BARIUM ENEMA

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BARIUM ENEMA

Radiographic study of large bowel by administration of contrast medium through the rectum

INTRODUCTION

Currently the overall volume of BARIUM ENEMA study has decreased in mordern medical practice because of greater use of other diagnostic test such as colonoscopy ,CT,and most recently CT COLONOGRAPHY.

But barium enema remains a valuable technique for evaluating patients with variety of colorectoal diesease

CONT...

Both single and double contrast barium enemas have the ability to demonstrate variety of intramural and extrinsic abnormalities of involving colon that are more difficult to recognize at colonoscopy

BARIUM SULFATE

White crystalline powder

MW: 233.43 g/mol

Specific gravity: 4.5

Insoluble

Non toxic

DOUBLE CONTRAST VS SINGLE CONTRAST

+++

+

High Density

Low viscous

Heterogenous size

Large particle (18 µm)

75% to 95% w/v

High sedimentation

+

+++

INDICATIONS

- Colorectal neoplasia
- Malabsorption
- Inflammatory bowel
- Large bowel obstruction
- Small bowel disease
- Lower GI blood loss
- Polyposis
- Diverticulosis

CONTRAINDICATIONS

Allergy to barium

Peritonitis

Debilitated, unconscious, inability to cooperate

History of recent rectal / colonic biopsy-can be done after 6 weeks

Pregnancy

PREPARATION

Diet - Low residue diet for 2 days

Liquids

- Drink copious liquids on the day of examination

Stop Iron Rx– 2 days before

Laxatives

- Castor Oil / Bisacodyl / Magnesium Citrate
- Bisacodyl (DULCOLAX) 2HS (15-20mg) x 2 days

Bowel wash

- Previous night, In the morning 2 hours prior

NO PREPARATION FOR

Diarrhea

Total Obstruction

Paralytic ileus

Children less than 8 years of age

PRIOR TO PROCEDURE

A Digital rectal examination before the procedure is a must

- Hemorrhoids,
- Masses,
- Inflammatory

2 TYPES OF BARIUM ENEMAS

1. SINGLE CONTRAST STUDY

The colon is filled with barium, which outlines the intestine and reveals large abnormalities.

2. DOUBLE CONTRAST @ AIR -CONTRAST STUDY

1. the colon is first filled with barium
2. then the barium is drained out, leaving only a thin layer of barium on the wall of the colon.
3. The colon is then filled with air. This provides a detailed view of the inner surface of the colon, making it easier to see narrowed areas (strictures), diverticula, or inflammation.

FACILITATE PASSAGE OF BARIUM

Various positions are adapted.

Turn the patient to the LAO or left-side-down position moves barium into the proximal sigmoid colon, descending colon, and splenic flexure.

Slight Trendelenburg position aids passage of barium into the splenic flexure.

Once a full column of barium reaches the apex of the splenic flexure, turning the patient to the prone

position will move barium into the middle of the transverse colon.

Spot films are then taken.

FOR DOUBLE CONTRAST

Room air is gently and intermittently insufflated into the colon.

Rapid successive squeezes on the insufflation bulb results in discomfort and may incite rectosigmoid spasm.

the colon can be distended with carbon dioxide rather than room air, as carbon dioxide is rapidly resorbed from the colon, which results in less discomfort during and after the examination.

overhead radiographs are obtained.

SINGLE CONTRAST

In uncooperative / Frail patients

Single contrast study may be sufficent for suspected colon cancer

TECHNICAL PROBLEMS

Poor preparation-difficulty to detect polypoid Lesions in the presence of retained stool.

Incontinence –leakage of barium or air

COMPLICATIONS

Abdominal discomfort

Colonic perforation –rectum

Allergic complications

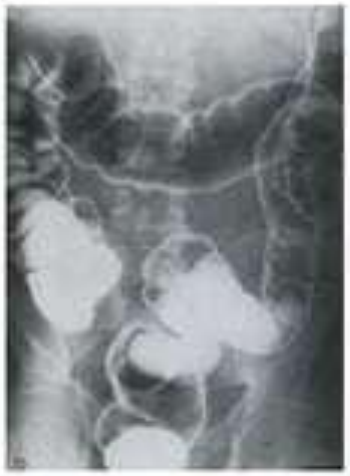
Transient bactermia

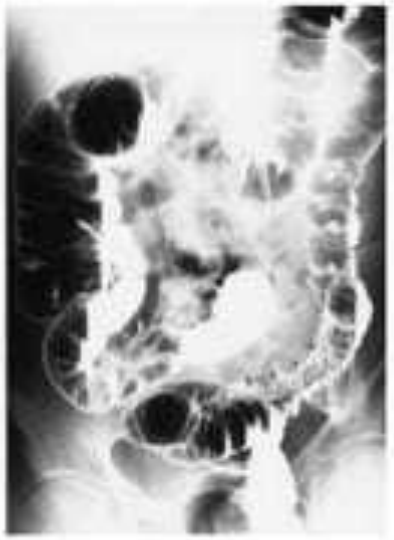
NORMAL BARIUM ENEMA

Caecum

Supine

NORMAL BARIUM ENEMA





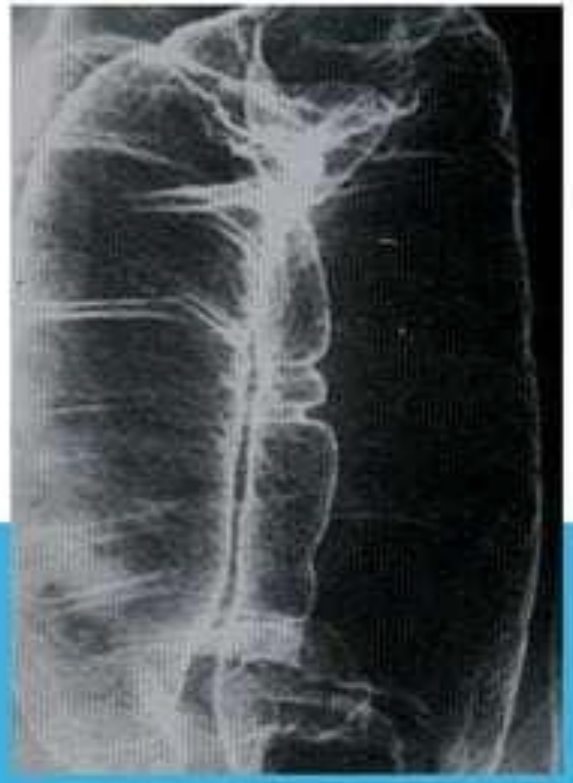
Rectum

Dependent / Non dependent

VIEWS

Part of bowel	Views
Rectum, Presacral space	Left lateral, Prone
Rectosigmoid, Sigmoid colon	RAO / LPO
Splenic flexure	Upright - RPO / LAO
Hepatic flexure	Upright - RAO / LPO
Entire colon	Supine
Caecum	Supine

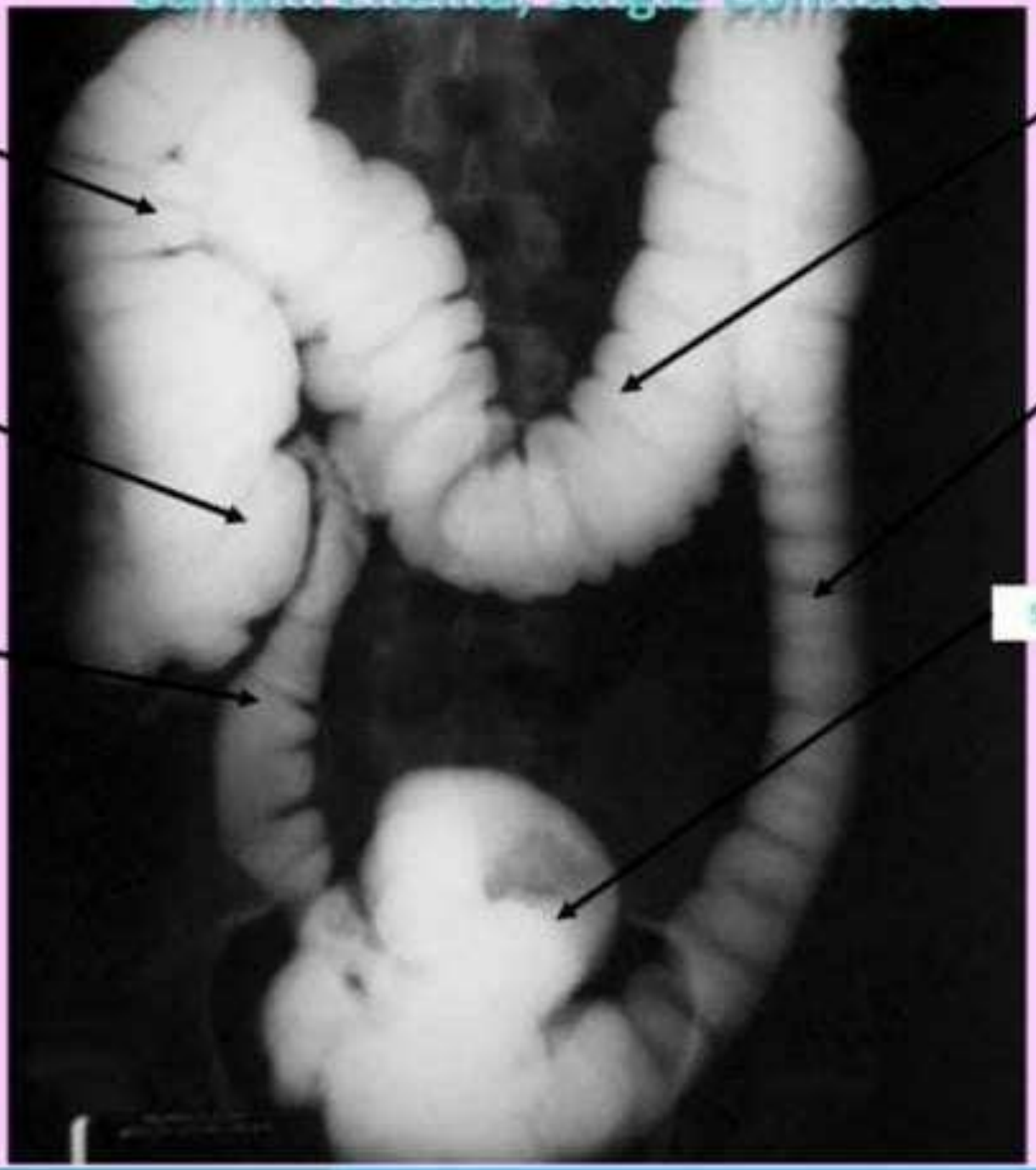
MUCOSA - NORMAL APPEARANCES



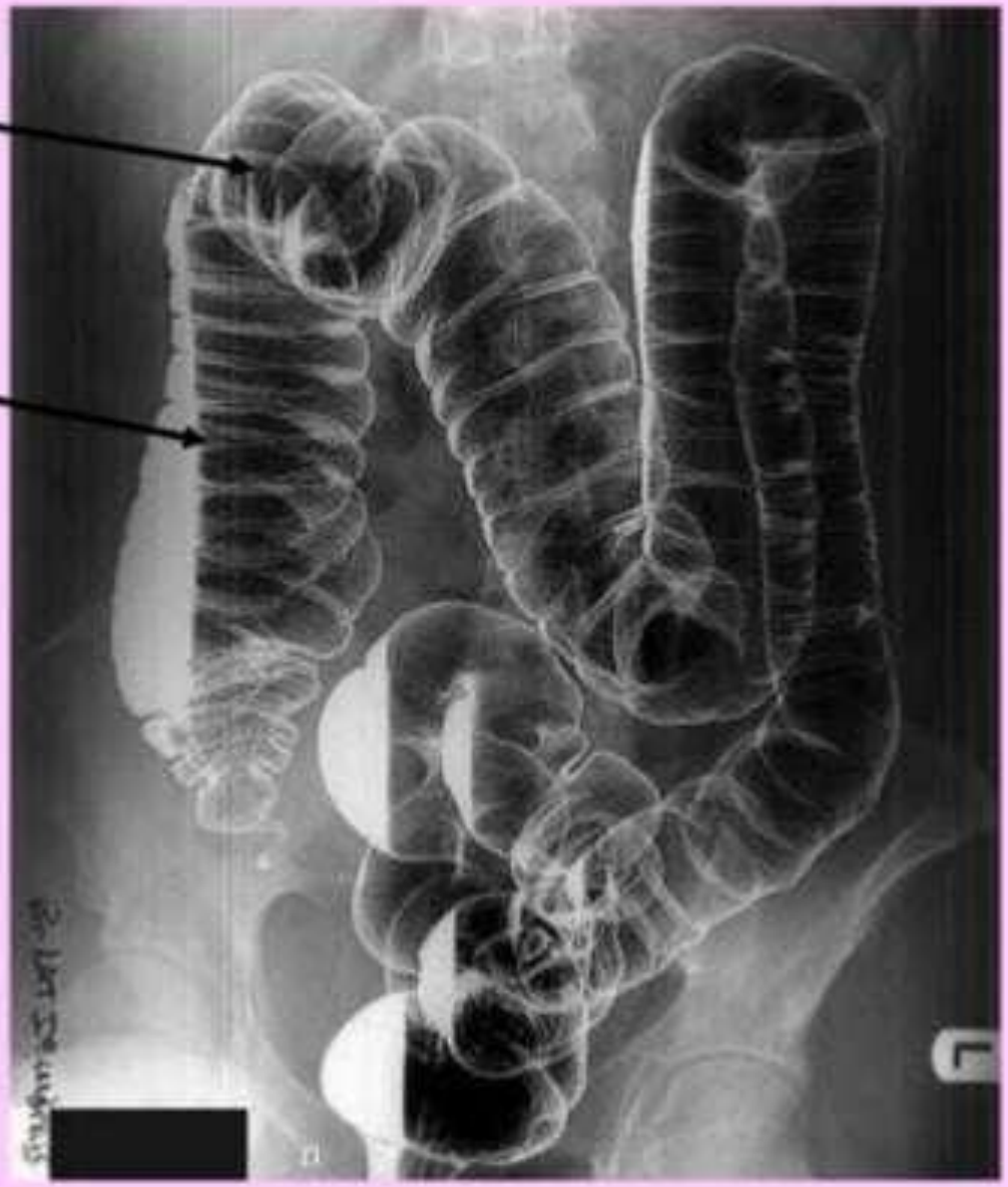
Smooth Featureless

Innominate lines / grooves

Barium Enema, Single Contrast



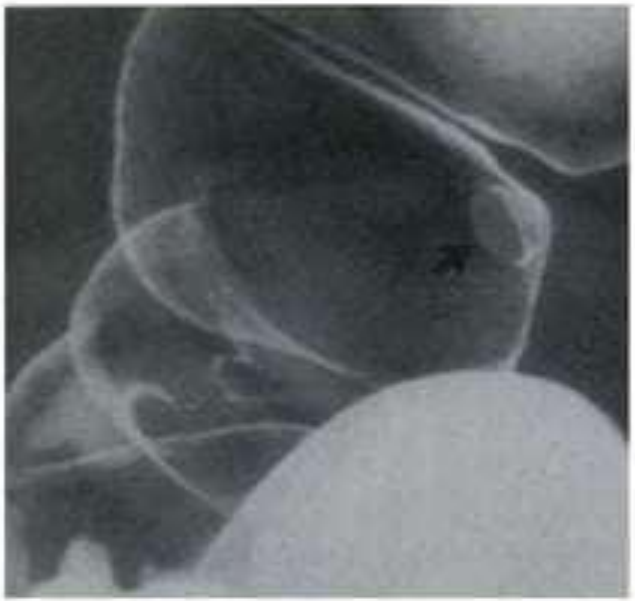
Barium Enema, Double Contrast
(Right Lateral Decubitus)



POLYP & DIVERTICULUM

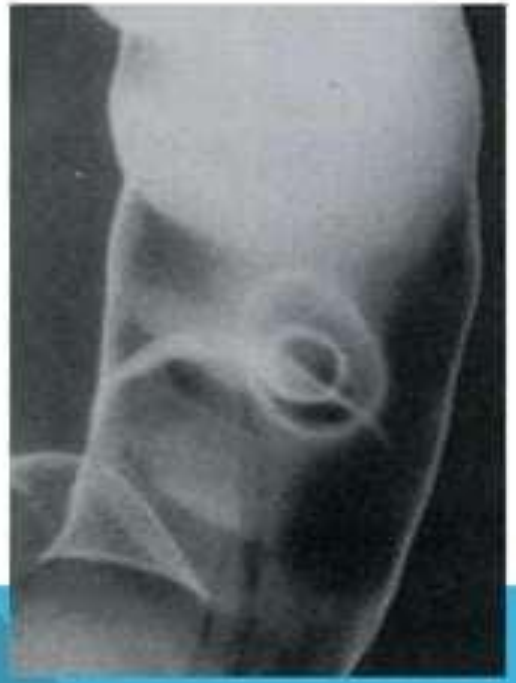
BOWLER HAT SIGN

Polyp



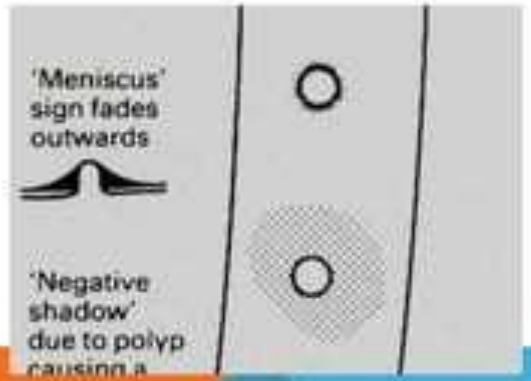
Diverticulum

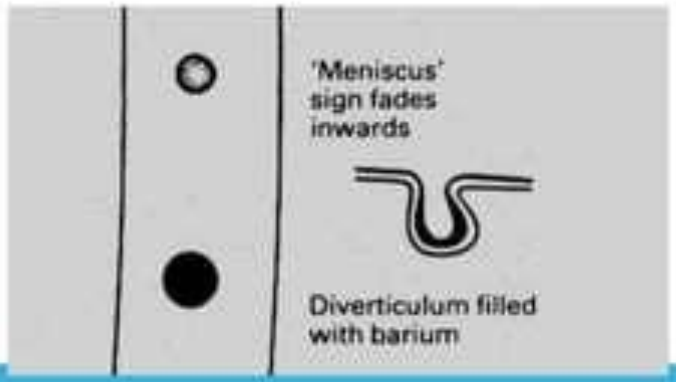
MEXICAN HAT SIGN



Pedunculated polyp

POLYP / DIVERTICULUM - ENFACE

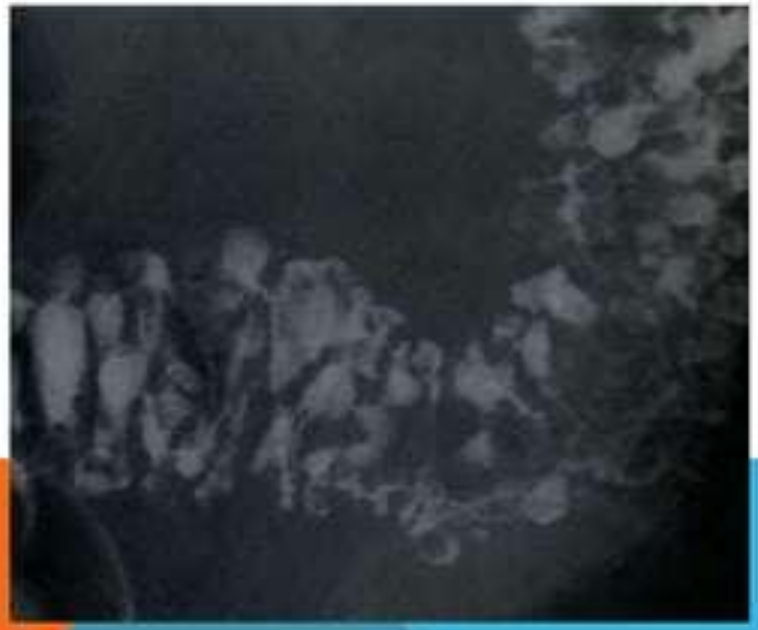




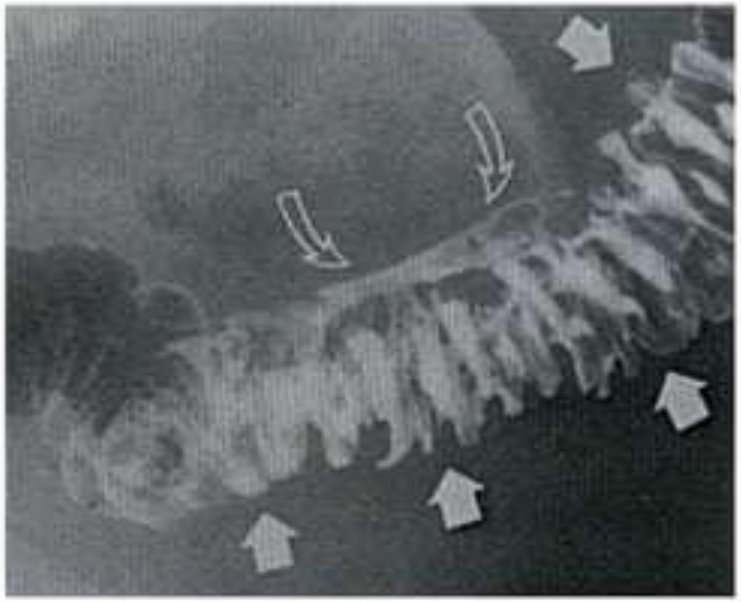
Negative Filling defect

Barium filled cup

DIVERTICULOSIS

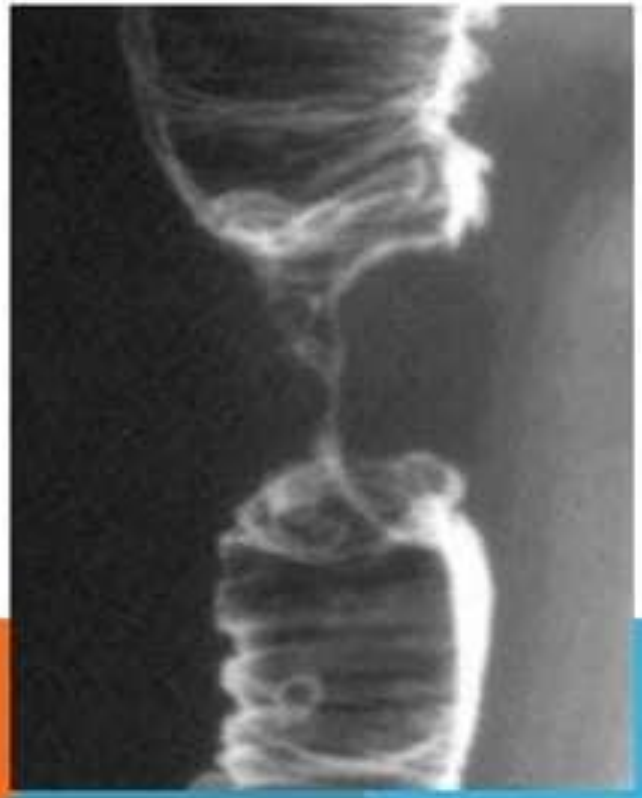


DIVERTICULITIS



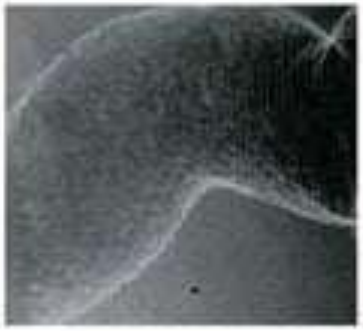
Saw tooth appearance

APPLE CORE



Shouldering-seen in colorectal carcinoma

ULCERATIVE COLITIS - EARLY



Mucosal granularity

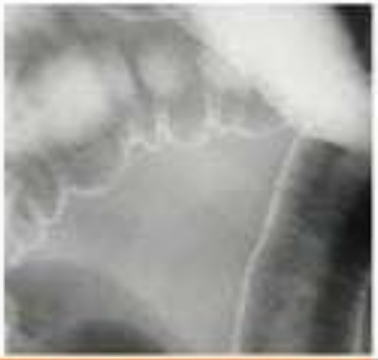
Mucosal stippling

Collar button abscess

Crypt abscess erode into submucosa

ULCERATIVE COLITIS - CHRONIC

Filiform
pseudopolyps



Lead pipe

Widened presacral space

Abnormal rectal valves

Backwash ileitis

WIDENED PRESACRAL SPACE

- Ulcerative colitis
- Crohn's
- Pelvic lipomatosis
- Pelvic Carcinomatosis
- Radiation fibrosis
- Rectal and sacral tumors
- Chlamydia infection
- Infective proctitis

< 7.5 mm = Normal
> 15mm = Significant

CROHN'S - EARLY

Nodular lymphoid hyperplasia

Apthus ulcer

Cobblestone

Deep ulcerations

Inflammatory pseudopolyps

Asymmetric invovlement

Segmental involvement

Skip lesions

CROHN'S – LATE

Fistulas

Sacculations

Fissures

Intramural abscess strictures

Pseudo Inflammatory pseudopolyps

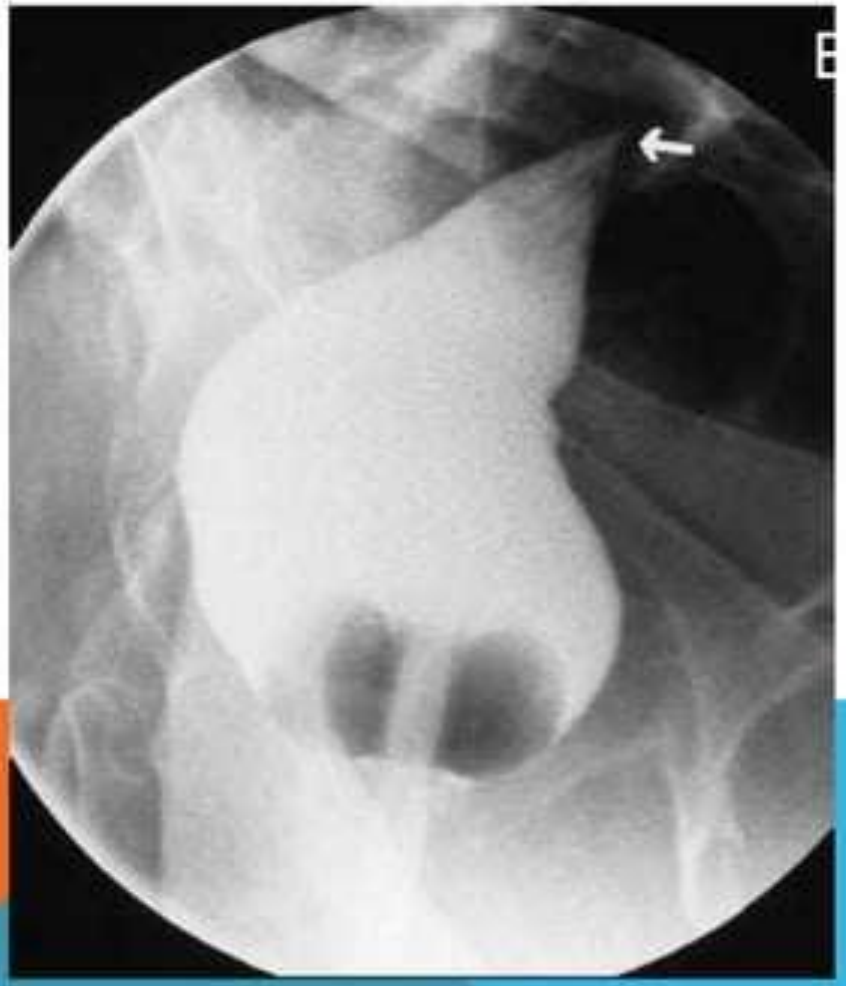
ILEOCECAL TUBERCULOSIS

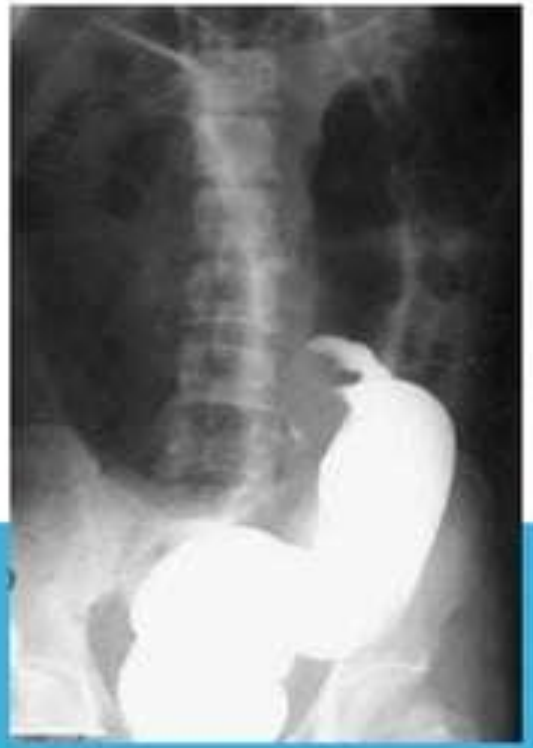
Stierlin sign

Fleischner sign

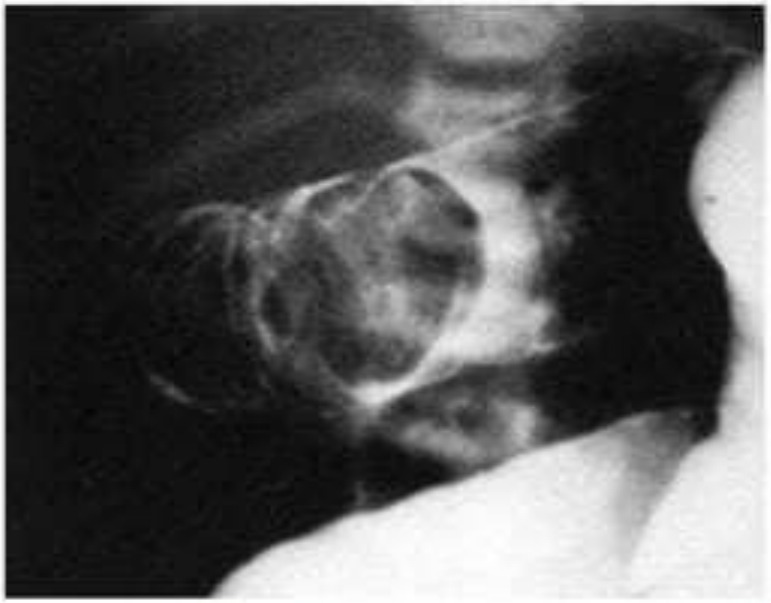
Pulled up caecum

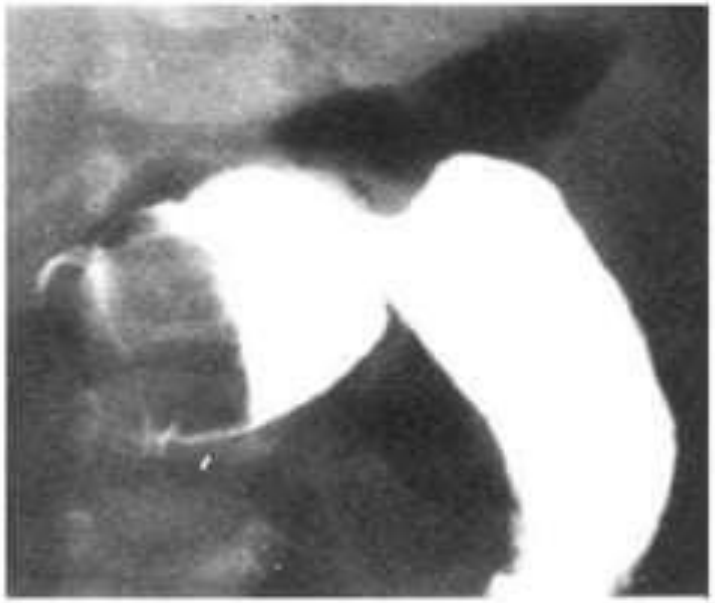
SIGMOID VOLVULUS





INTUSSUSCEPTION





Due to edematous mucosal folds of returning intersussceptum oulined by contrast

Filling defect due to intersussceptum

OTHER INFLAMMATORY

Bacterial (Salmonella, Shigella, Yersinia, TB,…)

Viral, Parasitic, Fungal

Non infectious colitis (Typhilitis, Eosinophilic, GVH)

Neutrophil & Macrophage (Chronic granulomatous disease, Glycogen storage, Malacoplakia)

Exogenous (Drug induced, Clostridium difficile)

OTHER TUMORS

Lymphoma

Hemangioma

Lymphangioma

Angiodysplasia

Carcinoids

Lipoma

Metastasis

THANKYOU