

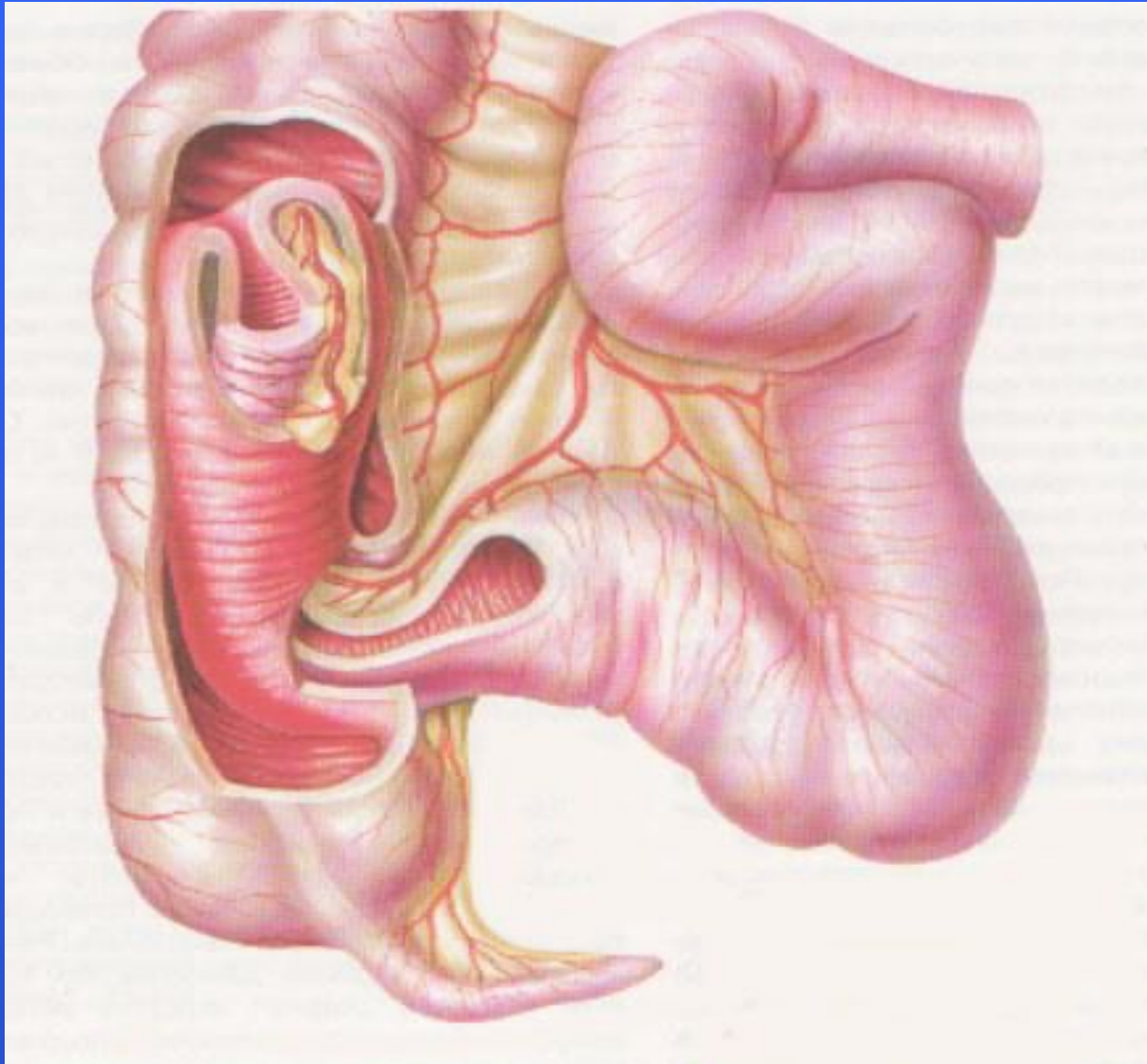
INTUSSUSCEPTION

Lecture

INTUSSUSCEPTION

DEFINITION

- ▣ Telescoping of a proximal segment of the intestine (intussusceptum) into a distal segment (intussusciens)



INTUSSUSCEPTION

ANATOMIC LOCATIONS

▣ ILEOCOLIC

- MOST COMMON IN CHILDREN

▣ ILEO-ILEOCOLIC

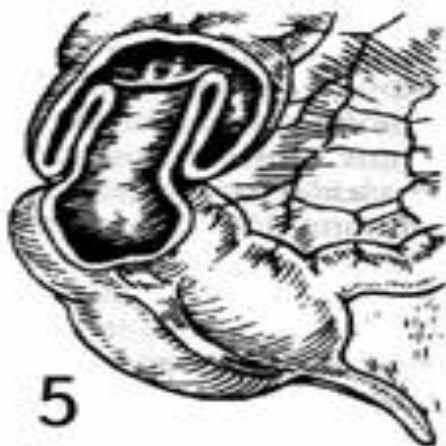
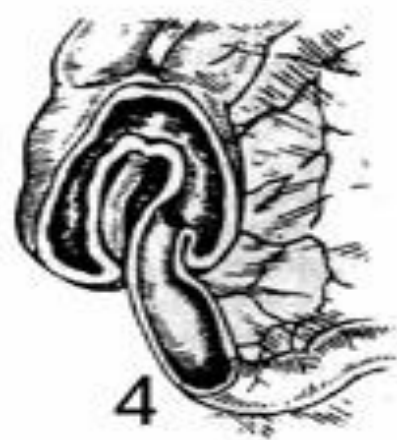
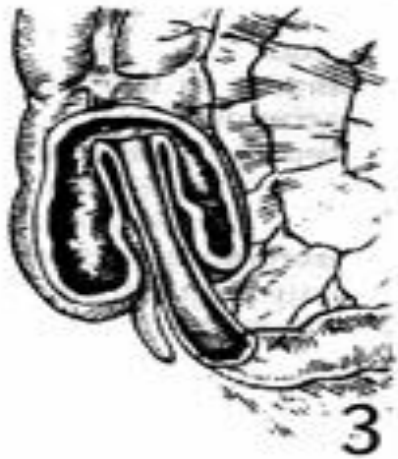
- SECOND MOST COMMON

▣ ENTEROENTERIC

- ILEO-ILEAL, JEJUNO-JEJUNAL
- MORE COMMON IN ADULTS
- MAY NOT BE SEEN ON BARIUM ENEMA

▣ CAECOCOLIC, COLOCOLIC

- MORE COMMON IN ASIAN CHILDREN



PATHOPHYSIOLOGY

- ❑ Precipitating mechanism unknown
- ❑ Obstruction of intussusceptum mesentery
- ❑ Venous and lymphatic obstruction
- ❑ Ischemic necrosis occurs in both intussusceptum and intussusciens
- ❑ Pathologic bacterial translocation

PATHOPHYSIOLOGY

- ▣ Majority occur in the region of the ileocecal valve (80%)
 - DISPROPORTIONATE DIAMETERS OF ILEUM AND CECUM
 - LYMPHOID AGGREGATES MORE NUMEROUS IN TERMINAL ILEUM
 - ILEOCECAL REGION ANATOMIC NEURAL TRANSITION ZONE



ETIOLOGIES

- ▣ Majority of pediatric intussusceptions idiopathic (85-90%)
 - LYMPHOID HYPERPLASIA POSSIBLE ETIOLOGY
- ▣ Mechanical abnormalities may act as “lead points”
 - CONGENITAL MALFORMATIONS (MECKEL’S DIVERTICULUM, DUPLICATIONS)
 - NEOPLASMS (LYMPHOMA, LYMPHOSARCOMA)
 - POLYPOSIS
 - TRAUMA (POST-SURGICAL, HEMATOMA)
 - MISCELLANEOUS (APPENDICITIS, PARASITES)

EPIDEMIOLOGY

- ▣ Incidence 2 - 4 / 1000 live births
- ▣ Usual age group 3 months - 3 years
- ▣ Greatest incidence 6-12 months
- ▣ No clear hereditary association
- ▣ No seasonal distribution
- ▣ Frequently preceded by viral infection
 - ADENOVIRUS

INTUSSUSCEPTION

CLINICAL CHARACTERISTICS

□ Early Symptoms

- PAROXYSMAL ABDOMINAL PAIN
- SEPARATED BY PERIODS OF APATHY
- POOR FEEDING AND VOMITING

□ Late Symptoms

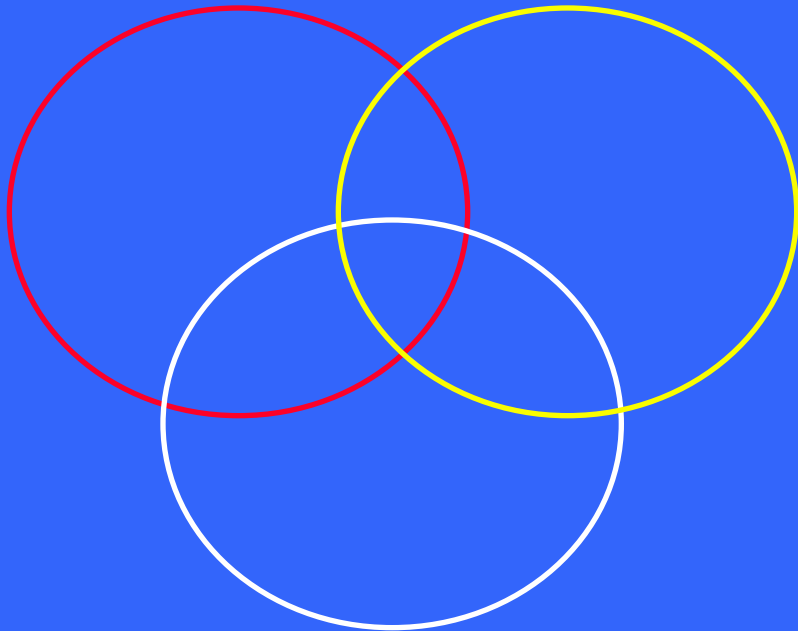
- WORSENING VOMITING, BECOMING BILIOUS
- ABDOMINAL DISTENTION
- HEME POSITIVE STOOLS
- FOLLOWED BY “RASPBERRY JELLY” STOOL
- DEHYDRATION (PROGRESSIVE)

□ Unusual Symptoms

- DIARRHEA

CLINICAL SYMPTOMS BY AGE

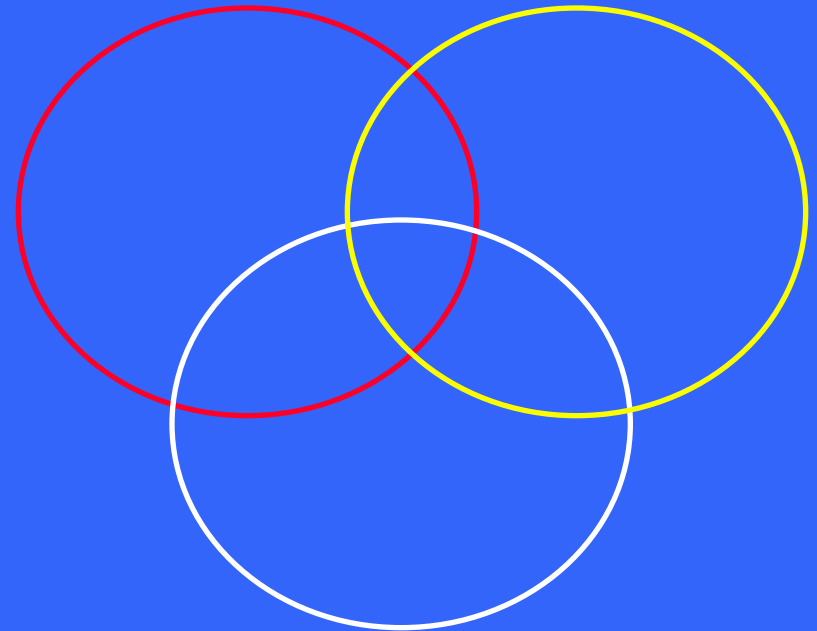
INTERMITTENT PAIN (85%)
VOMITING (78%)



BLOOD IN STOOL (36%)

PATIENTS < 1 YR

INTERMITTENT PAIN (95%)
VOMITING (55%)

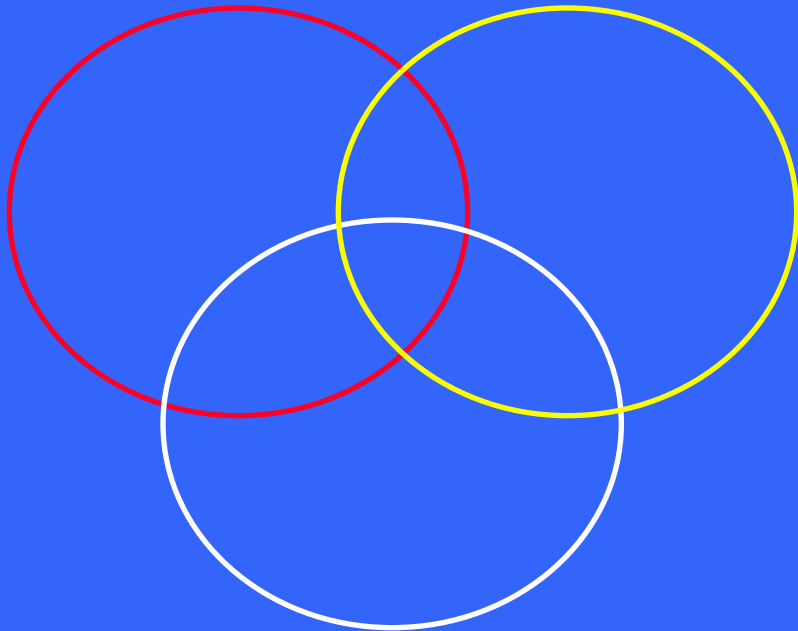


BLOOD IN STOOL (5%)

PATIENTS > 1 YR

CLINICAL SYMPTOMS BY DURATION

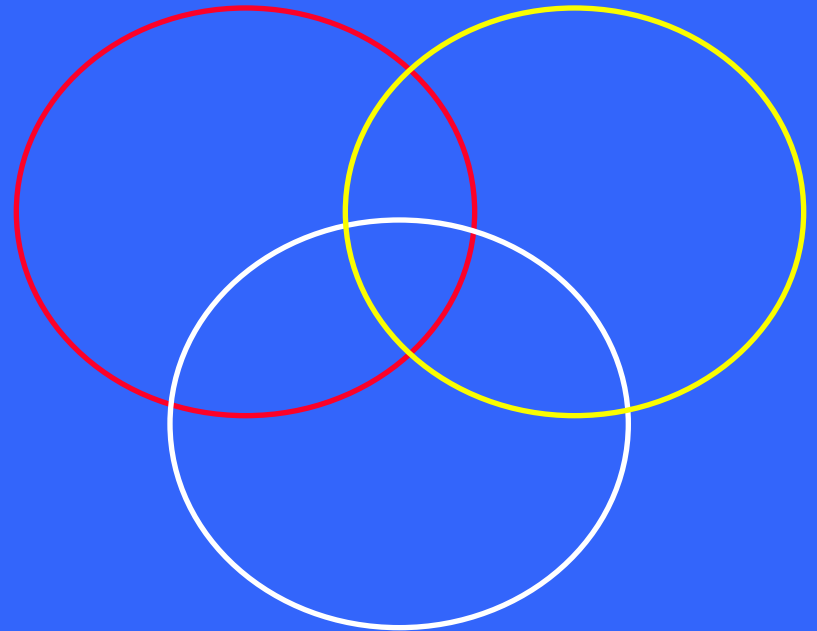
INTERMITTENT PAIN (85%)
VOMITING (78%)



BLOOD IN STOOL (36%)

SYMPTOMS 0-6 HRS

INTERMITTENT PAIN (95%)
VOMITING (55%)



BLOOD IN STOOL (5%)

SYMPTOMS > 6 HRS

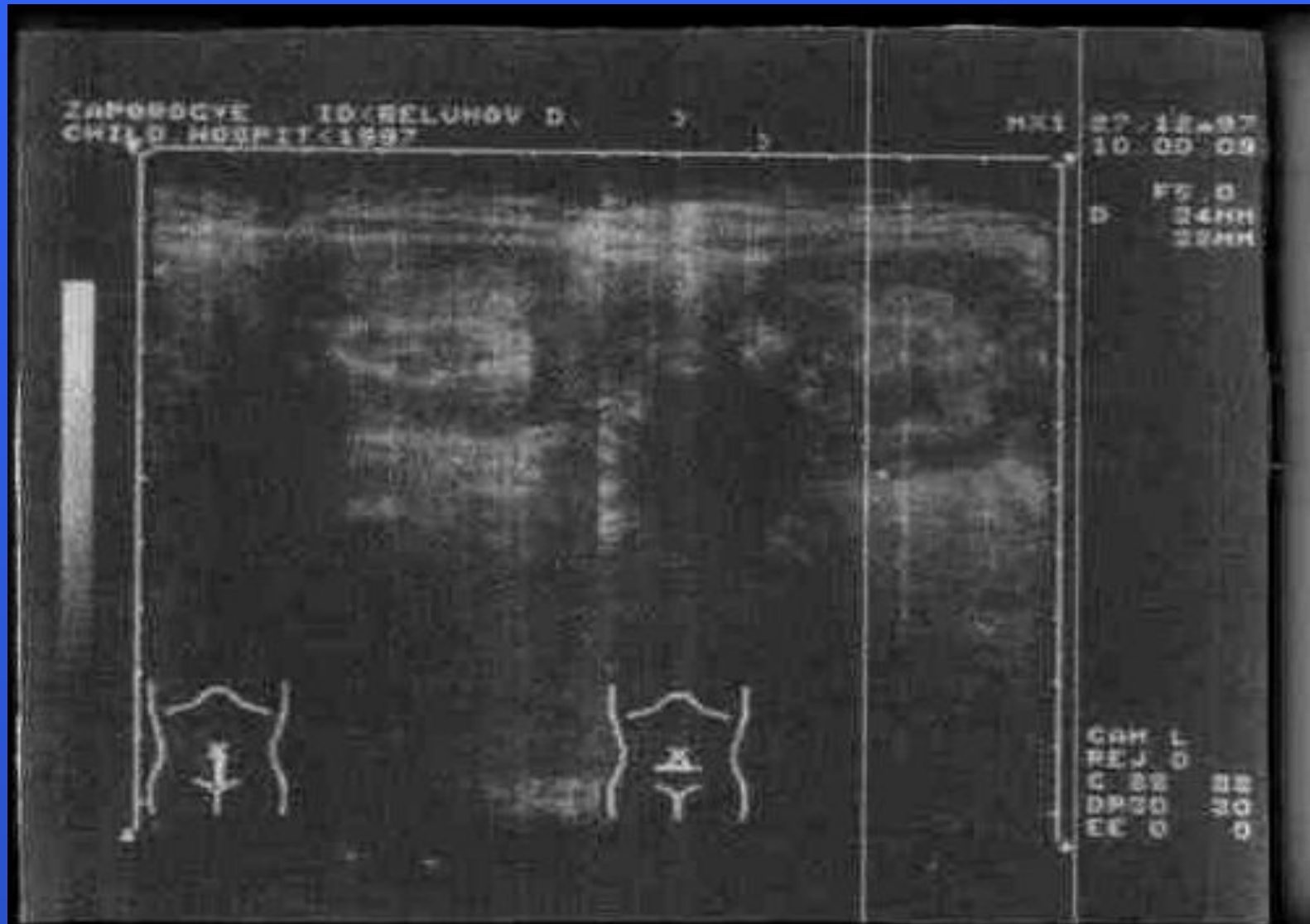
PHYSICAL EVALUATION

- ▣ Moderately to severely ill
- ▣ Irritable, limited movement
- ▣ Most are at least 5-10% dehydrated
- ▣ 80% have palpable abdominal masses
- ▣ Paucity of bowel sounds
- ▣ Rectal examination (blood, mass)
- ▣ Abdominal rigidity
- ▣ “Knocked Out” syndrome

INTUSSUSCEPTION STAGES

- I. Bright clinical manifestation
- II. Pseudodysenteric stage
- III. Peritonitis

Ultrasonic diagnostics



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CHILD HOSPIT <1997

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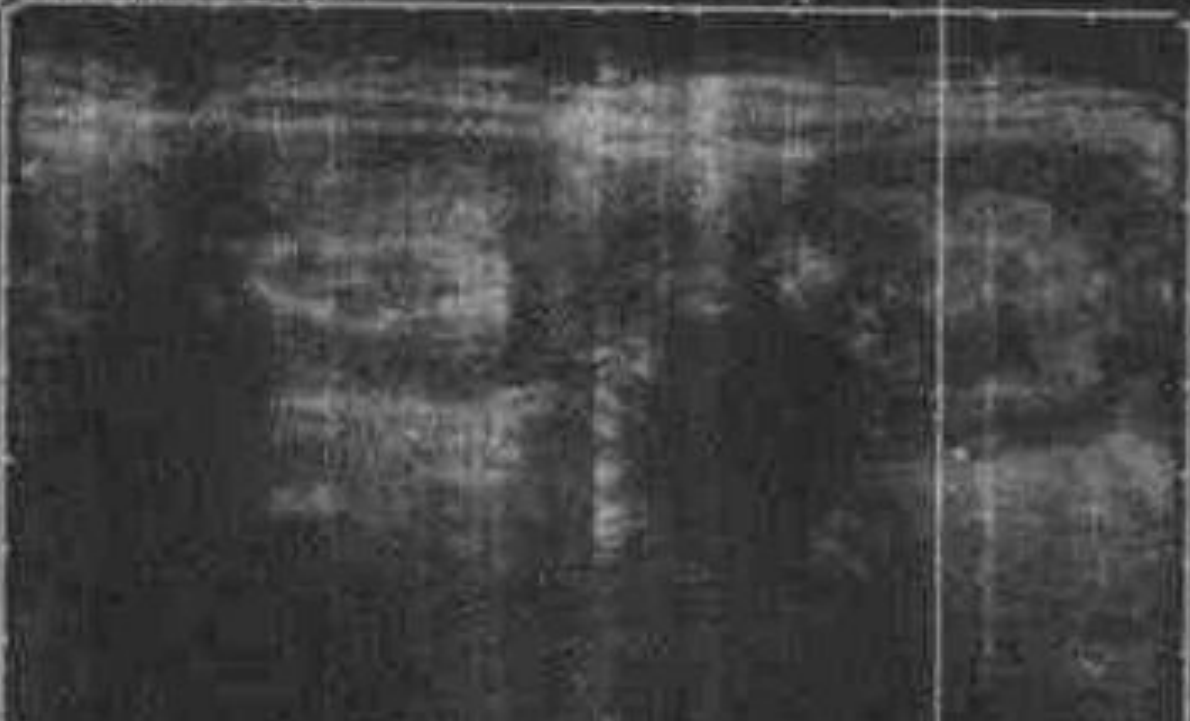
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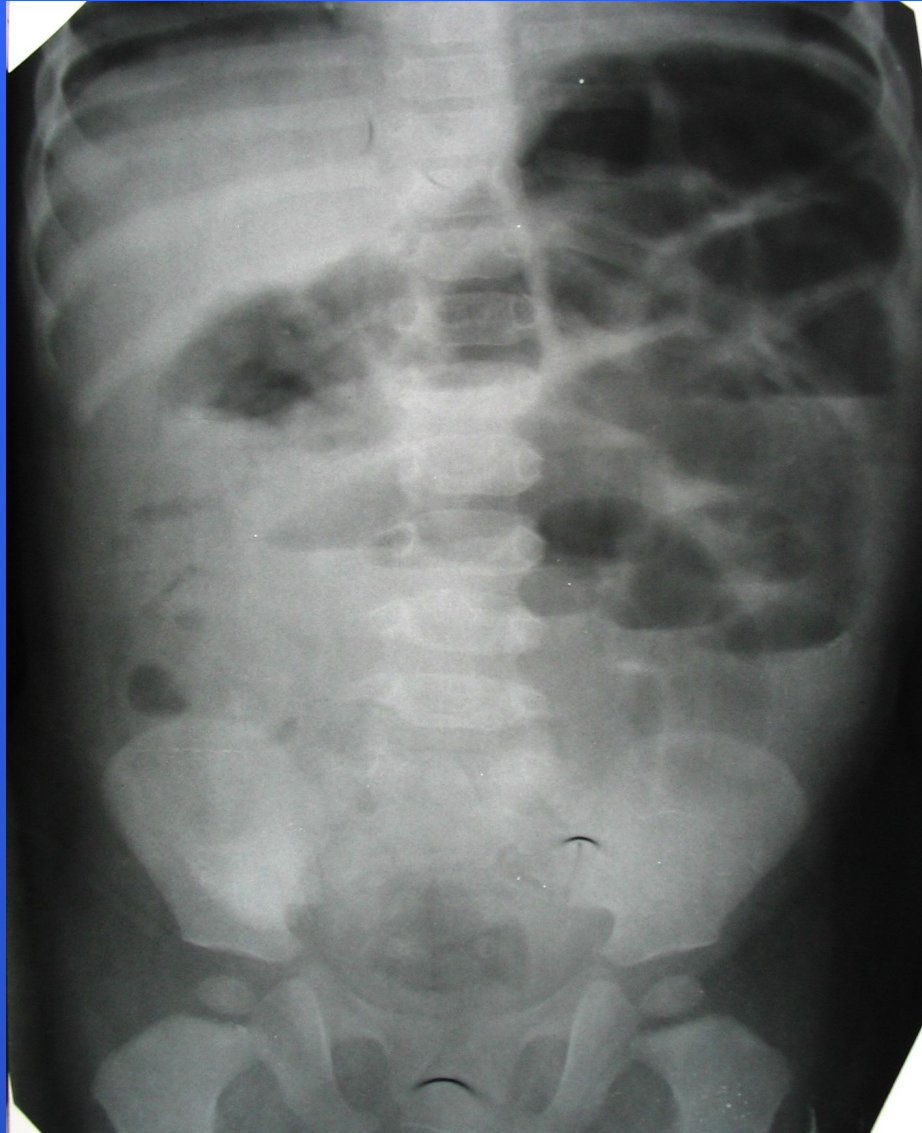


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RADIOGRAPHIC EVALUATION

- Plain radiographs (acute abdominal series)
- Plain films suggestive in majority, but cannot rule out diagnosis
 - PAUCITY OF LUMINAL AIR IN INTESTINAL
 - SMALL BOWEL DISTENTION, AIR FLUID LEVELS
 - LUMINAL AIR CUTOFFS (CECUM, TRANSVERSE COLON)
- Suggestive clinical symptoms and compatible or nonspecific plain films should undergo evaluation with air or barium enema









TREATMENT

- ▣ Obstructive surgical emergency
- ▣ Pediatric surgeon notified immediately
- ▣ Supportive Therapy
 - AGGRESSIVE FLUID RESUSCITATION
 - ELECTROLYTES
 - NASOGASTRIC TUBE PLACEMENT AND DRAINAGE
 - ANTIBIOTICS IF ISCHEMIC BOWEL SUSPECTED
- ▣ Arrange radiographic evaluation
- ▣ Physician should accompany patient
 - FREQUENT MONITORING OF FLUID STATUS

▣ Radiographic

- HYDROSTATIC (BARIUM, WATER SOLUBLE CONTRAST)

▣ Operative

- MANUAL
- RESECTION AND REANASTAMOSIS

INTUSSUSCEPTION

PNEUMATIC REDUCTION

▣ Theoretical Advantages

- LESS INFLAMMATION IF PERFORATION OCCURS

▣ Method

- AIR INSUFFLATION LIMITED TO MAXIMUM “RESTING “ PRESSURE OF 120 mmHg
- MAXIMUM PRESSURE MAINTAINED FOR 3 MIN
- USUALLY 3 ATTEMPTS AT REDUCTION

▣ Success Rate (75-90%)

- MUST OBSERVE AIR IN THE TERMINAL ILEUM
- LESS RECURRENCES (5-10%)
- LOW PERFORATION RATE (1%)

INTUSSUSCEPTION

NON-OPERATIVE REDUCTION

CONTRAINDICATIONS

▣ Absolute Contraindications

- PERITONEAL SIGNS
- SUSPECTED PERFORATION

▣ Relative Contraindications

- SYMPTOMS > 24-48 HRS
- RECTAL BLEEDING
- POOR PROGNOSTIC INDICATORS

INTUSSUSCEPTION

FAILURE OF NON-OPERATIVE REDUCTION

▣ Factors associated with failure

- SYMPTOMS > 48 HRS
- RECTAL BLEEDING
- SMALL BOWEL OBSTRUCTION
RADIOGRAPHICALLY
- ILEOILEOCOLIC OR SMALL BOWEL TYPES
- PRESENCE OF MECHANICAL LEAD POINT
- AGE < 3 MONTHS

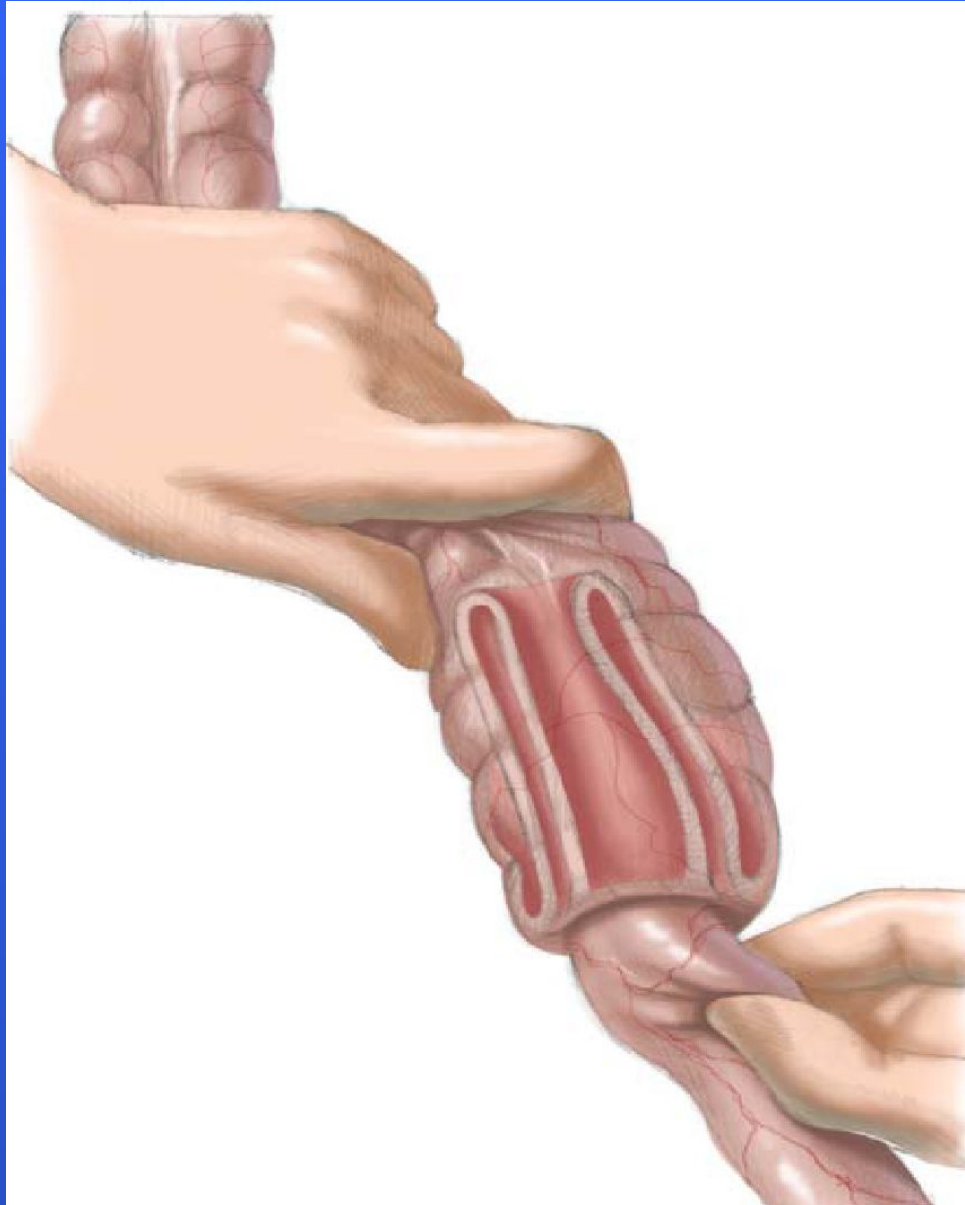
▣ Operative Reduction

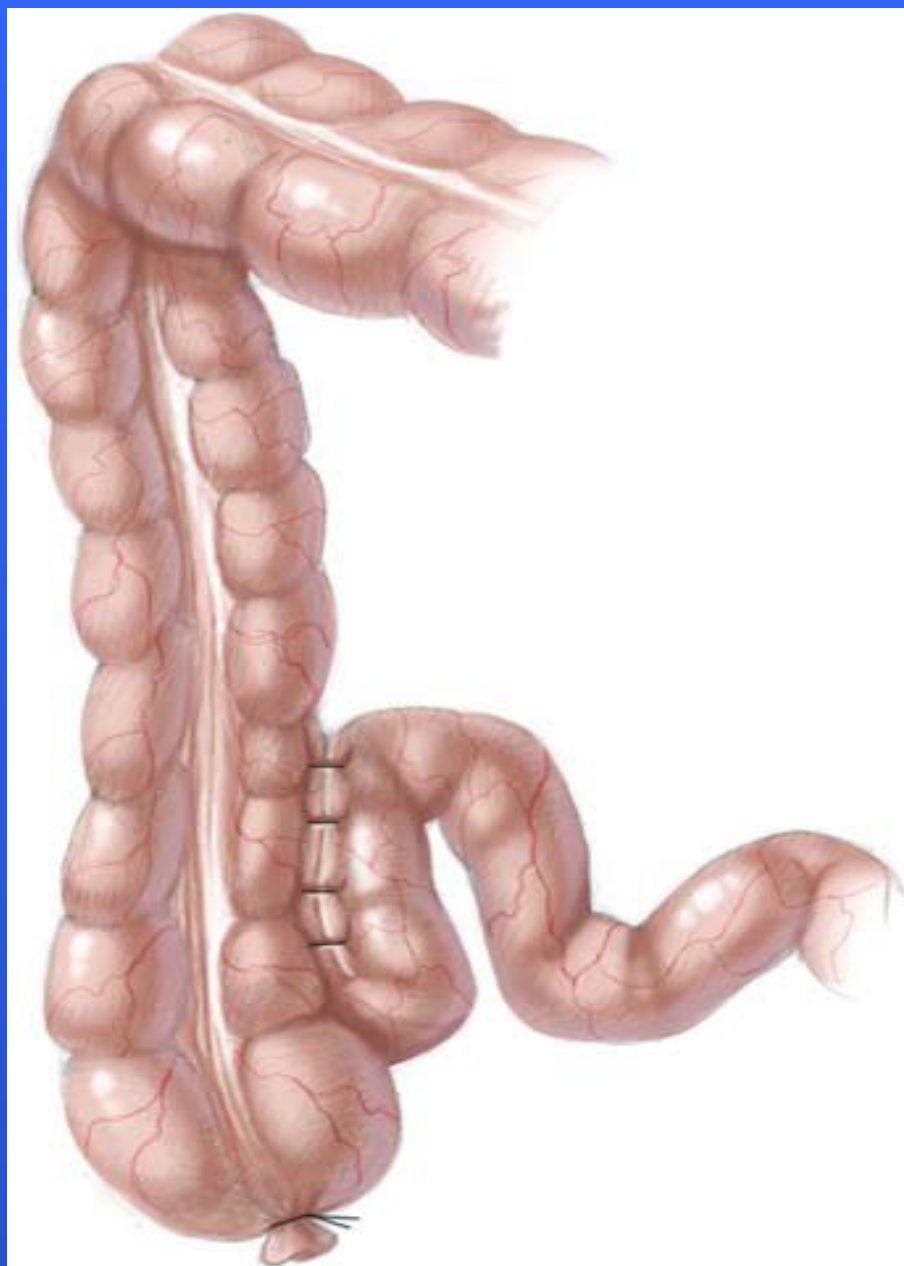
INTUSSUSCEPTION

POST-REDUCTION TREATMENT

- ▣ Admit patient for 24 hours
- ▣ May attempt feeding within 12 hrs
- ▣ Return to fluoroscopy for suspected recurrence (occurs in ~ 4%)
 - CONSIDER PATHOLOGIC LEAD POINT
 - SCHEDULE MECKEL'S SCAN, ? ABDOMINAL CT
- ▣ May also recur up to one year
- ▣ Need to follow as outpatient

Surgical treatment

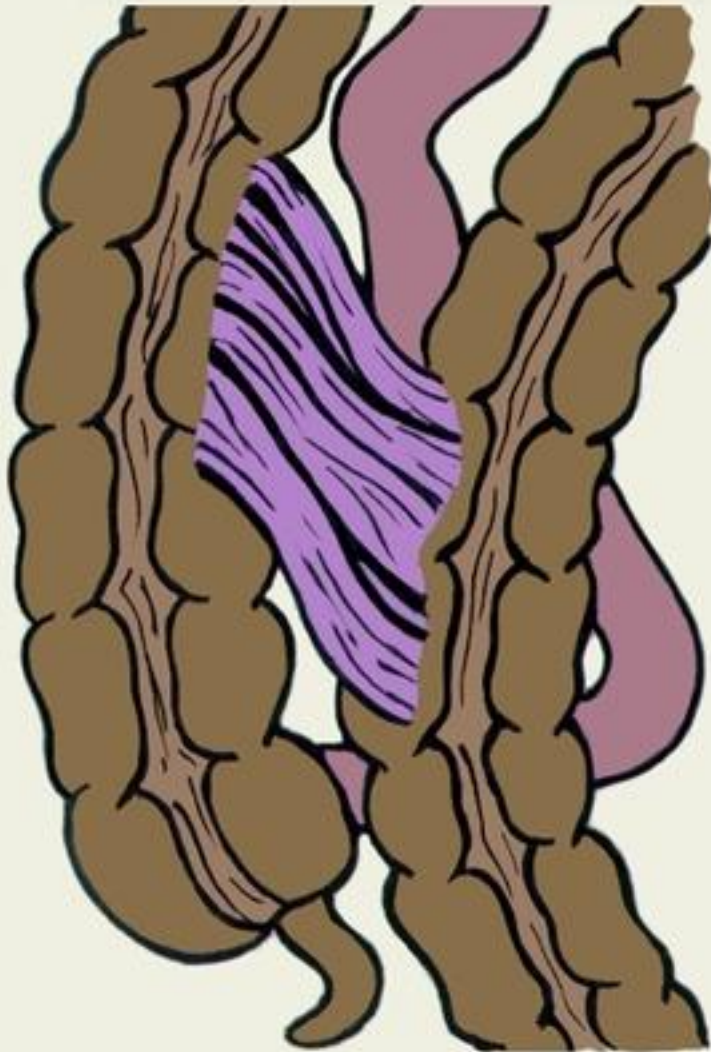




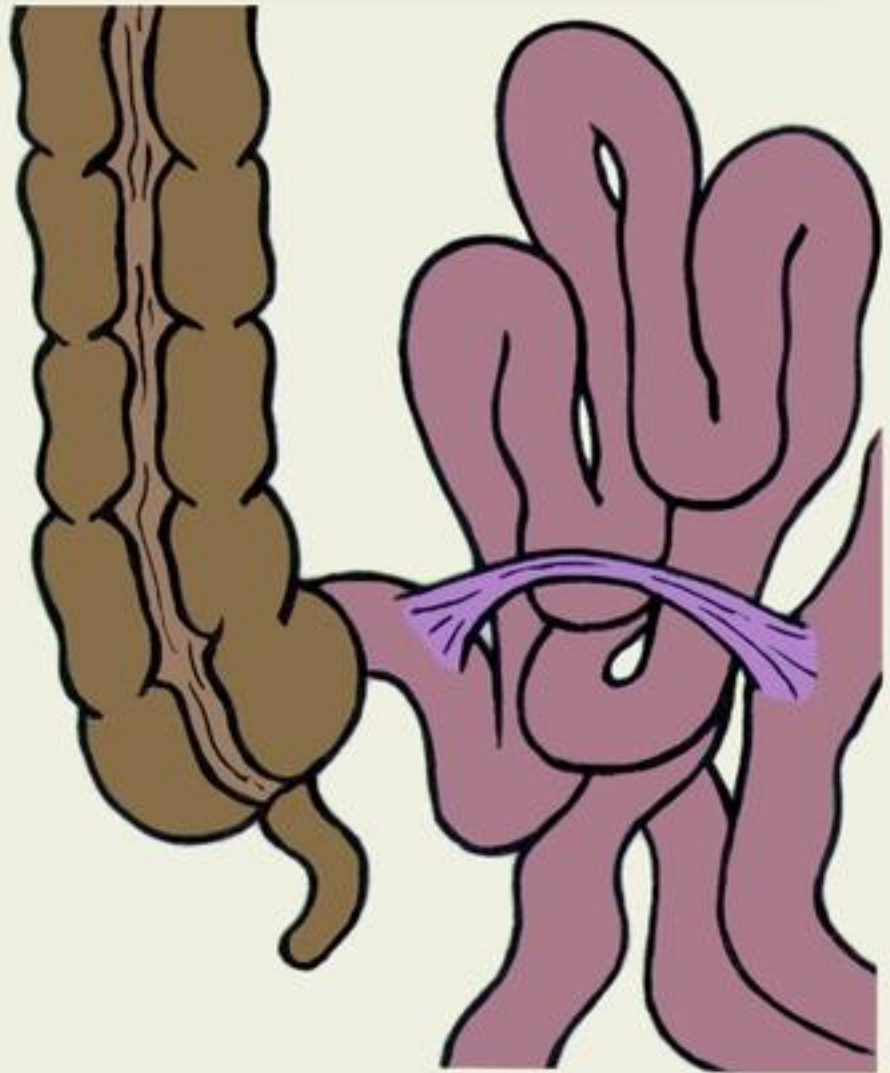
Acquired intestinal obstruction

Acquired intestinal obstructions are a partial or complete blockage of the small or large intestine, resulting in failure of the contents of the intestine to pass through the bowel normally.

- ❑ Intestinal obstructions can be mechanical or nonmechanical.
- ❑ Mechanical obstruction is caused by the bowel twisting on itself (volvulus) or telescoping into itself (intussusception). Mechanical obstruction can also result from hernias, fecal impaction, abnormal tissue growth, the presence of foreign bodies in the intestines, or inflammatory bowel disease (Crohn's disease).



①a



①b

- ❑ **Non-mechanical obstruction occurs when the normal wavelike muscular contractions of the intestinal walls (peristalsis), which ordinarily move the waste products of digestion through the digestive tract, are disrupted (as in spastic ileus, dysmotility syndrome, or psuedo-obstruction) or stopped altogether as in paralysis of the bowel walls (paralytic ileus).**

Clinic

- ▣ 1. Abdominal pain
- ▣ 2. Vomiting
- ▣ 3. Constipation
- ▣ 4. Intoxication syndrome

Diagnosis

1. X-ray examination
2. Ultrasonic diagnostics
3. Computed tomography
4. Diagnostic testing will include a complete blood count (CBC), electrolytes (sodium, potassium, chloride) and other blood chemistries, blood urea nitrogen (BUN), and urinalysis. Coagulation tests may be performed if the child requires surgery.



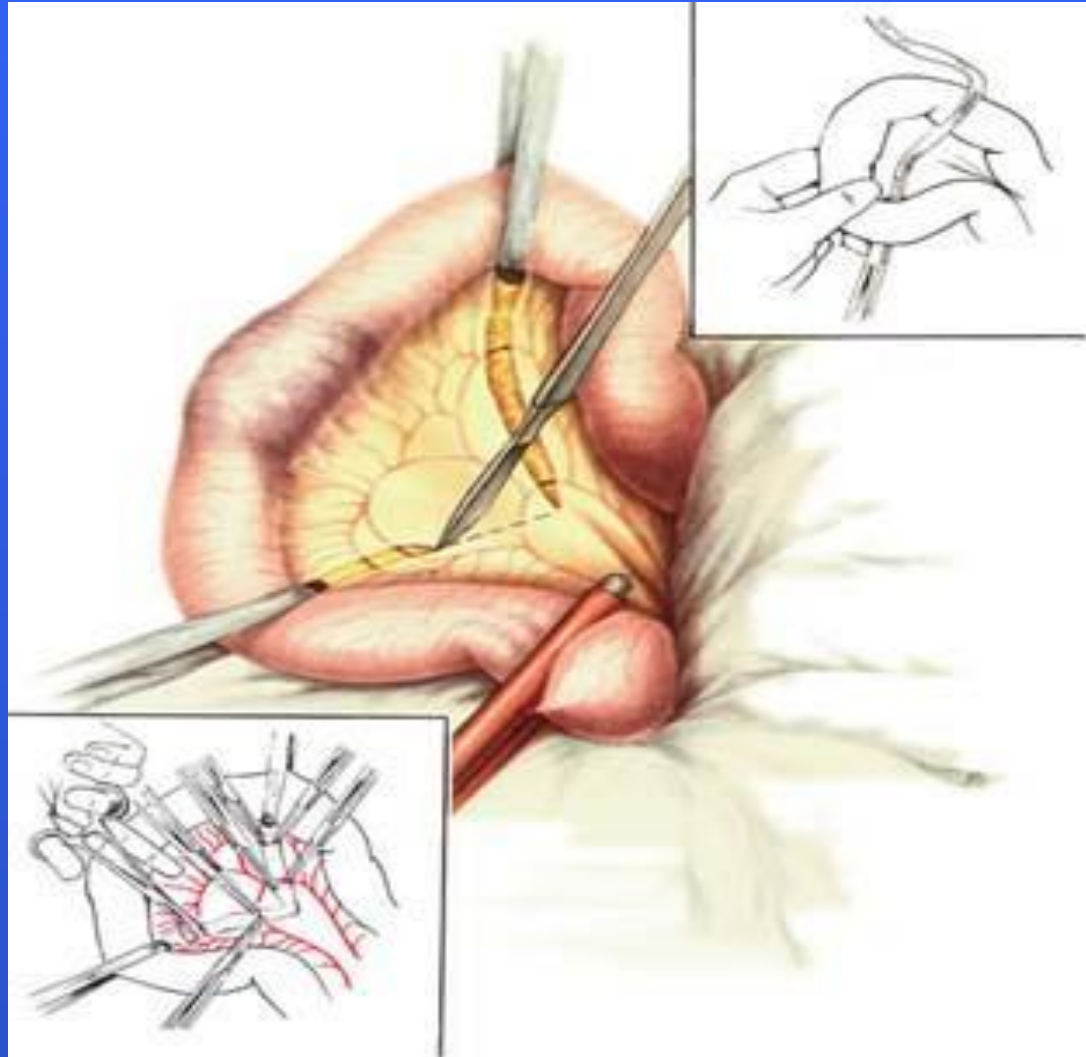


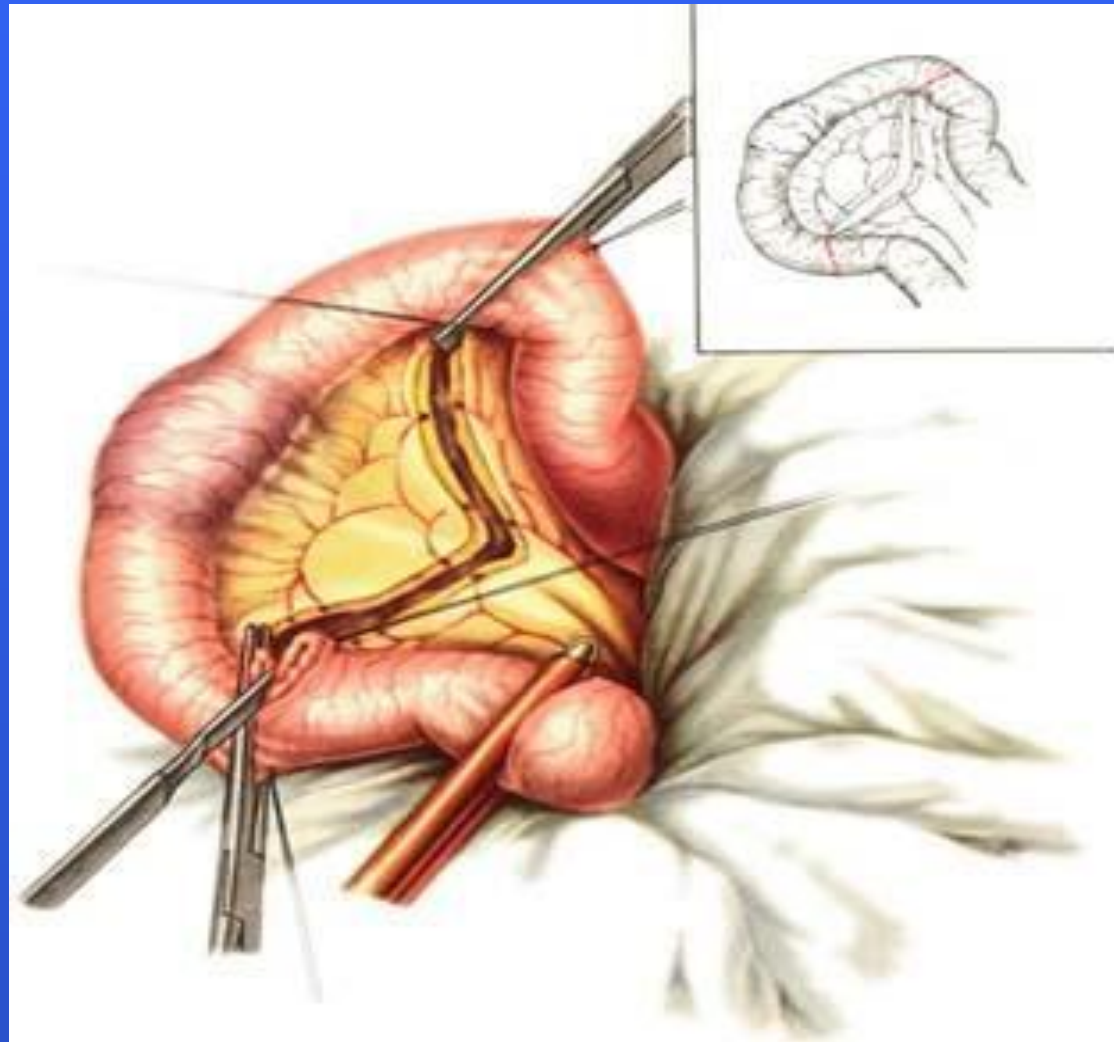
УЗДГ: Спаечный процесс в малом тазу.

Treatment

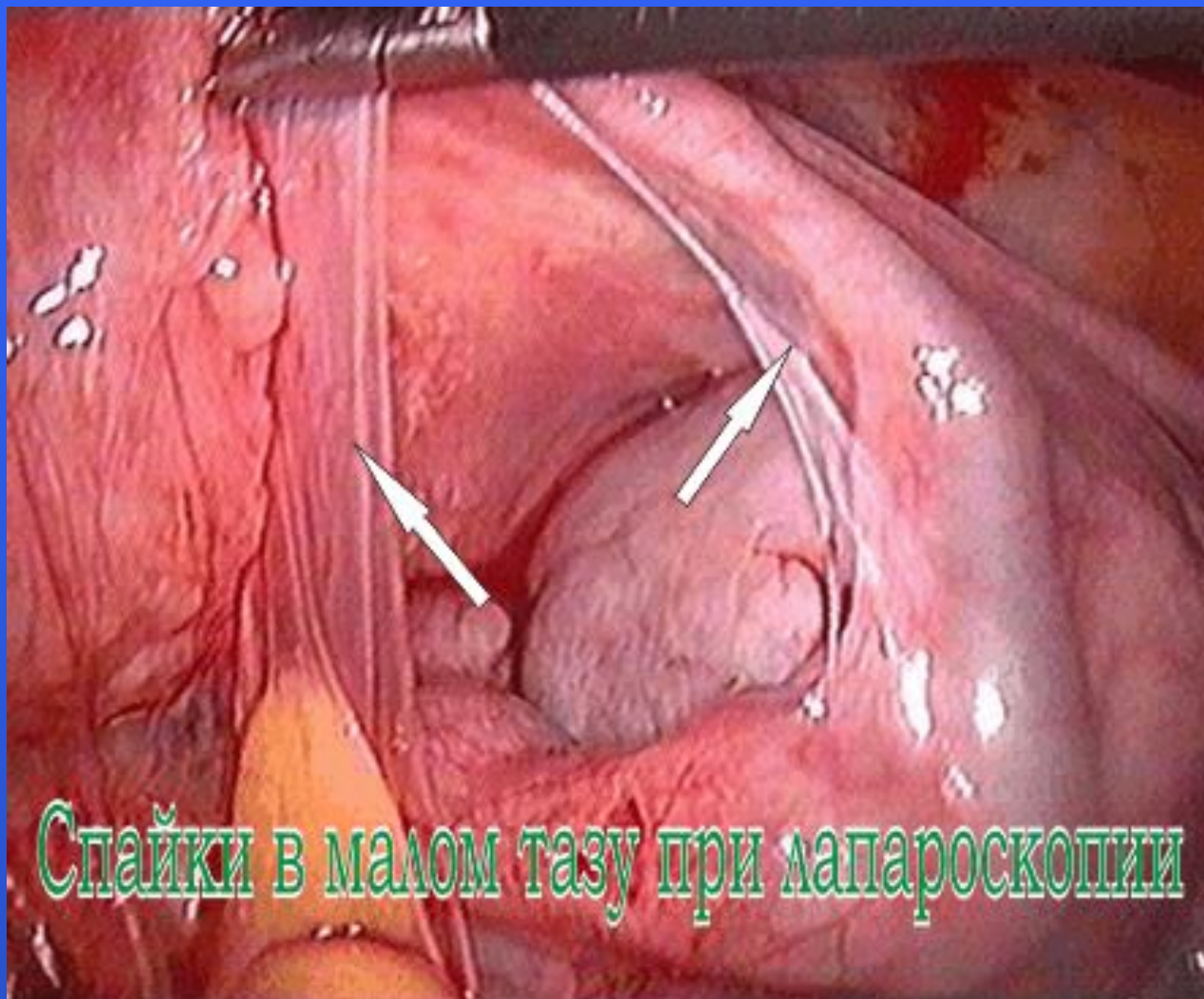
1. **Preoperative preparation:**
 - a. inserting a nasogastric tube to suction out the contents of the stomach and intestines
 - b. Intravenous fluids will be infused to prevent dehydration and to correct electrolyte imbalances that may have already occurred

Surgical treatment









Спайки в малом тазу при лапароскопии

