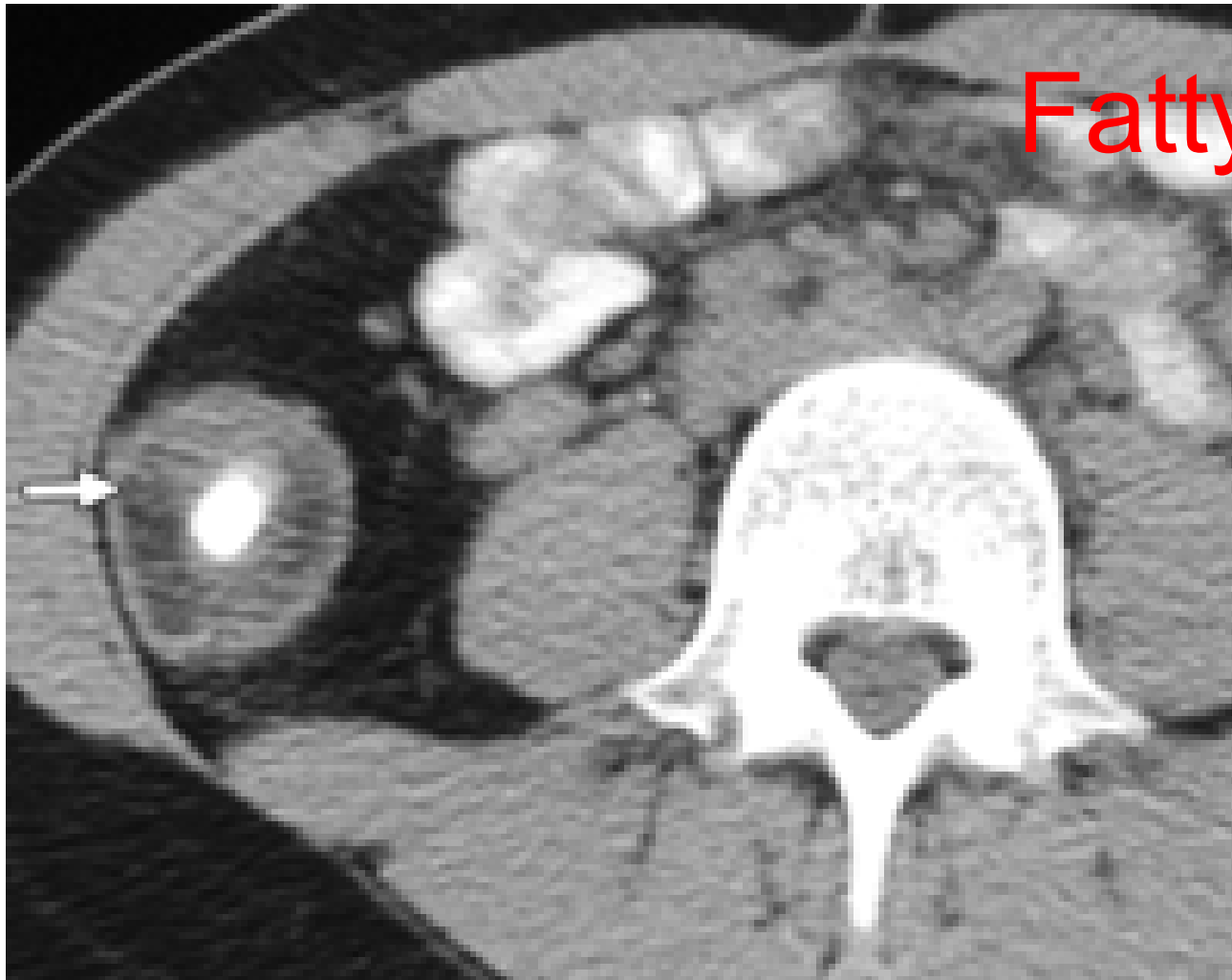
- 此类征象指肠道增厚呈三层—中间一层或粘膜下层呈脂肪密度—往往呈黑色密度；
- **CT值<-10HU**； 但**CT值很少等于腹膜后脂肪或肠系膜脂肪**，可能是并存的水肿的部分容积效应所致。
- 固有肌层外缘可是边界清楚或是不清（由于有脂肪浸润。
- 小肠、结肠有相同改变

常见疾病

- 1. 克隆氏病 Crohn disease
- 2. ulcerative colitis
- 3. Cytoreductive 细胞减少性治疗
- 4. 慢性放射性肠炎 chronic radiation enteritis

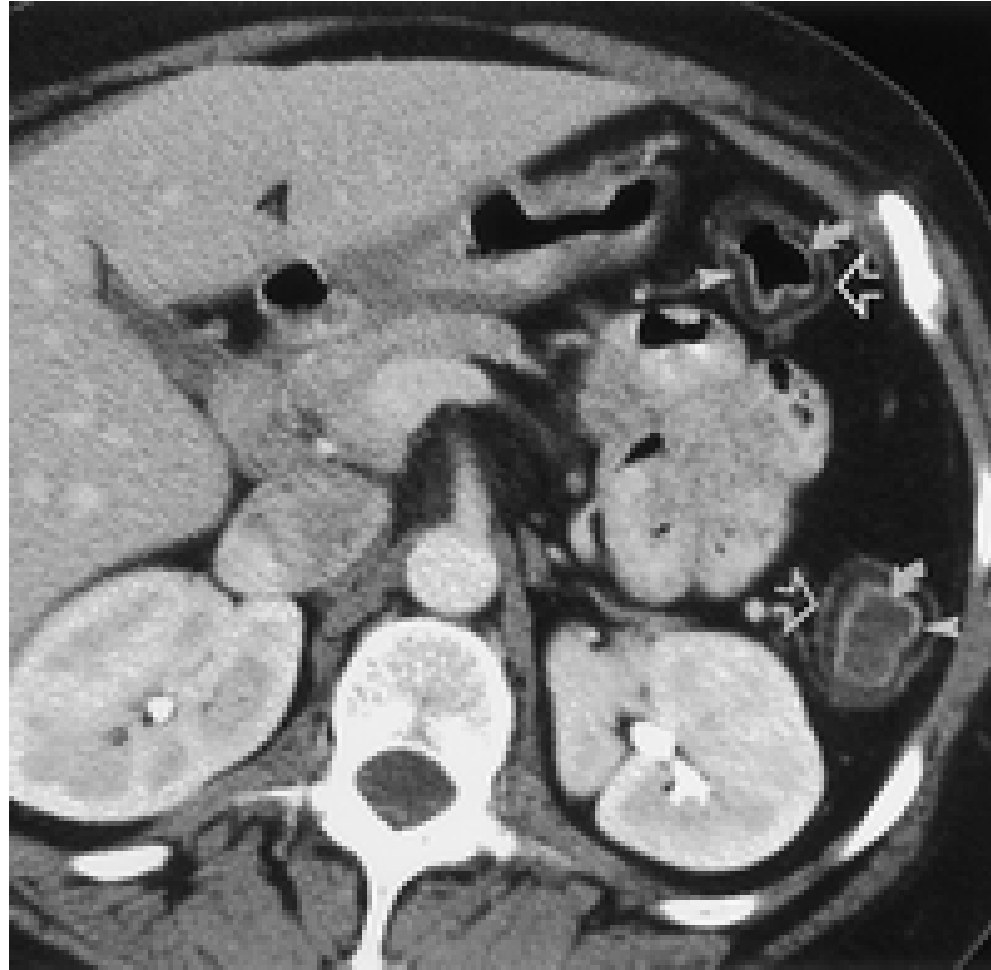
特殊征象

- 脂肪靶征--One study has shown that **the fat target sign is more common in ulcerative colitis than in Crohn disease.**



Fatty halo

- **Fatty halo** in a patient with long-standing **ulcerative colitis**. CT scan obtained with oral contrast material shows low-attenuation areas in the colonic wall (arrow), findings that represent fat deposits in the submucosal layer.



- 脂肪晕征 Fat halo sign (target configuration) in chronic ulcerative colitis.



- 脂肪晕征 Fat halo sign in chronic radiation enteritis.

鉴别诊断

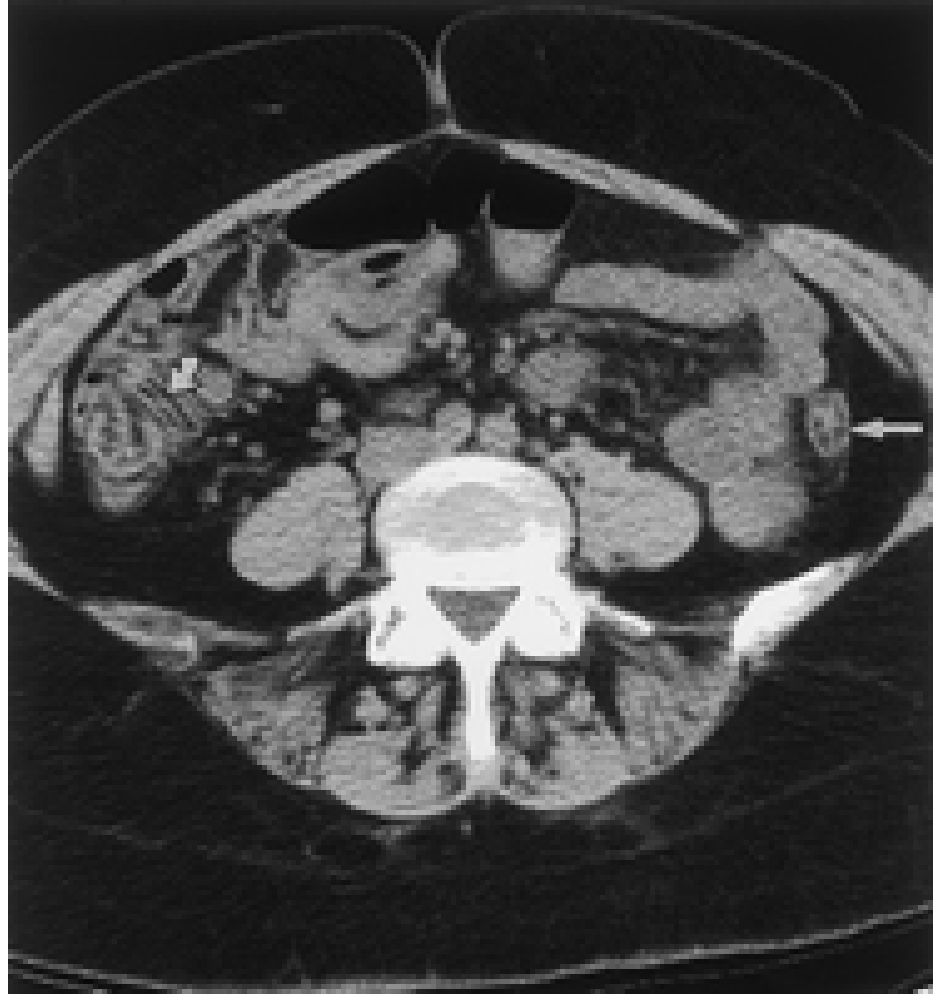
- 克隆氏病 Crohn disease in the small intestine or Crohn disease in the colon.
- 溃疡性结肠炎 ulcerative colitis
- 少见在细胞减少治疗 cytoreductive therapy
- 慢性放射性肠炎 chronic radiation enteritis.

教训 *Pitfalls*

- 脂肪晕征 *Pitfalls.*—正常变异—在无肠道症状的病人中，脂肪可存在末段回肠或降结肠壁内。
- 但正常的壁内脂肪非常薄，固有肌层亦非常一致性薄、厚度极少超过**1mm**
- 克隆氏病往往还有小肠壁、肠系膜、淋巴结的异常及临床异常表现可鉴别



- 正常脂肪晕征Crohn disease. 克罗恩病脂肪晕征



- 正常结肠脂肪晕Normal colonic fat halo sign.



 **Archer Q' s**
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第5类 黑色密度 **Black Attenuation**

肠壁积气—常见疾病.

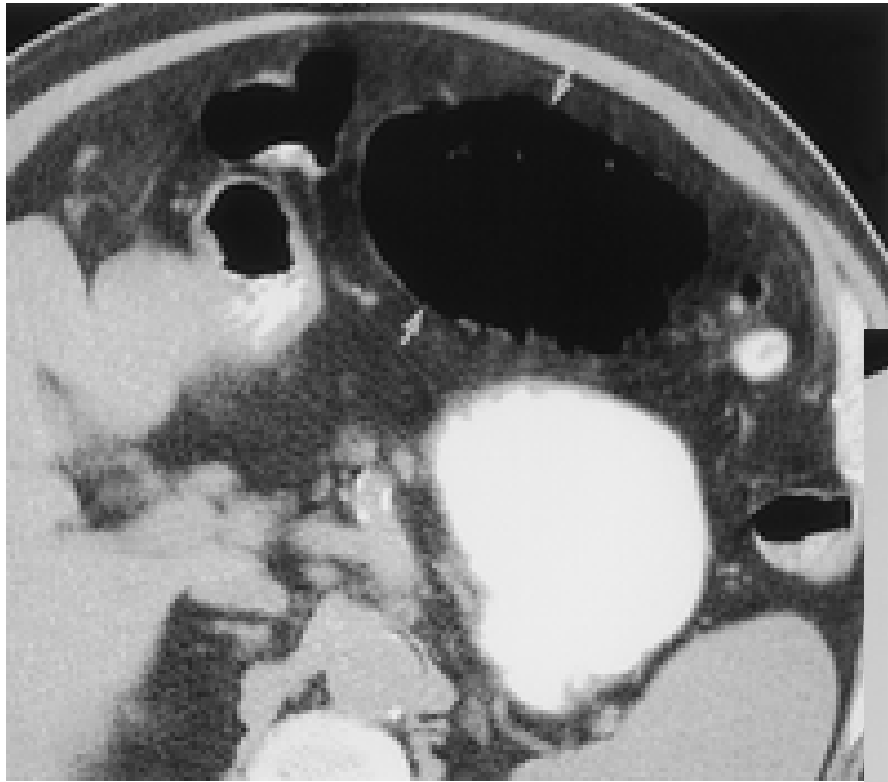
- 1.肠道气囊症
- 2.肠壁内积气:
 - A.机械性梗塞;
 - **B.缺血 Ischemia.**—肠壁内积气—严重 Ischemia 、较窄;
 - C.镰状细胞疾病
 - **D.感染-typhlitis.necrotizing enterocolitis**
 - E.心血管疾病 In adults, **atherosclerosis, heart failure with low cardiac output, and use of vasopressor drugs** account for the majority of cases.
 - F.急性肠道损伤。手术后肠壁积气 **postoperative**
 - G. 早产儿
 - H.任何引起粘膜破损产生肠壁内气体的原因

CT表现

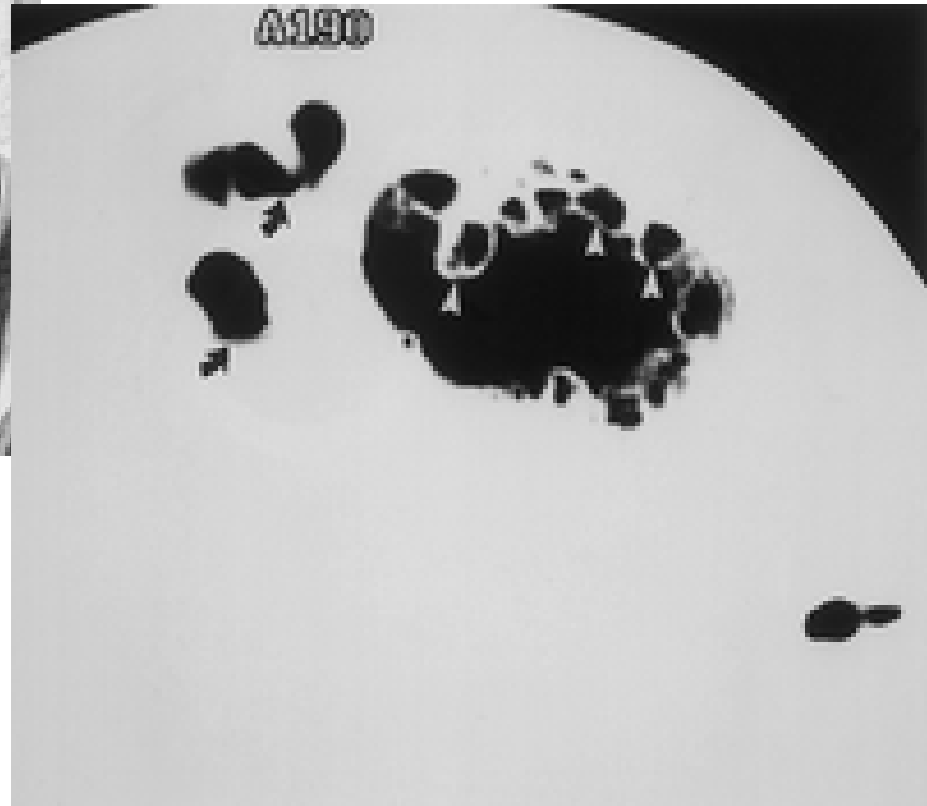
- 1. 肠道扩张 **bowel dilatation,**
- 2. 肠壁无强化 **a nonenhancing bowel wall,**
- 3. 环形肠壁增厚 **circumferential wall thickening,**
- 4. 肠壁分层 **mural stratification** 分层 (target sign).
- 肠壁积气 提示为疾病晚期-但不是肠腔缺血的特征性表现。



- 肠壁积气

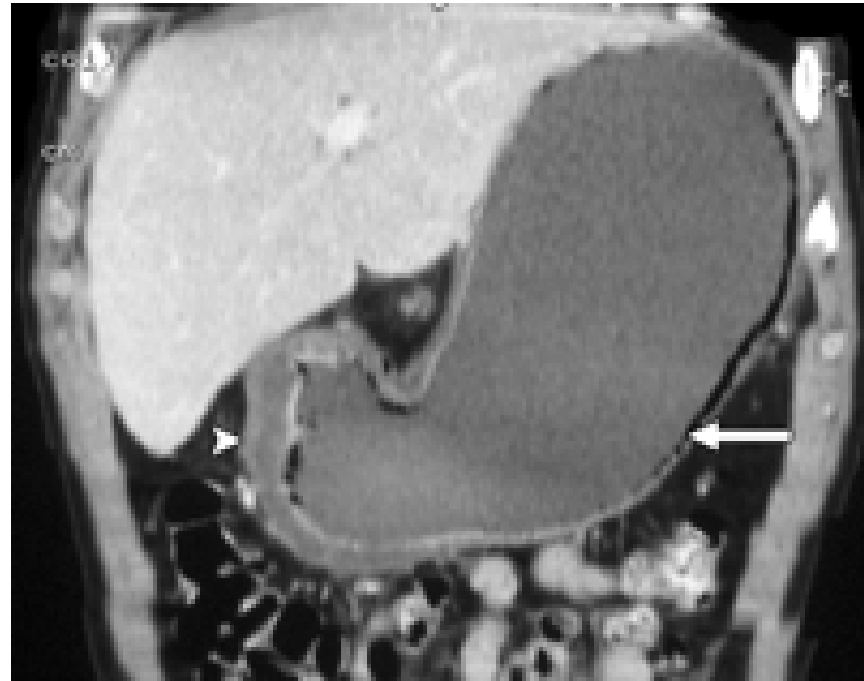
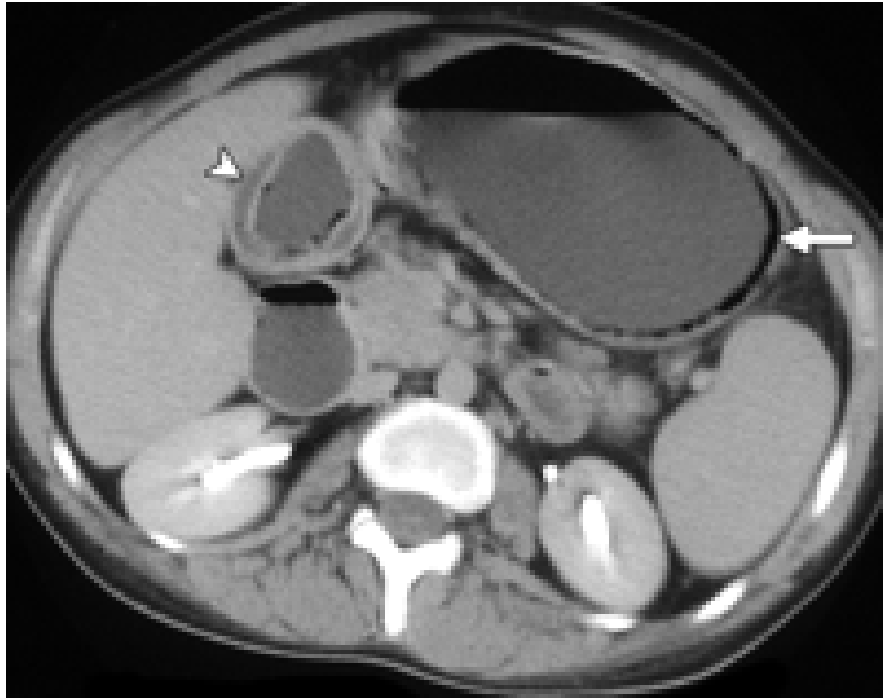


肠道气囊症





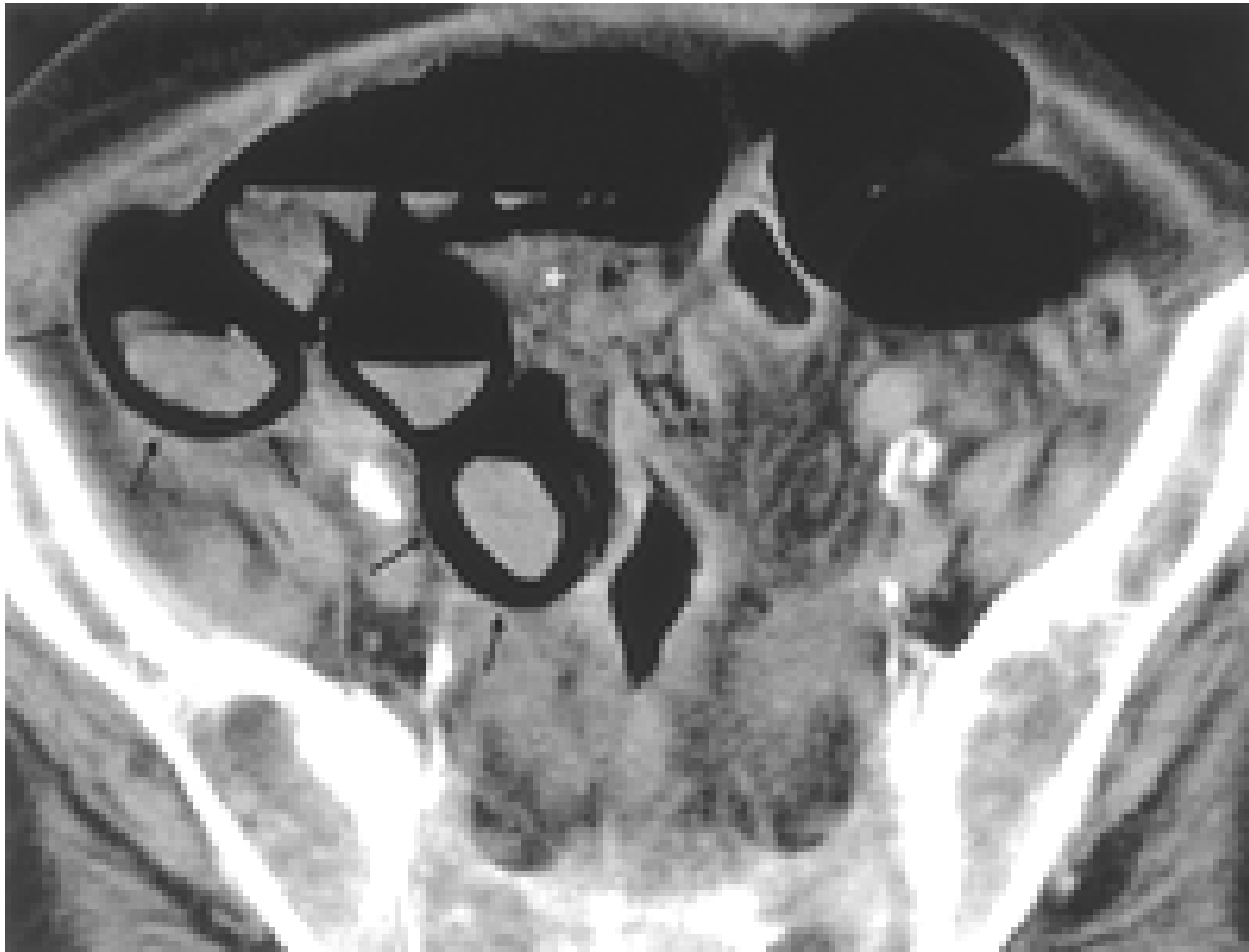
- 肠壁积气 Pneumatosis in a patient with a history of bone marrow transplantation who was receiving steroids. CT scan (bone window) demonstrates linear subserosal mural air (arrows).



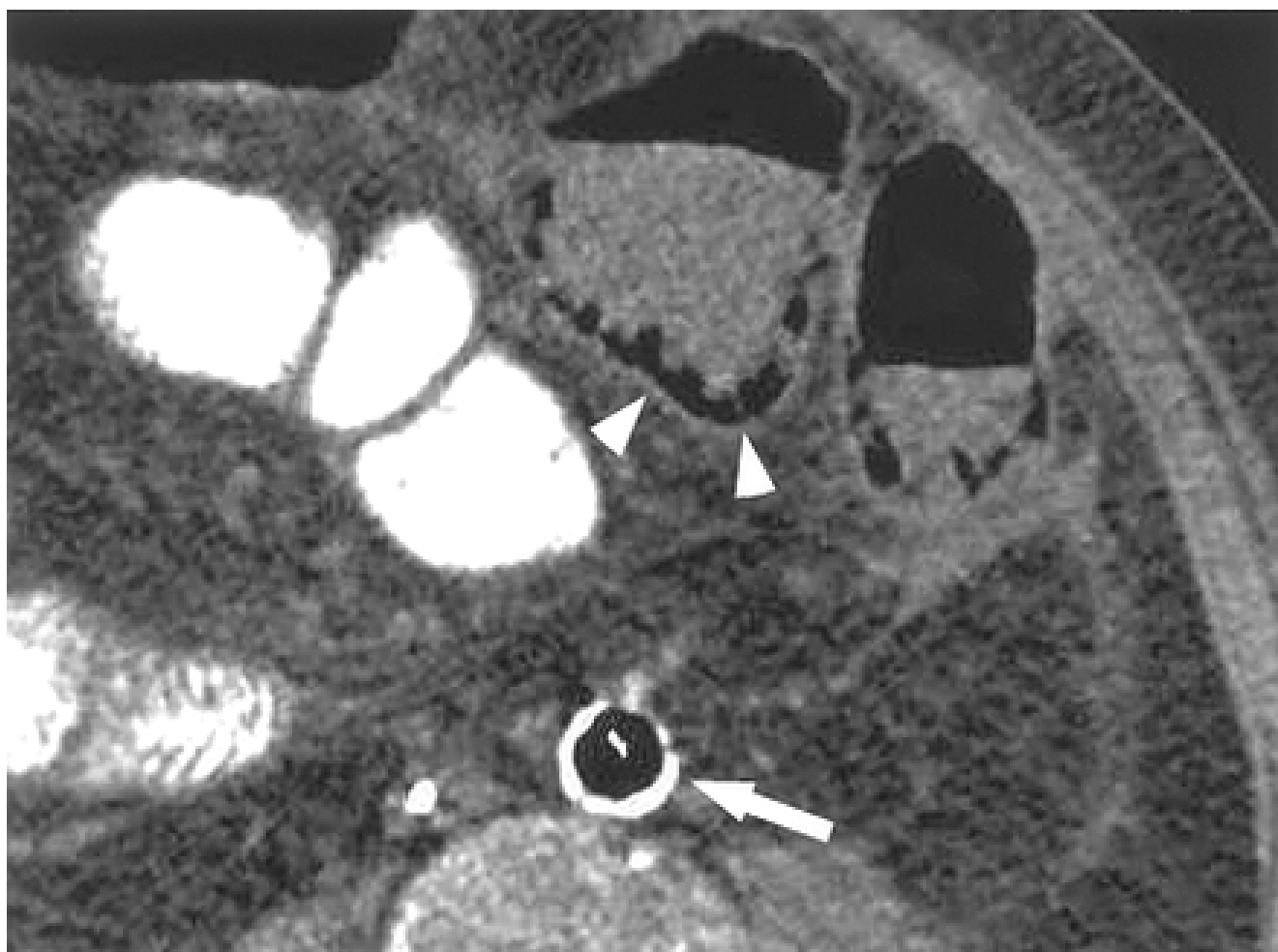
先心—缺血—胃壁、肠壁积气

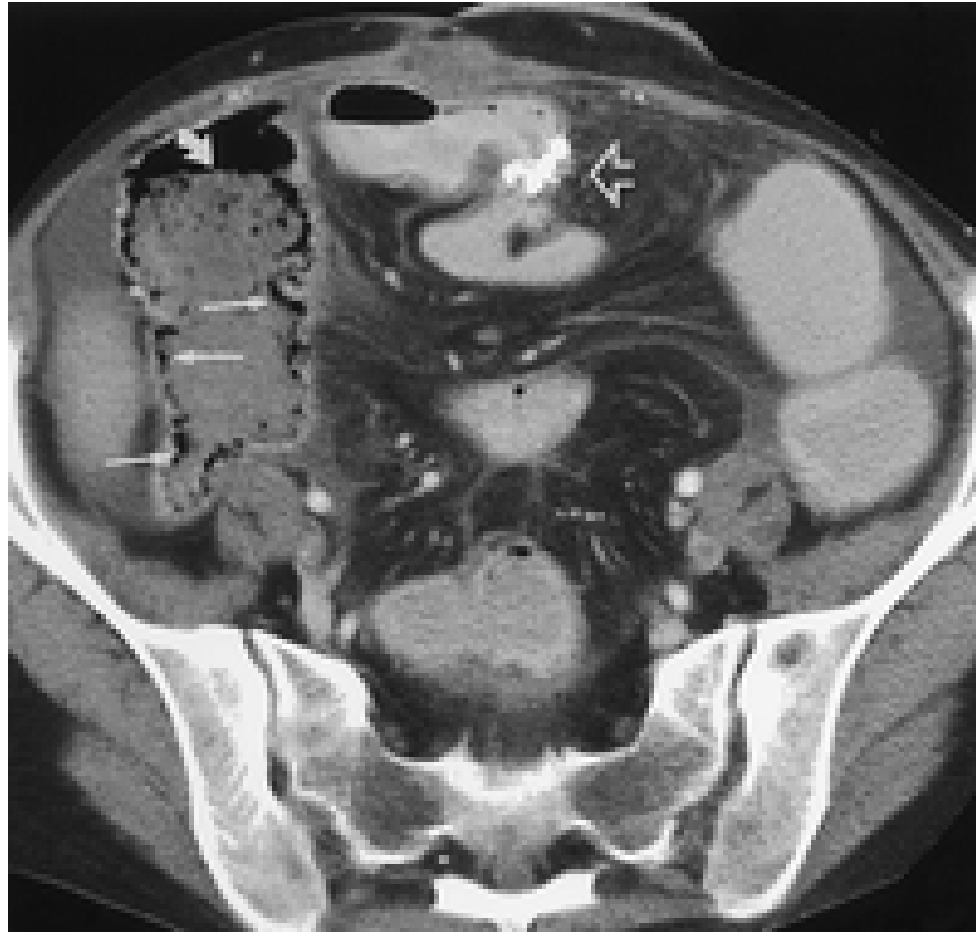


- Contrast-enhanced transverse CT scan in a patient with **occlusive transmural colonic infarction** shows widely dilated colon with (based on the degree of distention) mildly thickened colonic wall, mesenteric gas, and mixed bubblelike (arrowheads) and bandlike (arrows) pneumatosis.

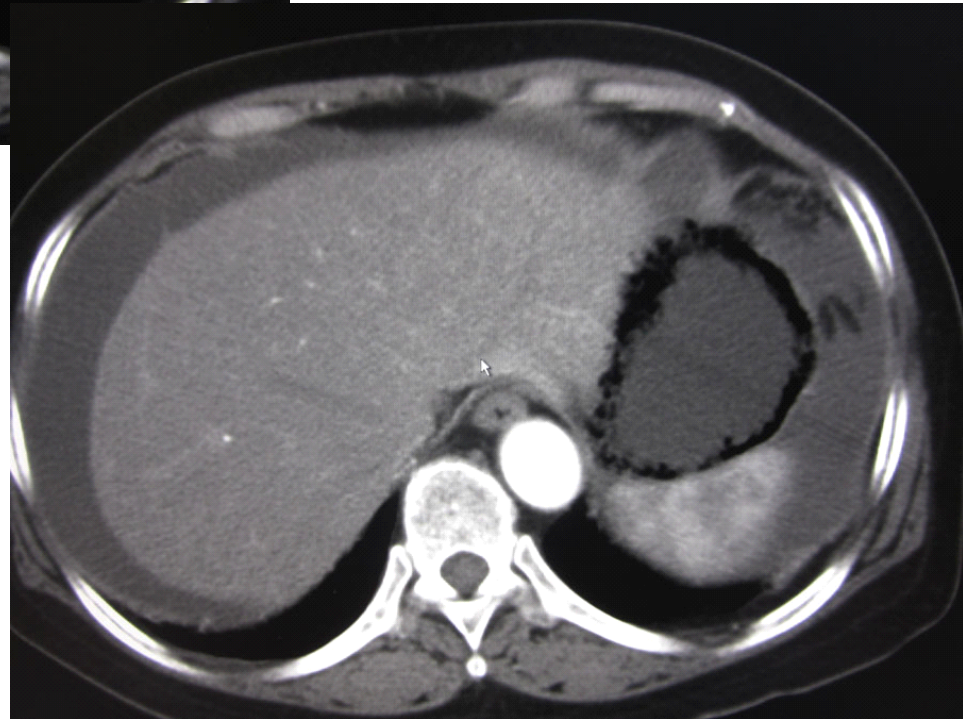
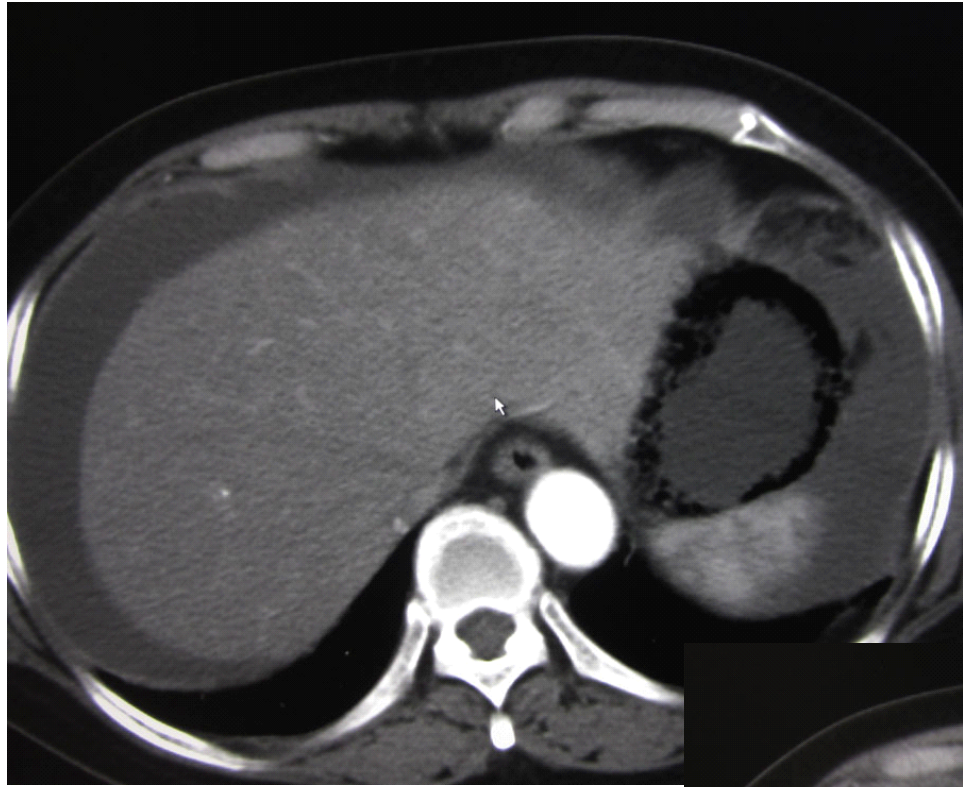


- Unenhanced transverse CT scan in a patient with embolic **transmural small-bowel infarction** shows **massive circumferential and bandlike** pneumatosis (arrows) of multiple necrotic loops and pronounced edema of mesenteric fat.





- Pseudopneumatosis.



几种密度可并存

- **Combination of Attenuation Patterns**

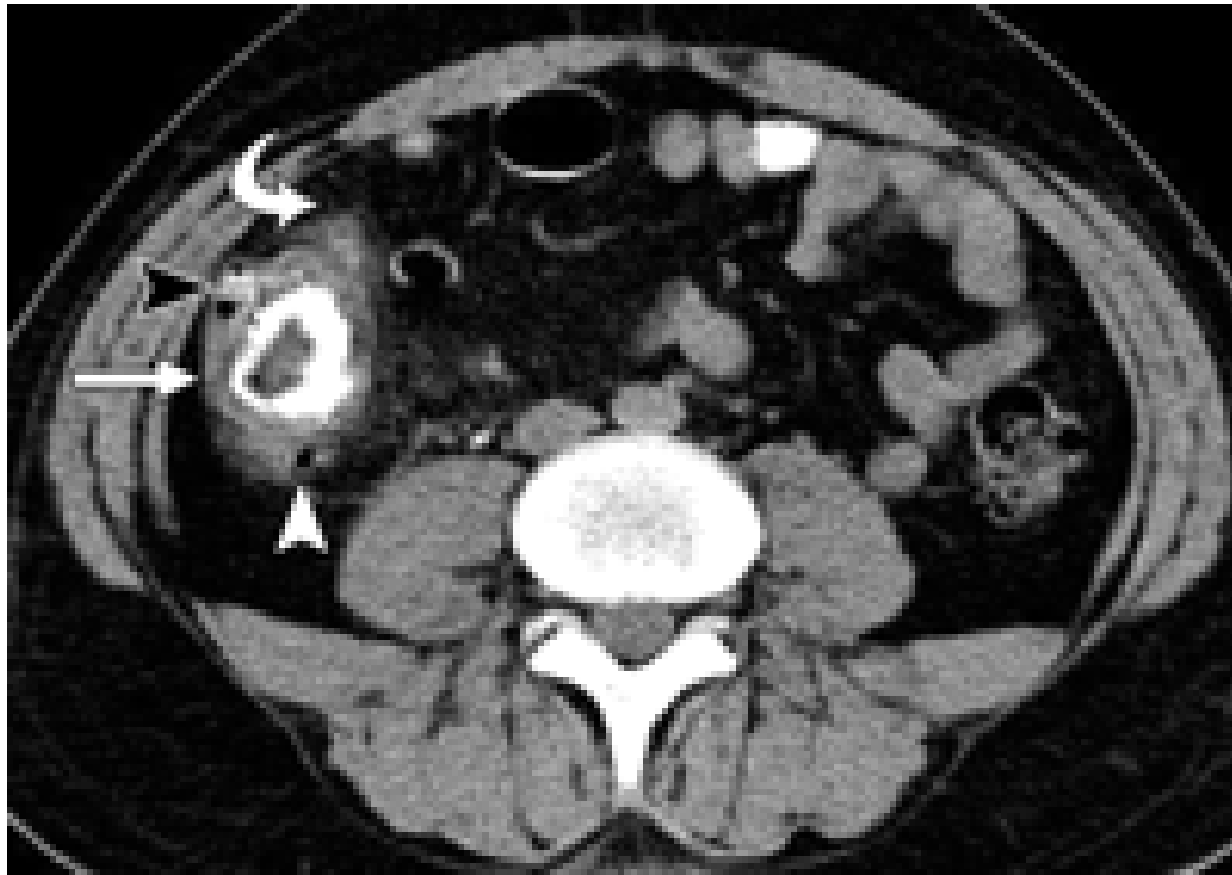
A single disease may simultaneously demonstrate **different attenuation patterns in contiguous segments of bowel**.

- This appearance presumably represents **alternative but coexistent pathophysiologic events**.

- Idiopathic inflammatory bowel disease is the classic example of such a **phenomenon**.
Analysis of each segment of affected small or large intestine is judged by its separate category.



- 白+水 acute ischemic enterocolitis.



- 白+气体—伤寒



三、肠壁厚度

- 肠壁厚度Degree of Thickening
- 正常肠壁厚度<2 mm.
- 在肠道正常扩张时—肠扩张小于2cm
- 当肠道无扩张时—不易判断肠壁厚度

肠壁厚度分级—及病变

- 1、轻度增厚mild (3-4 mm),
- 2、中度增厚moderate (5-9 mm)
- 3、重度增厚marked (\geq 10 mm).
- 相互有重叠

轻度增厚-良性病变 **Mild Thickening**

1. 感染性肠炎 **infectious enteritis**
2. 肠道缺血 **in patients with ischemia** due to lack of arterial inflow
3. 轻度克罗恩氏病（克隆氏病） **mild Crohn's disease.**
4. 低蛋白血症 **in hypoalbuminemia,**



mesosigmoid.

the

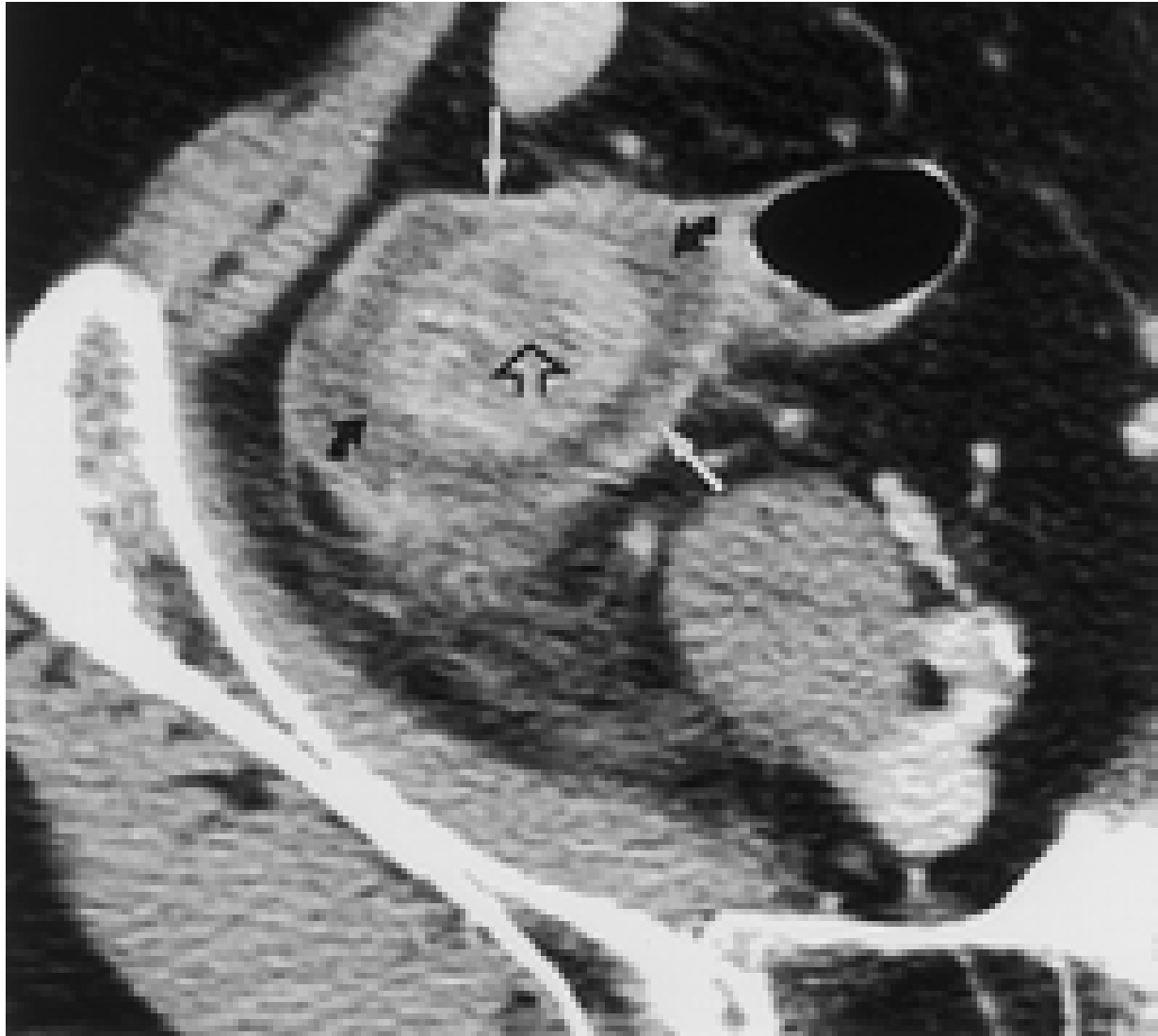
中度增厚 Moderate Thickening

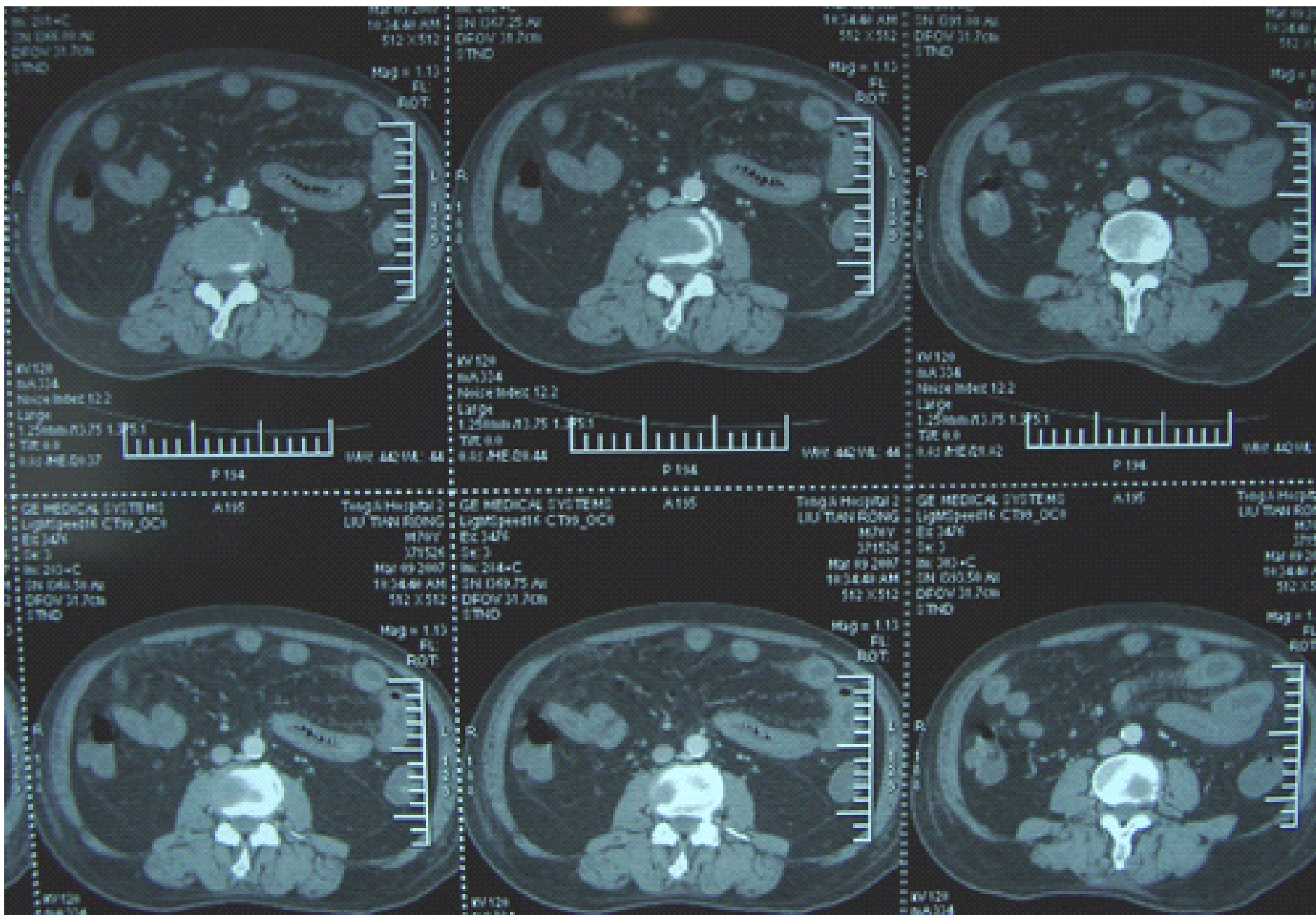
- 肠系膜静脉血栓 mesenteric venous thrombosis
- 克罗恩氏病（克隆氏病） Crohn's disease,
- 小肠缺血 intestinal ischemia,
- 肠壁内出血 intramural hemorrhage,
- 血管性水肿 angioedema,
- 血管炎 vasculitis.
- 一些肿瘤 Some neoplastic processes such as low-T-stage adenocarcinoma
- 淋巴瘤 some lymphomas can also show moderate thickening



- Water halo sign in ischemic colitis following administration of intravenous contrast material.

- **Water halo sign.** pseudomembranous colitis





重度增厚 **Marked Thickening**

- 1.淋巴瘤 **lymphoma**
- 2.其他肿瘤 **other neoplasms** 肠壁增厚 > 20 mm 大多为肿瘤、极少数为肠壁出血 **neoplasms**、**intramural hemorrhage**
- 3.血管炎 **vasculitis**
- 4.克罗恩氏病 **Crohn's disease**
- 5.肠壁内出血 **intramural hemorrhage**
- 6.感染性结肠炎.
- 7.小肠缺血—由于静脉闭塞

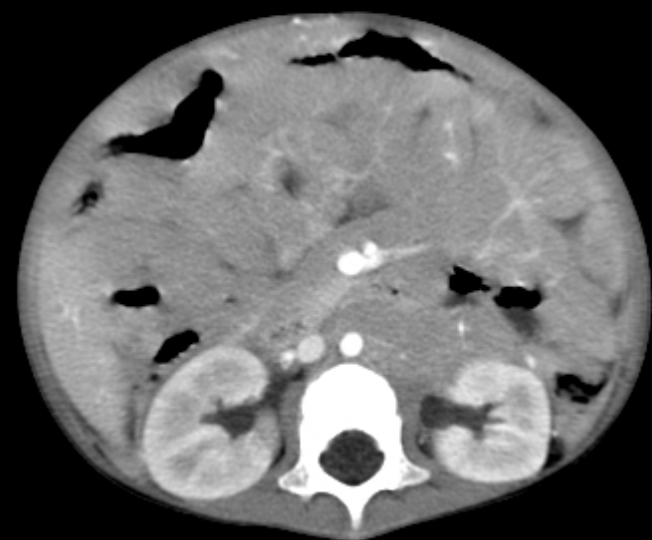
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Wuhan Tongji Hosp 64
COLON

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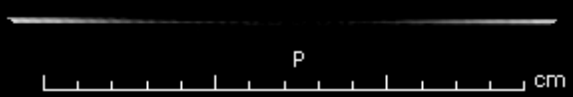
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FFS



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Tilt: 0
mA: 350
KVp: 120
Acq no: 2

页: 78 之 110



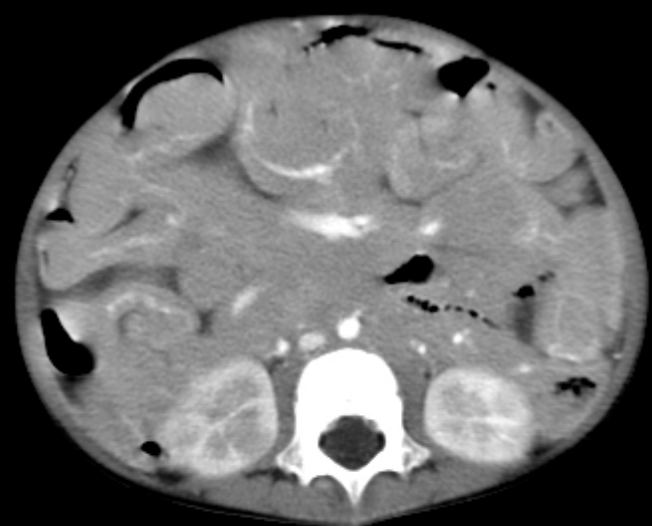
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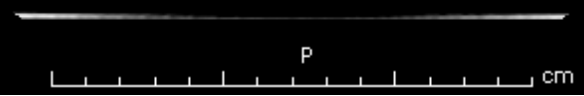
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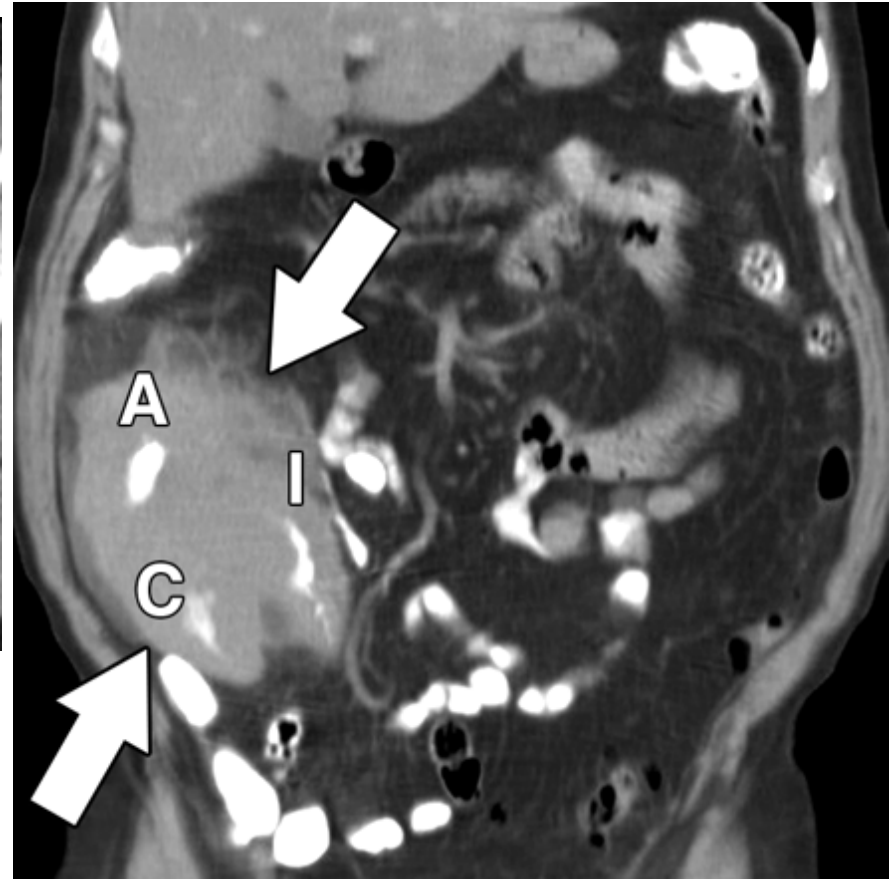
RD: 297
Tilt: 0
mA: 350
KVp: 120
Acq no: 2

页: 82 之 110

Z: 1
C: 75
W: 196



IM: 82 SE: 2



- 62-year-old man with follicular lymphoma of small bowel. Axial contrast-enhanced CT image shows circumferential thickening and aneurysmal dilatation of segment of distal ileum (



-

pronounced homogeneous **cecal wall thickening** (arrows), representing **transmural necrosis with superinfection in a patient with isolated cecal infarction**

四、 **fat stranding**脂肪丝条征

- 肠壁增厚与肠壁周围脂肪浸润程度成反比（肿瘤）；肠壁增厚与肠壁周围脂肪浸润程度成正比（炎症）

aaa:

(1/1)

10:48:06

Img: 371

397985

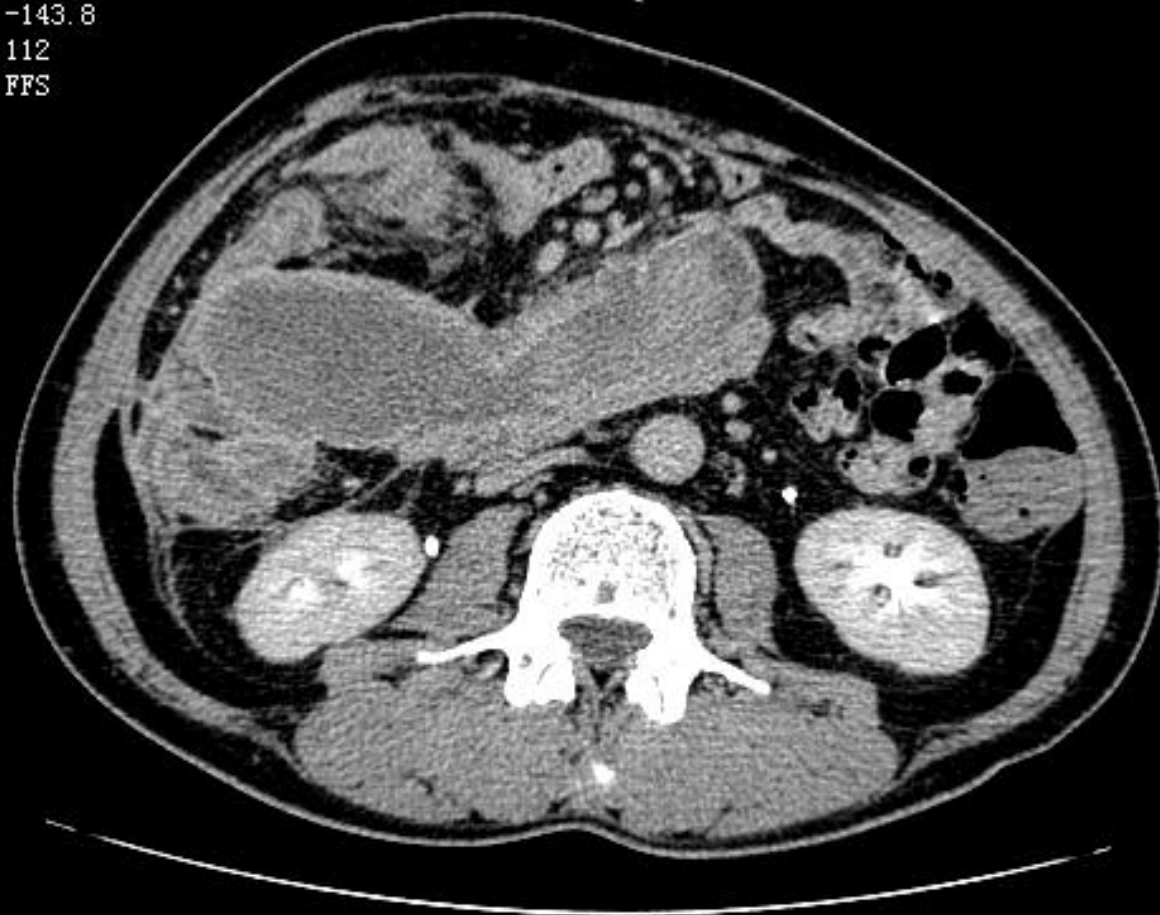
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FOV: 360

SP: -143.8

TP: 112

PP: PFS



(L)
8 cm

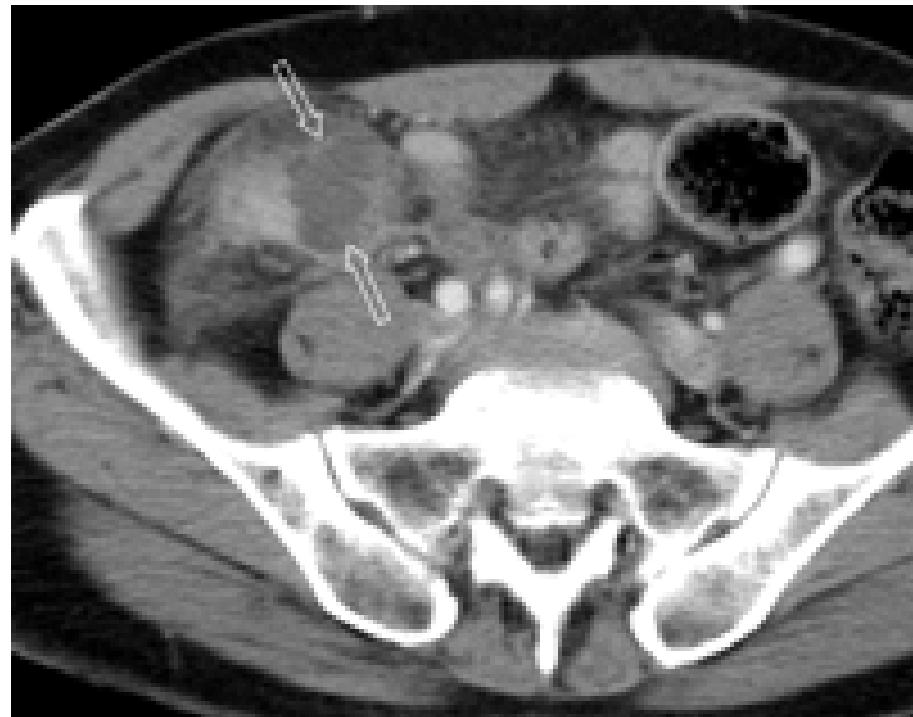
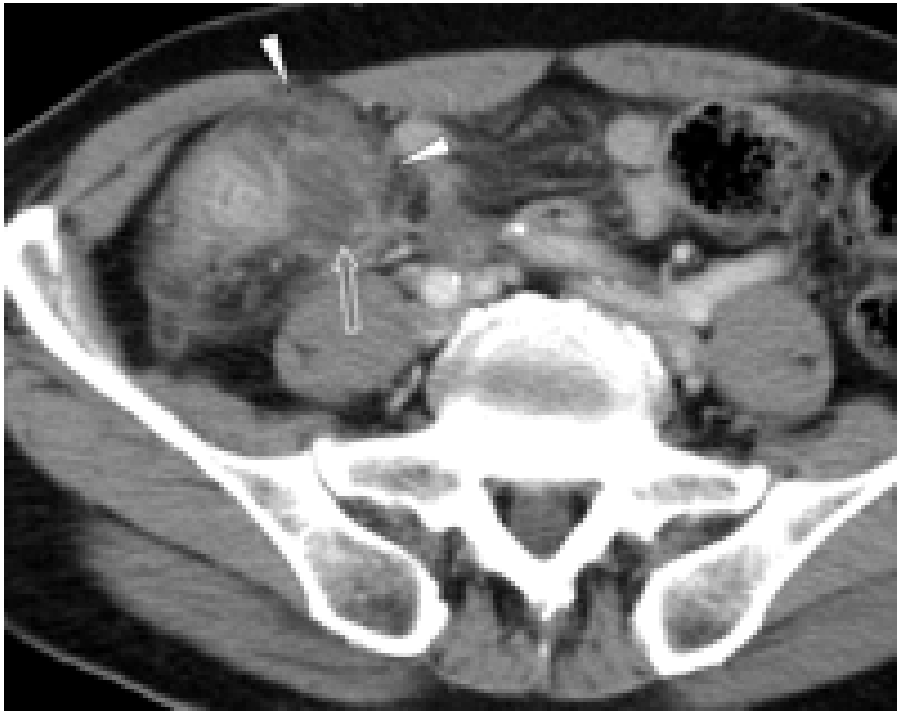
KVP: 120

MAS: 303

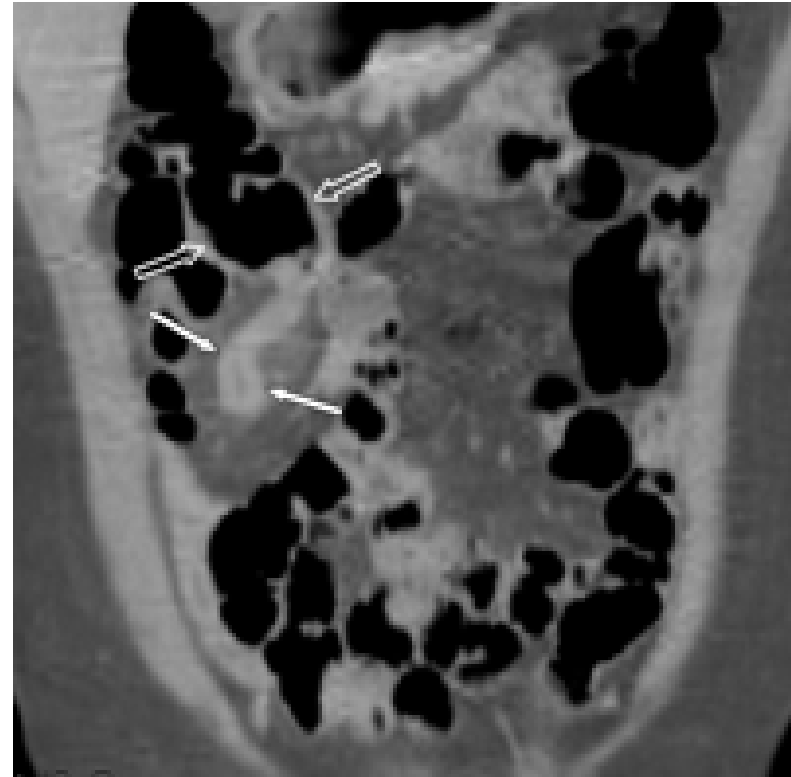
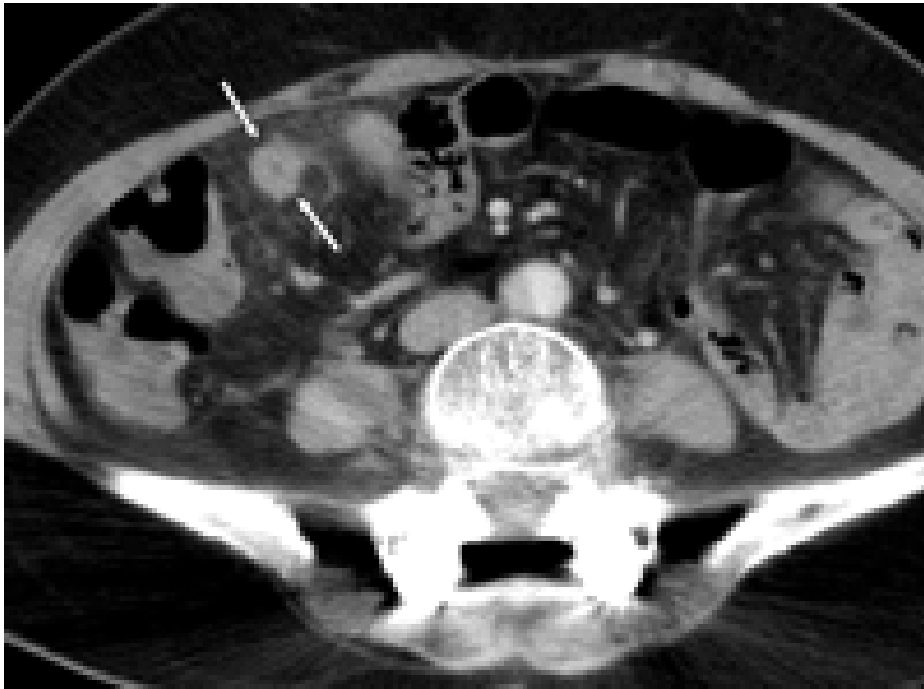
W: 250

L: 40

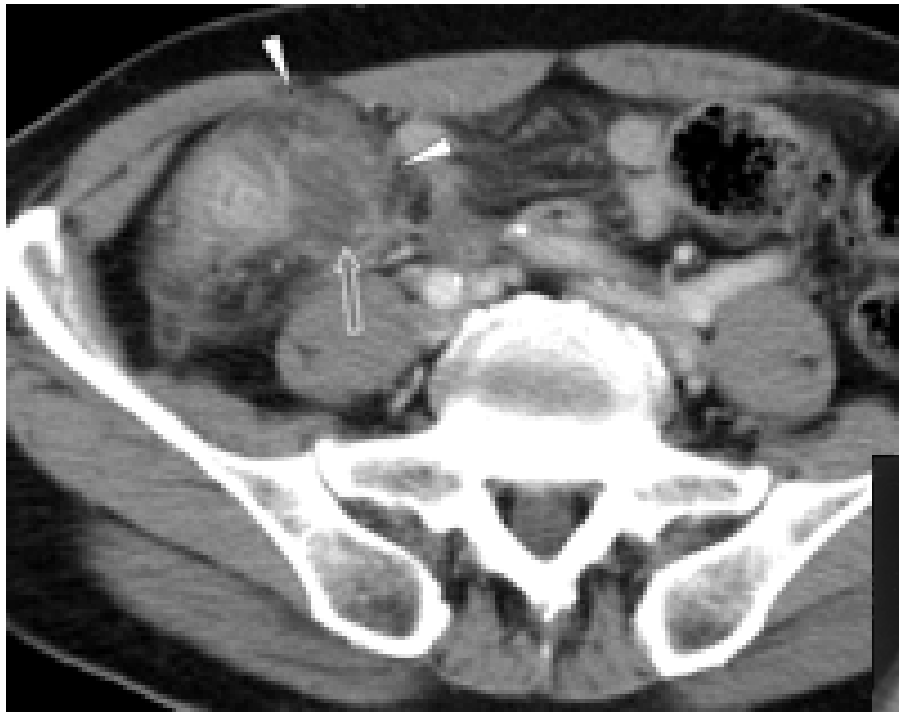
(P)



- Perforated appendicitis



- Acute appendicitis



武汉同济医院
姓名:JIANG SHU YING
ID:428913
性别:F
年龄:043Y

(1/1)



(P)

武汉同济医院
姓名:JIANG SHU YING
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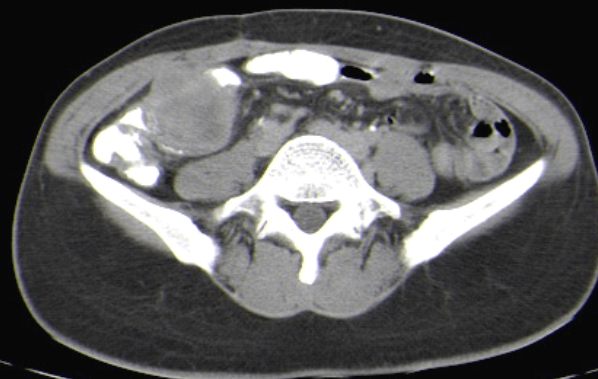
(1/1)



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W: 400
L: 40

武汉同济医院
姓名:JIANG SHU YING
ID:428913
性别:F
年龄:043Y



(P)

W: 400
L: 40

武汉同济医院
姓名: YANG QI LING
ID: 60001208
性别: F
年龄: 071Y

(1/1)



武汉同济医院
姓名: YANG QI LING
ID: 60001208
性别: F
年龄: 071Y

(R)

武汉同济医院
姓名: YANG QI LING
ID: 60001208
性别: F
年龄: 071Y

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(1/1)

W: 438
L: -32

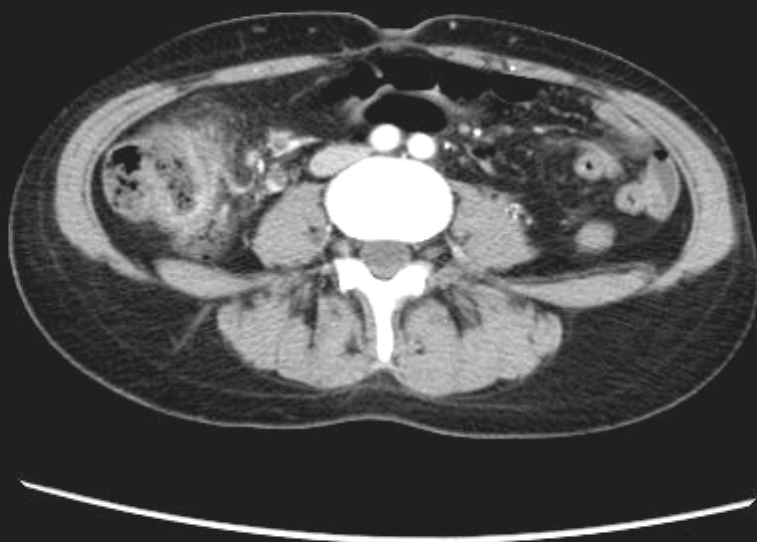


回盲部

W: 438
L: -32

武汉同济医院
姓名: XU LU PING
ID: 473068
性别: F
年龄: 034Y

(1/1)



(F)

(L)

8cm

(1/1)

W: 300
L: 34



(L)

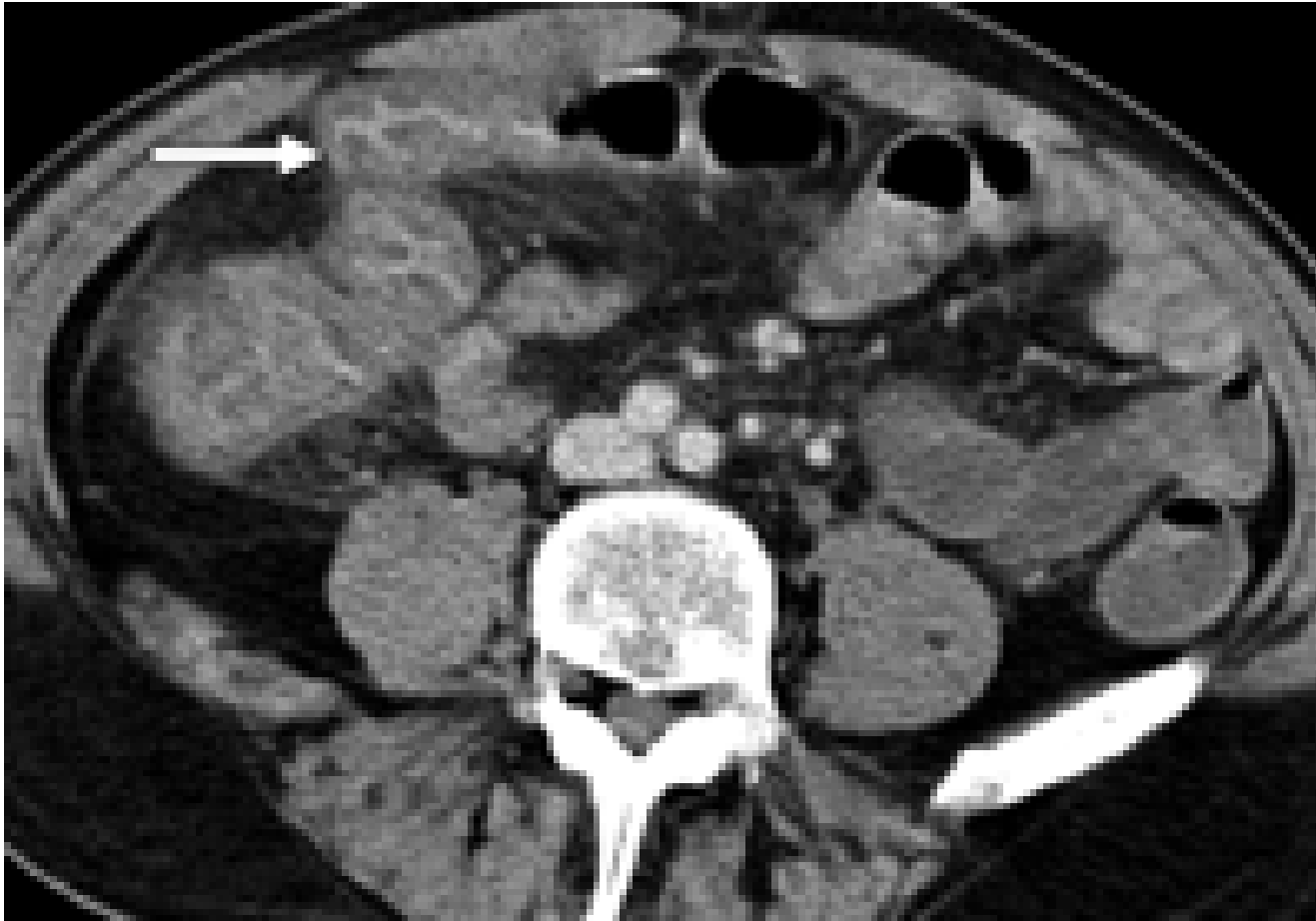
8cm

(F)

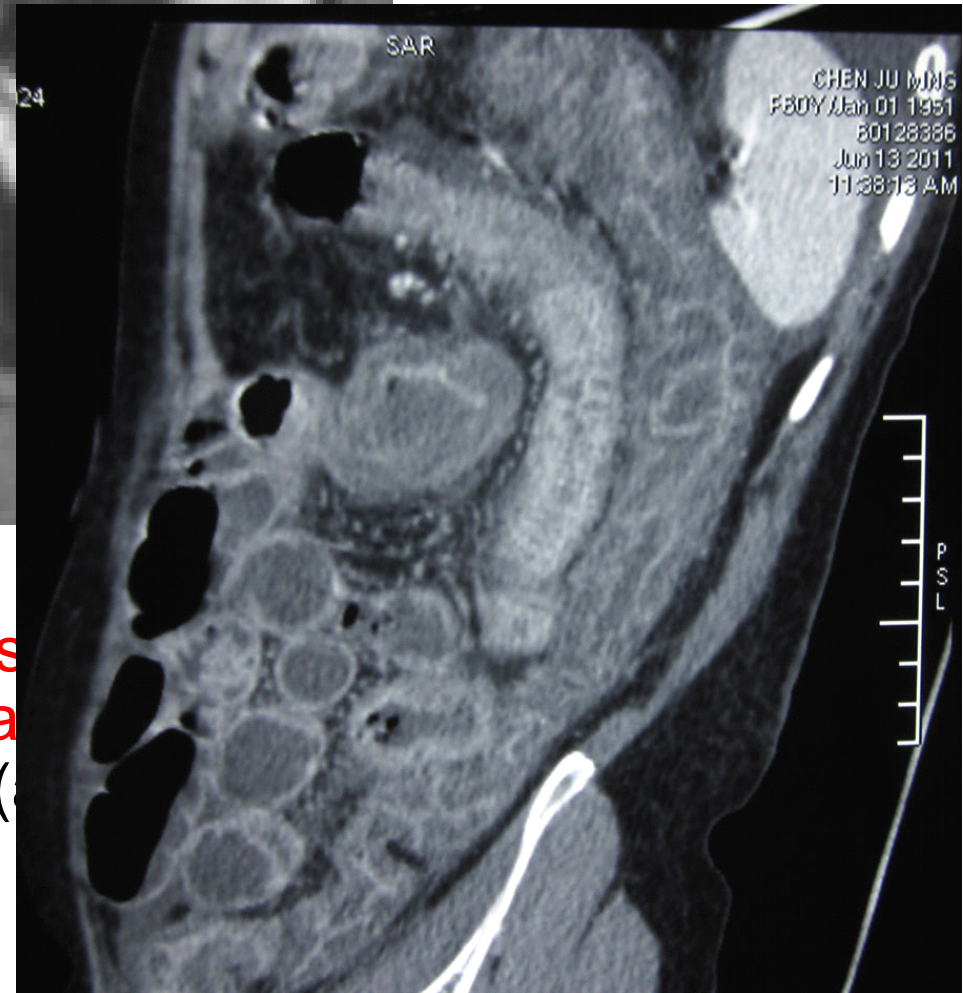
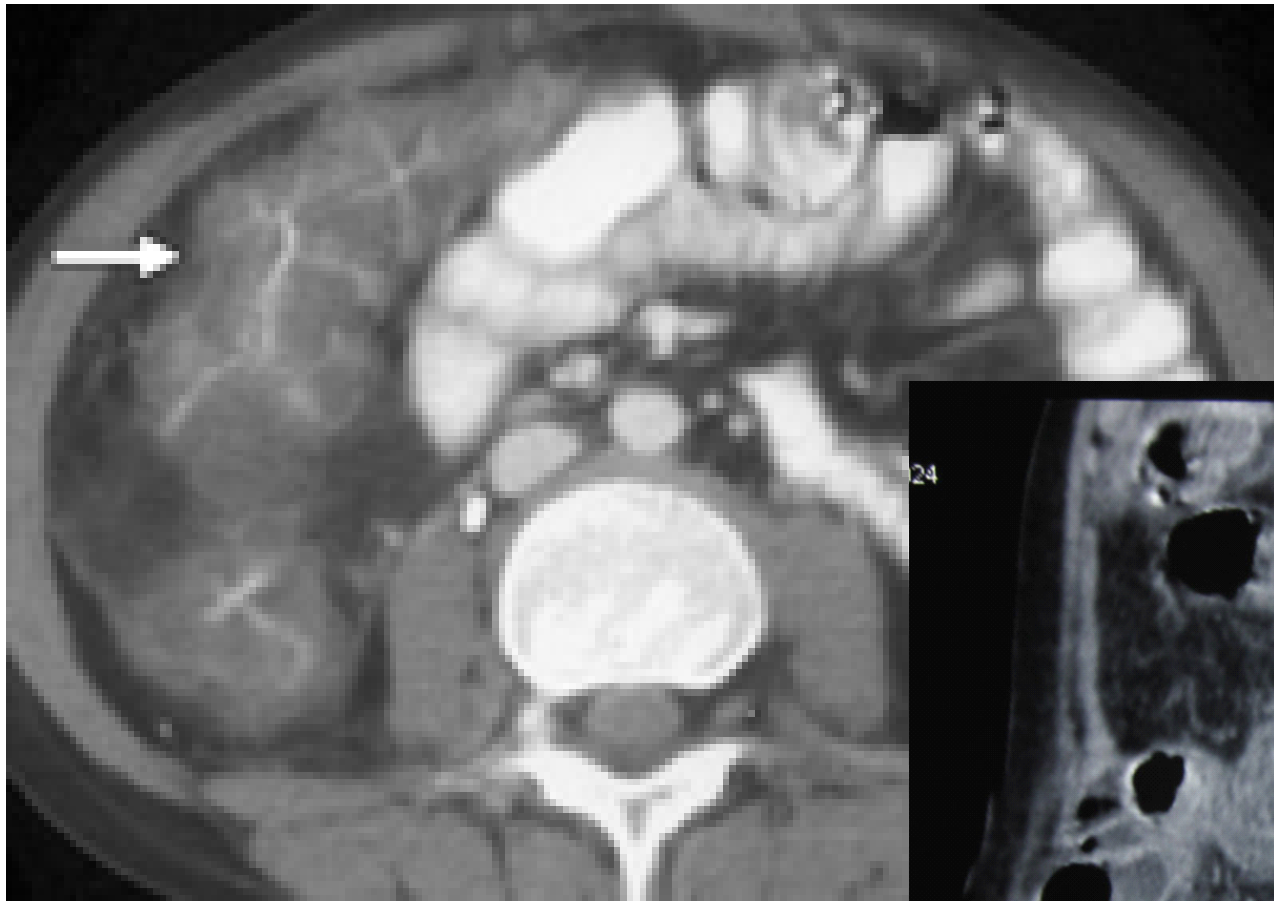
W: 300
L: 40

五、其他征象—提示诊断的特殊征象

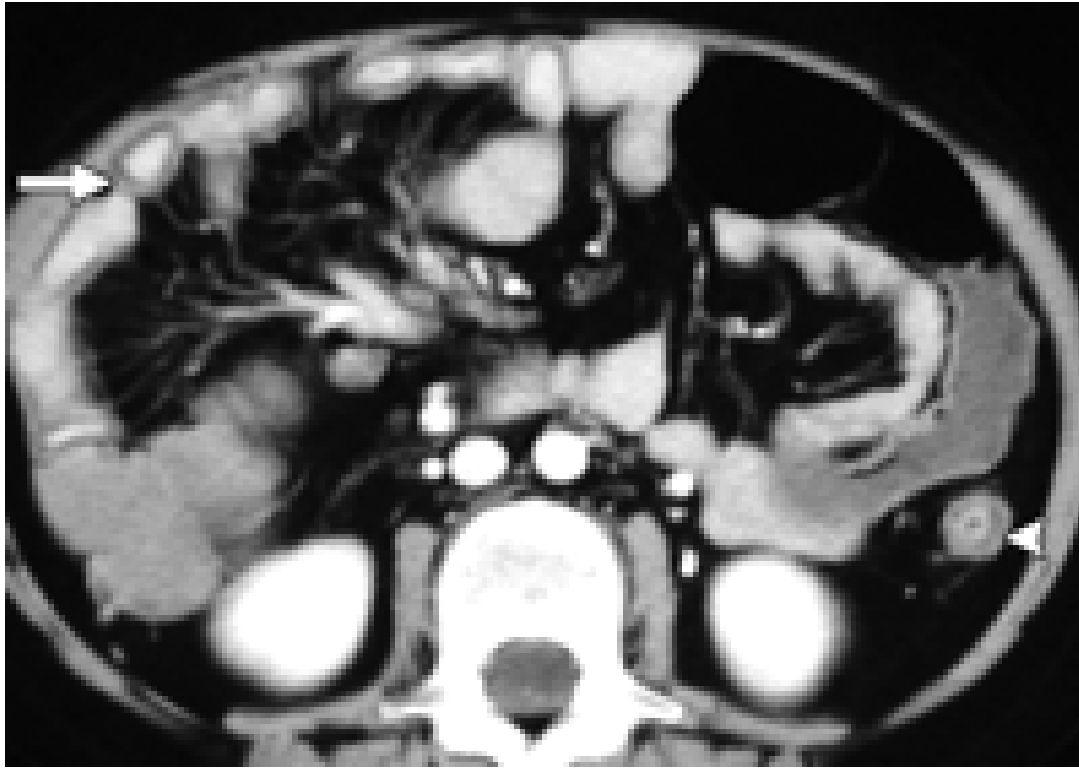
- Accordion sign手风琴—炎症pseudomembranous colitis
- The “comb” sign—crohn’s、vasculitis、purpura紫癜.
- The “toothpaste” or “lead pipe” sign牙膏铅管征--- Crohn disease or chronic GVHD or as the sequela 后遗症of radiation therapy
- 同心圆征、靶证—良性病变
- 公牛眼征---恶性肿瘤
- SMA/SMV换位征—肠道扭转-肠道粘膜弹簧征，血管弹簧征
- **fat stranding**脂肪丝条征明显—炎症



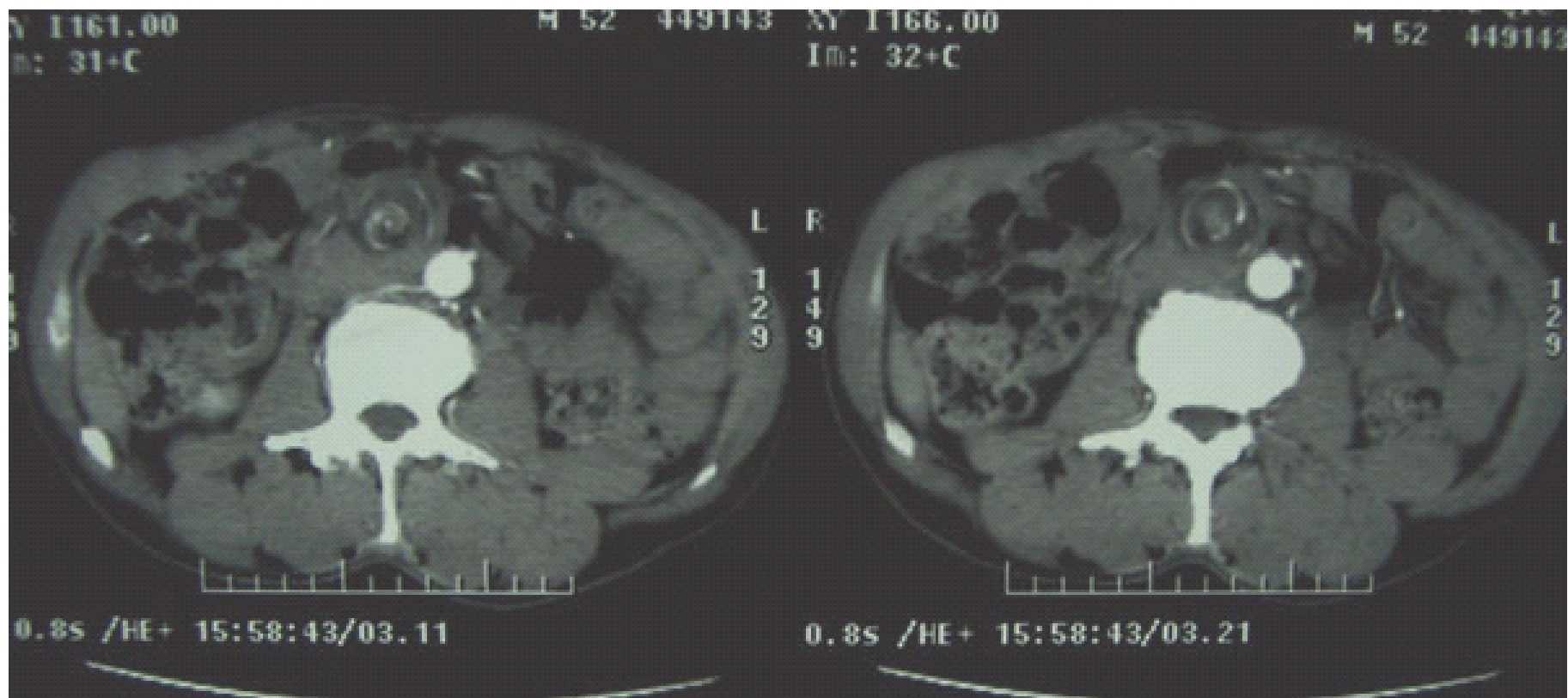
- **Accordion sign** 手风琴. CT scan obtained with oral and intravenous contrast material shows contrast material trapped between markedly **thickened haustral folds** (arrow).



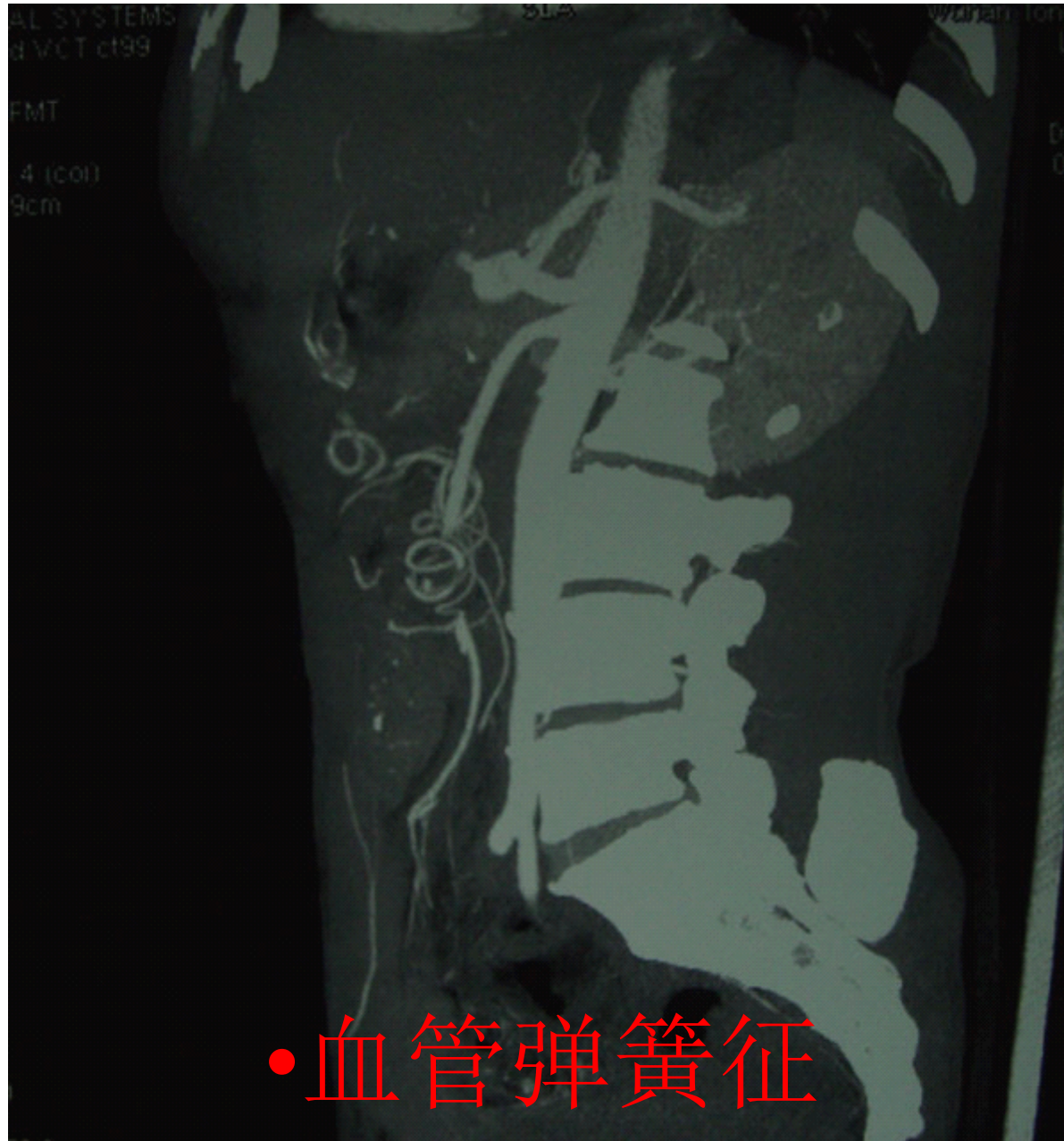
- Pseudomembranous colitis thickening with trapped oral contrast and edematous haustral folds (



- Toothpaste sign in a patient with chronic GVHD.



肠细末扭转

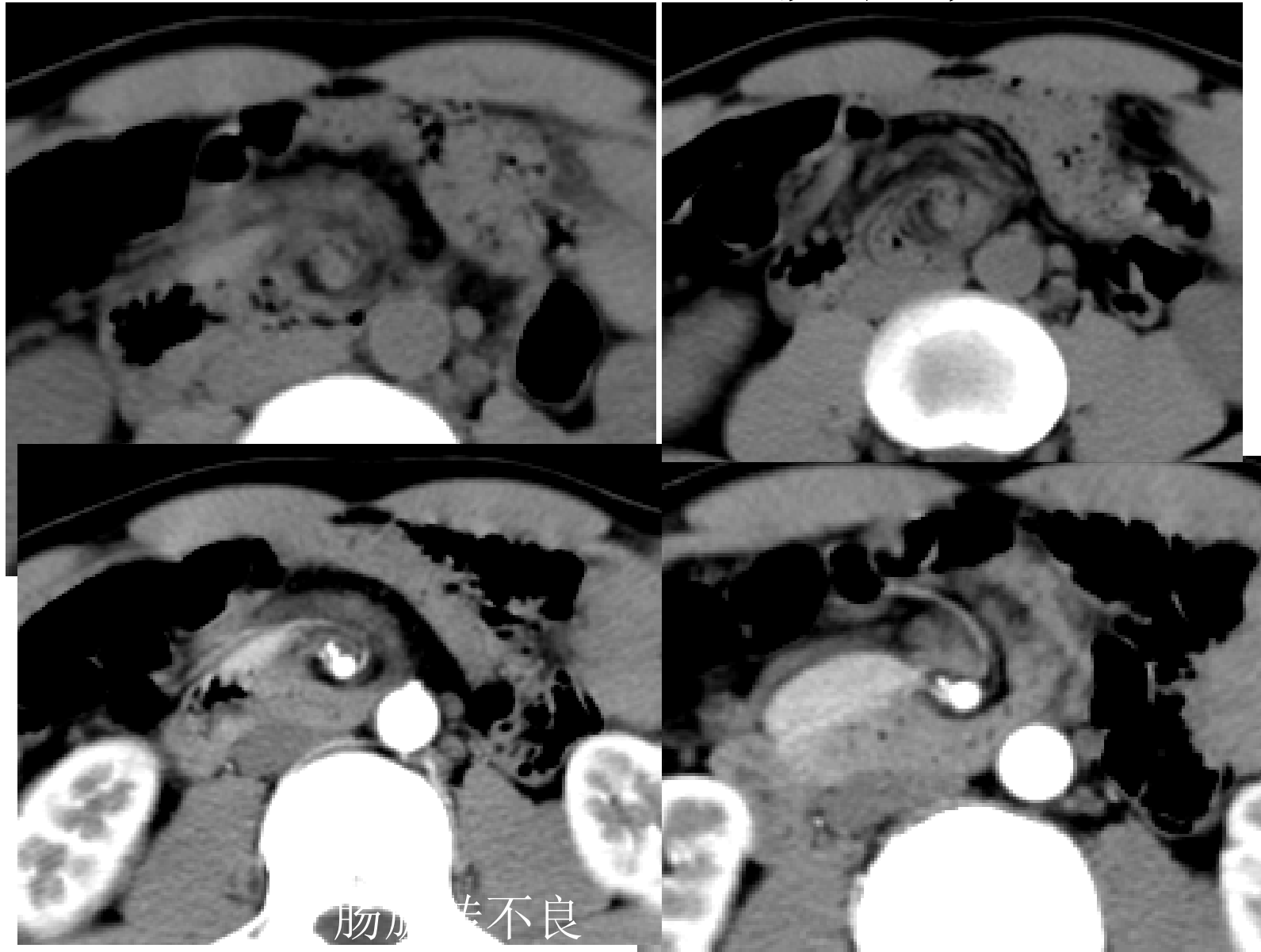


• 血管弹簧征

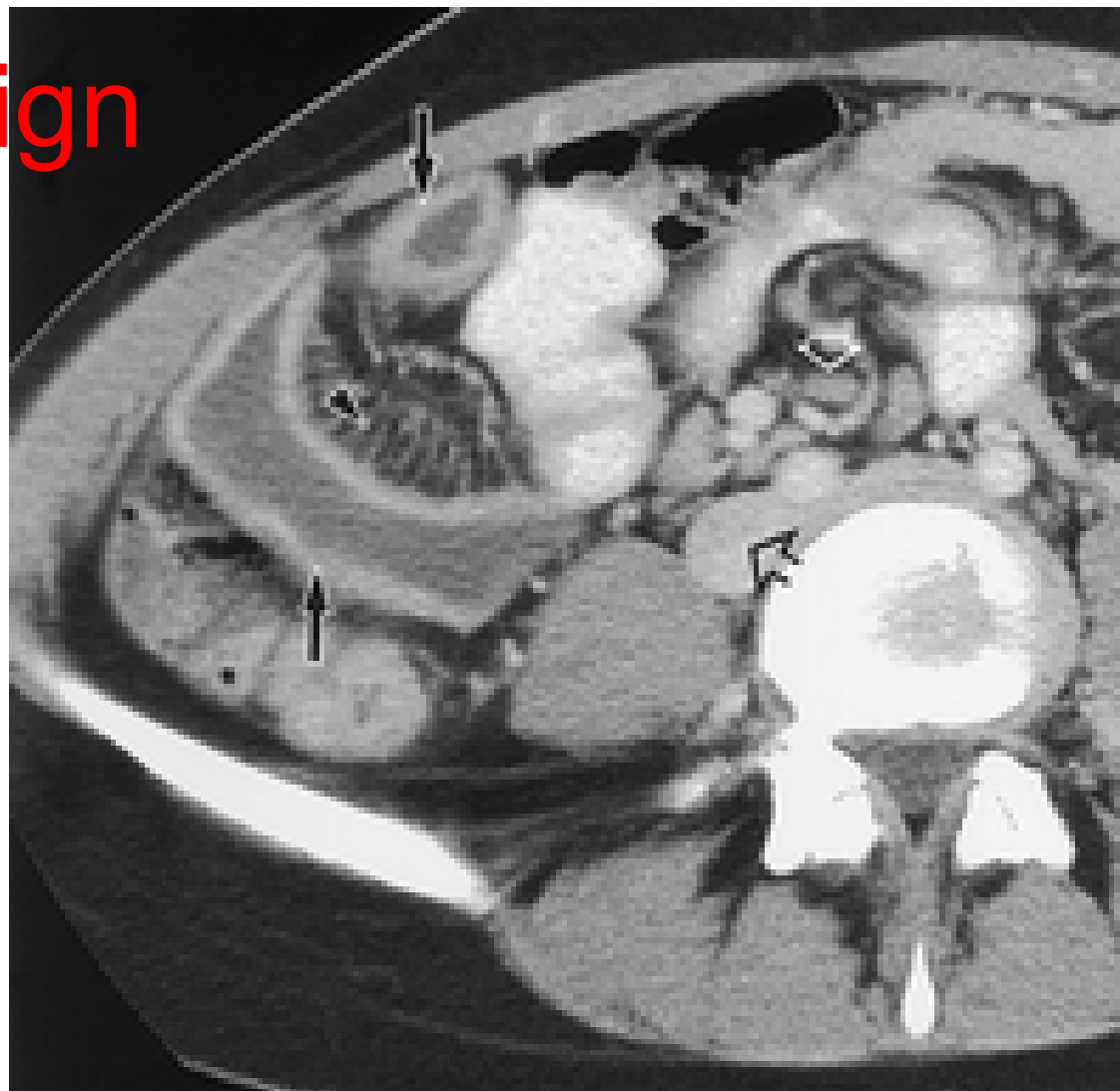


•血管弹簧征

SMV / SMA换位征



Comb sign



- **White attenuation:** enhancement in ileal Crohn disease.



- Comb sign.

小结

- 正常肠壁厚度、
- 异常肠壁厚度
- 肠壁强化肠道密度
- 肠道周围脂肪浸润
- 鉴别良恶性
- 其他肠道CT征象

完!

谢谢!

