

The background features a dark blue gradient with a starry texture. On the left side, there are several overlapping circular elements: a large scale with numerical markings from 140 to 260, and several smaller circles with dashed lines and arrows, suggesting a technical or scientific theme.

APPENDICITIS

PRESENTED BY DR MILAD ARABI

1

Definition

2

Pathophysiology

3

Clinical Features

4

Diagnosis

5

Differential Diagnosis

6

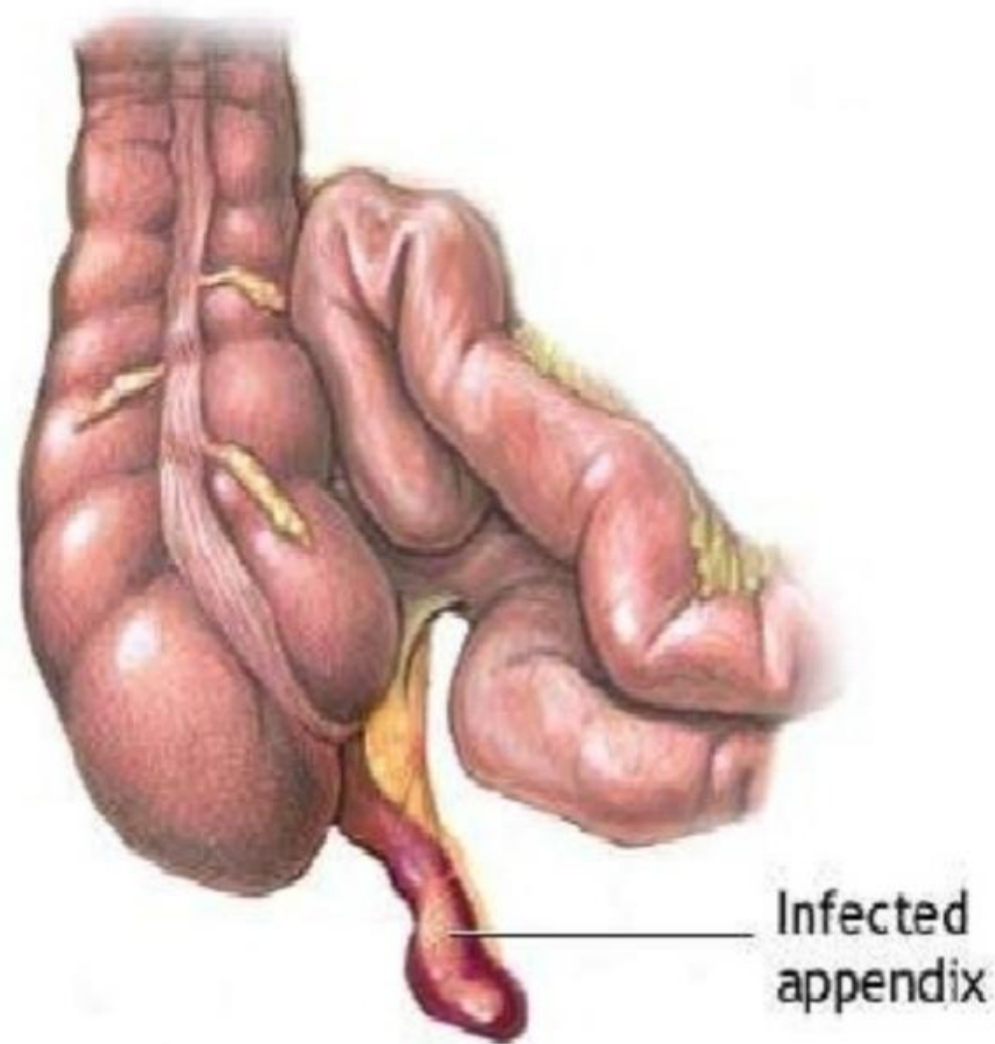
Treatment

- ❖ **Commonest abdominal surgical emergency.**
- ❖ **One person in six develops appendicitis at some time.**
- ❖ **It is relatively uncommon in developing rural communities.**

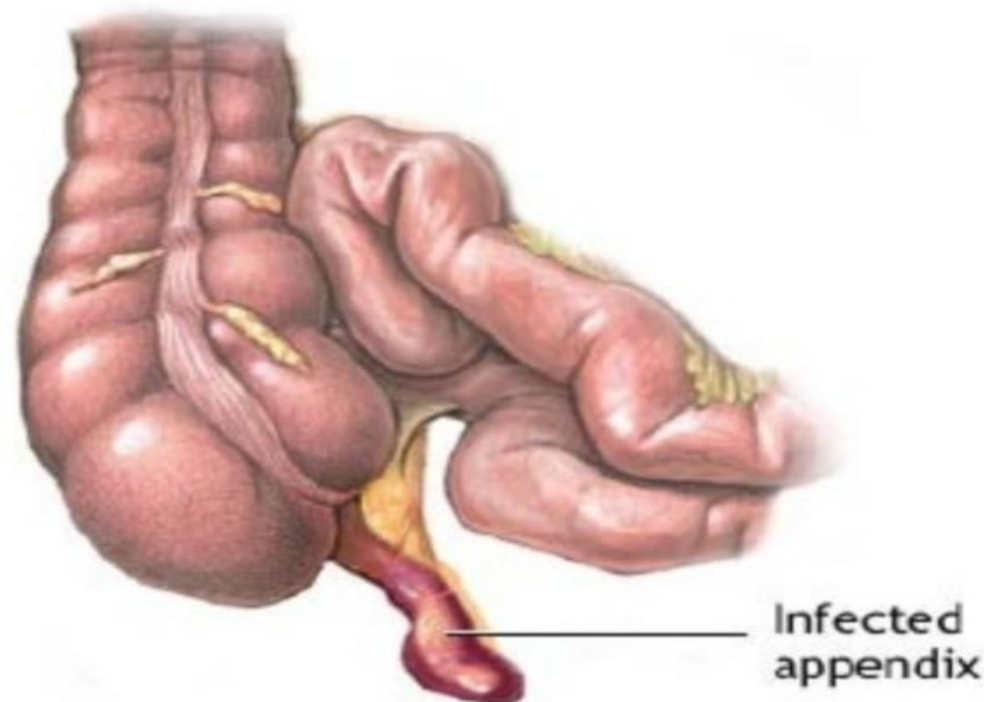
Appendicitis

**INFLAMMATION OF
APPENDIX IS
APPENDICITIS**

**Generally Caused by
an obstruction:
Faecalith. Lymphoid
obstruction, Infection.**

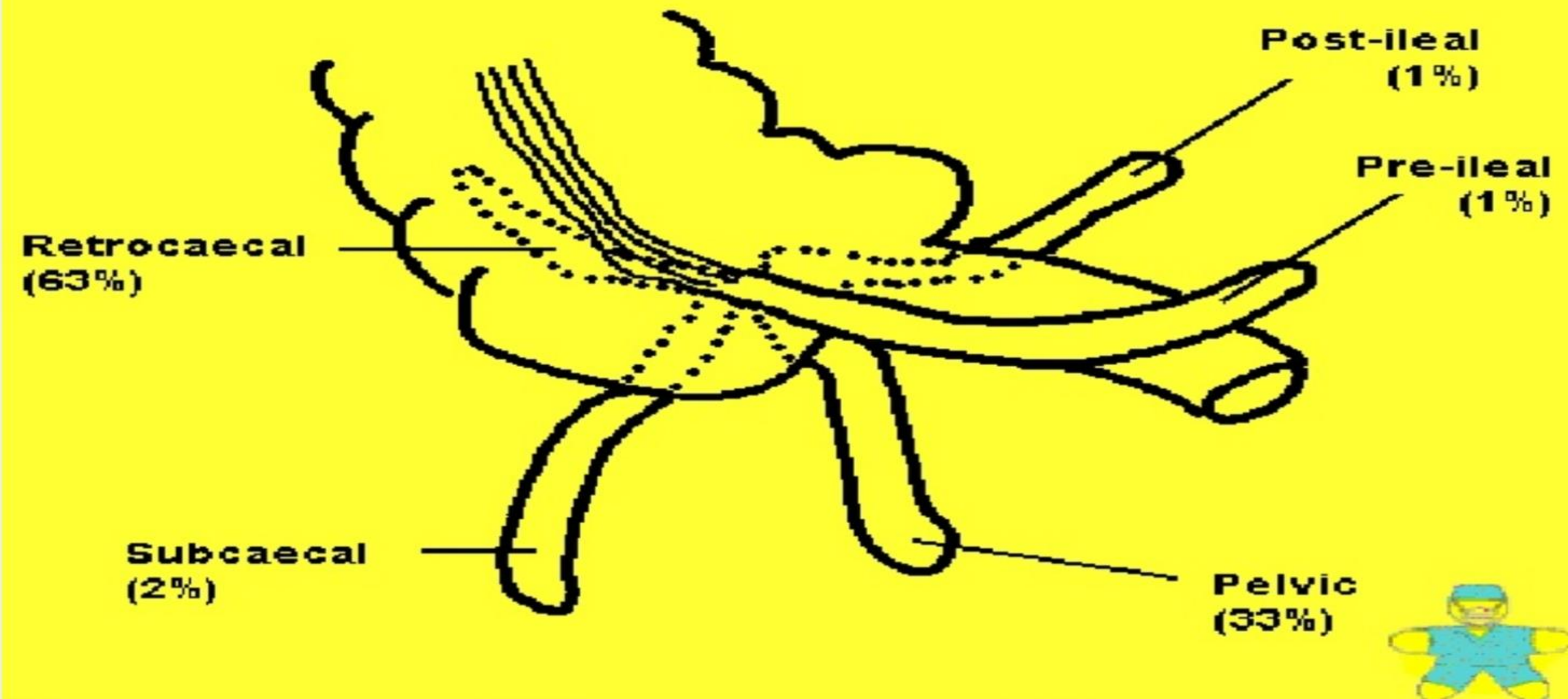


Surgical Anatomy

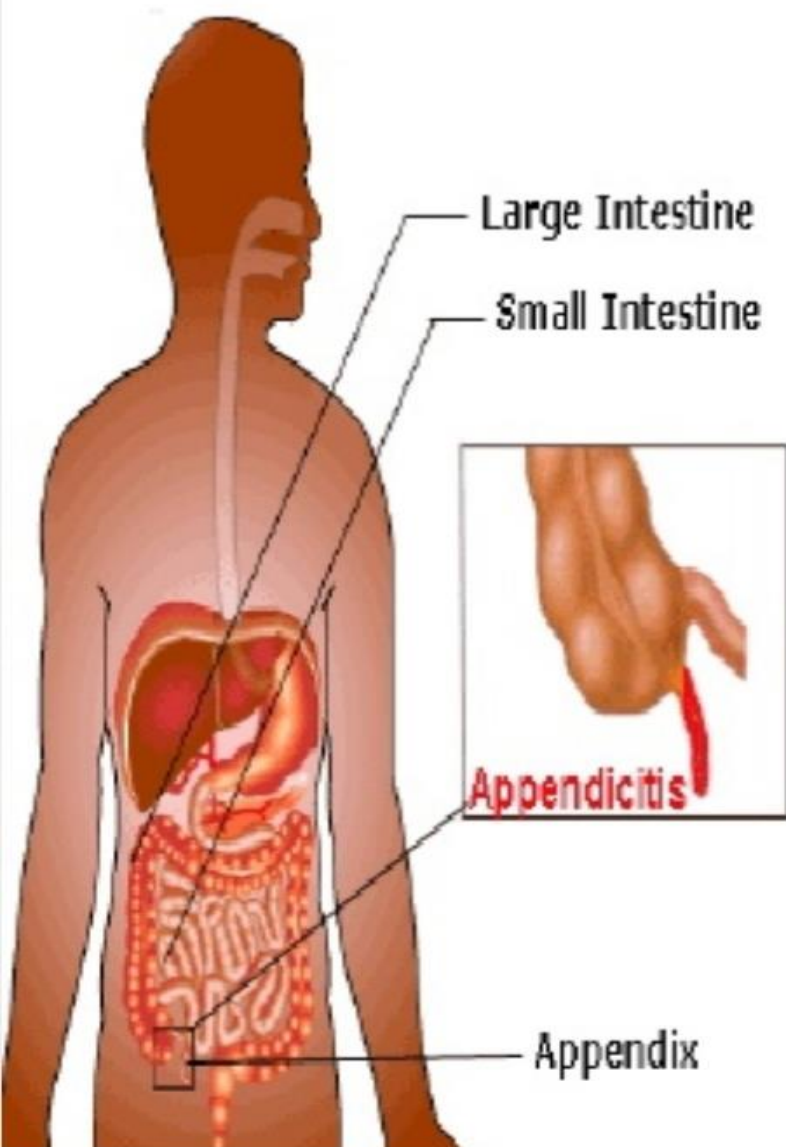


- The appendix is attached at the point of convergence of the three taeniae coli of the caecum on its posteromedial wall
- The meso-appendix is a peritoneal fold containing fat & appendicular artery
- Commonly behind the caecum (Retrocaecal)
- On psoas muscle at or below pelvic brim (Pelvic)
- Rarely : Pre-ileal – Post-ileal – Paracaecal
- Length less than 1 to greater than 30cm (most are 6-9 cm in length)
- After age of 60 no lymphoid tissue remains

POSITIONS OF APPENDIX



Surgical Anatomy



Predisposing factors :

1- Obstructive agents

2- Infective agents

Obstructive agents

Foreign bodies :

- animal (e.g. thread worms ,round worms) ,
- vegetables (e.g. seeds , date stones)
- mineral (faecalith = common cause)
- submucous lymphoid tissue hyperplasia leads to obstruction



Infective agents :

- **Primary infection** leading to lymphoid hyperplasia
- **Secondary infection** caused by pressure of an obstructed agent leads to epithelial erosion and bacteria gain access to the wall
- **Both aerobic & anaerobic organisms** are involved including (coliforms , enterococci , bacteroids & other intestinal commensals)

PATHOPHYSIOLOGY

- ❖ **Acute appendicitis is thought to begin with obstruction of the lumen**
- ❖ **Obstruction can result from food matter, adhesions, or lymphoid hyperplasia**
- ❖ **Mucosal secretions continue to increase intra luminal pressure**

PATHOPHYSIOLOGY

- ❖ Eventually the pressure exceeds capillary perfusion pressure and venous and lymphatic drainage are obstructed.
- ❖ With vascular compromise, epithelial mucosa breaks down and bacterial invasion by bowel flora occurs.

PATHOPHYSIOLOGY

- ❖ **Increased pressure also leads to arterial stasis and tissue infarction**
- ❖ **End result is perforation and spillage of infected appendiceal contents into the peritoneum**

PATHOPHYSIOLOGY

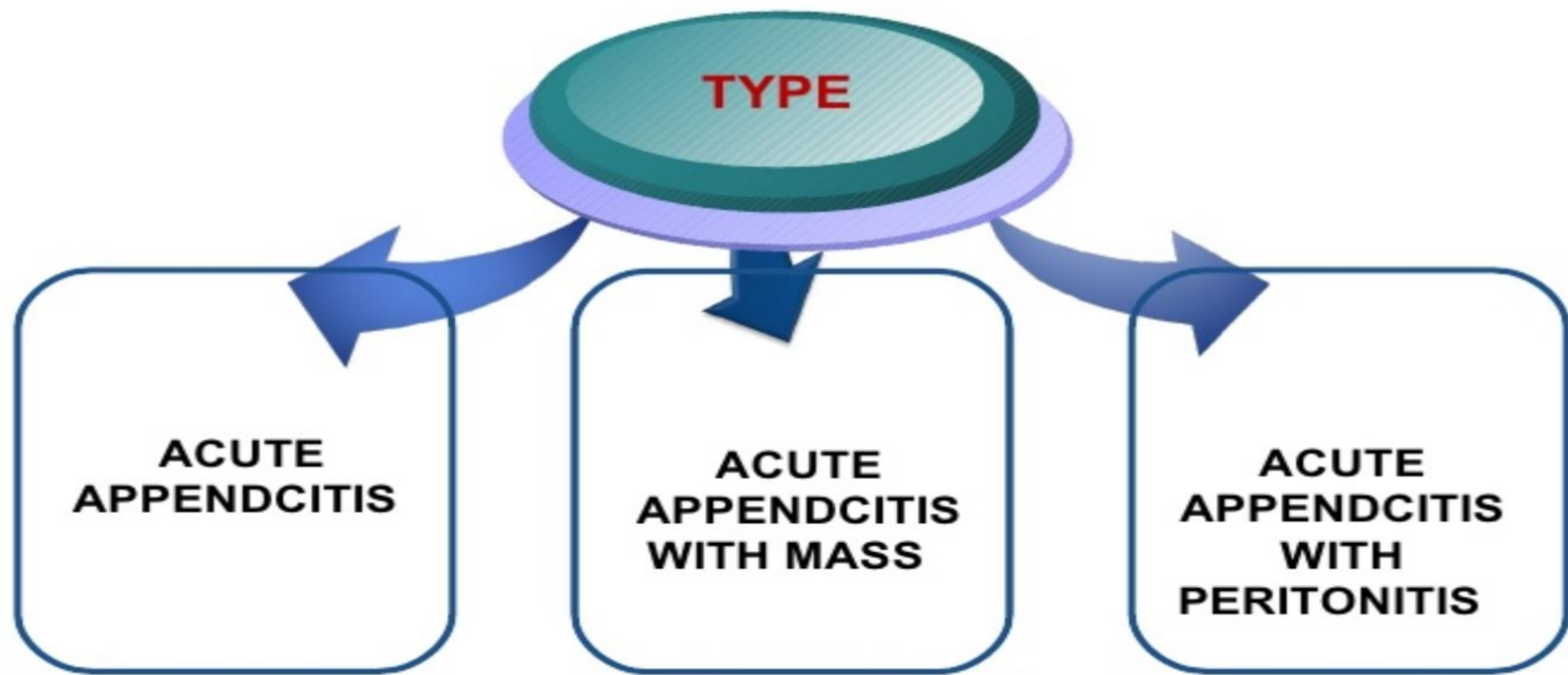
- ❖ **As inflammation continues, serosa and adjacent structures become inflamed**
- ❖ **This triggers somatic pain fibers, innervating the peritoneal structures. causing pain in the RLQ**

PATHOPHYSIOLOGY

The change in stimulation from visceral to somatic pain fibers explains the classic migration of pain in the peri-umbilical area to the RLQ seen with acute appendicitis.

PATHOPHYSIOLOGY

- ❖ **Exceptions exist in the classic presentation due to anatomic variability of the appendix**
- ❖ **Appendix can be retrocecal causing the pain to localize to the right flank**
- ❖ **In pregnancy, the appendix can be shifted and patients can present with RUQ pain**

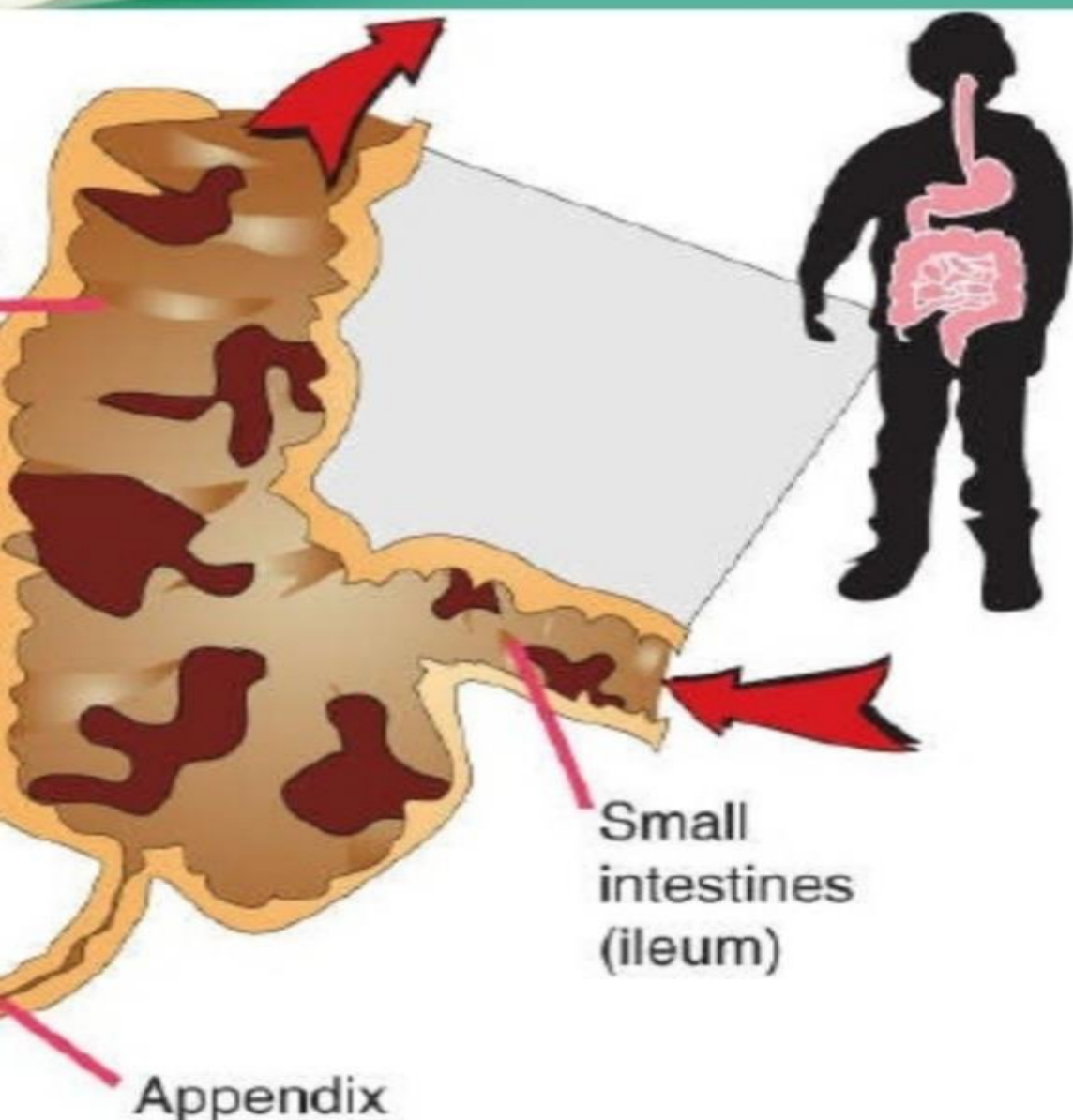


Acute appendicitis



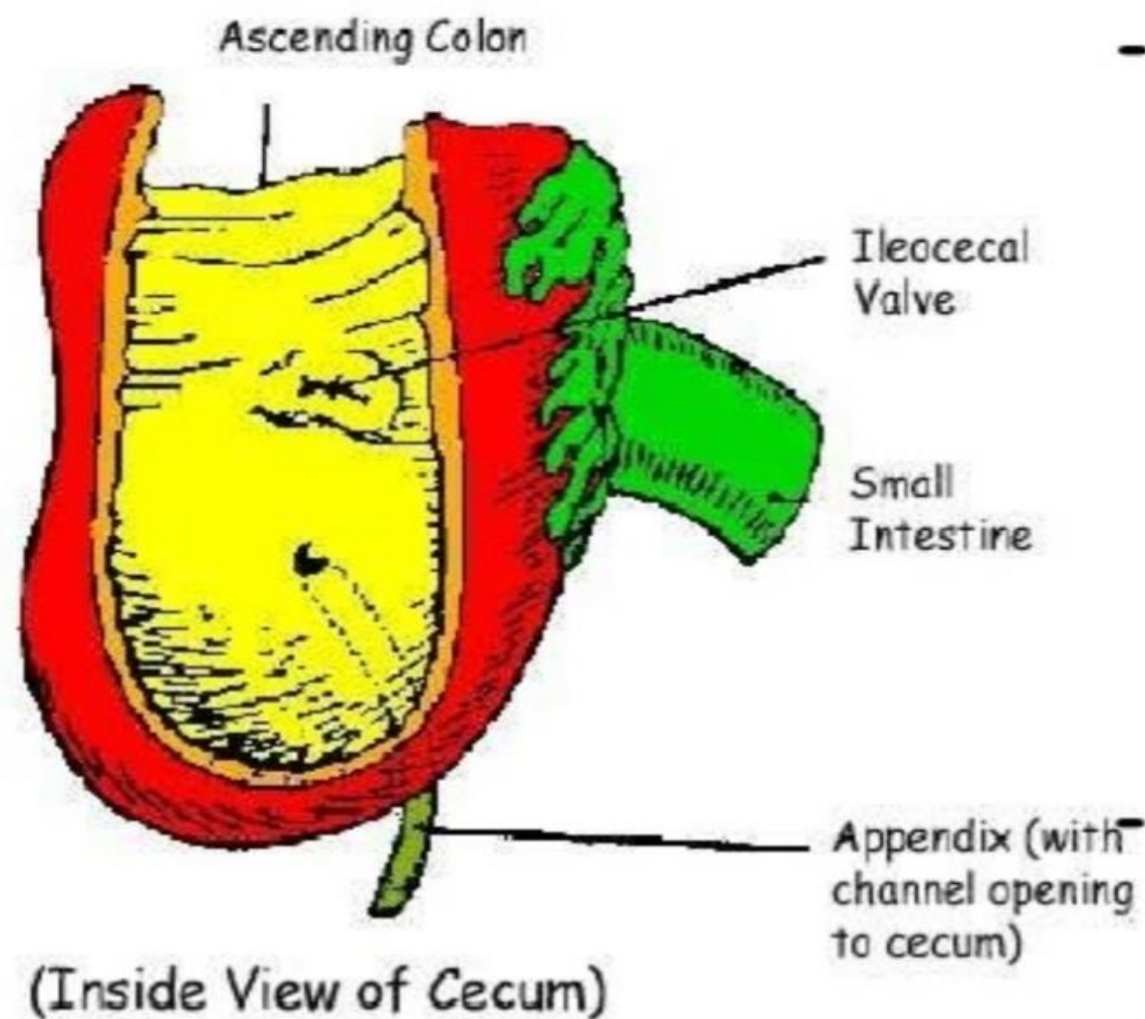
- Organisms enter the wall & lodge in sub mucosa , proliferate , wall becomes red & turgid
- Rate of acceleration of inflammation increase in presence of obstruction to lumen of appendix

Acute appendicitis with mass



Obstruction + infection lead to distension with pus hence increase intraluminal pressure lead to venous occlusion , oedema , arterial occlusion , gangrene and perforation follows , rapidly localised by defence mechanism (greater omentum & coils of bowel) . Appendix mass is formed , can undergo suppuration to produce an appendix abscess

Acute appendicitis with peritonitis



- Free perforation following obstruction + infection allows infected material to disperse widely in peritoneal cavity lead to intense peritoneal reaction with outpouring of fluid

Serosal surfaces of bowel become injected flaked with clotted lymph

Clinical Features

1

Abdominal pain periumbilical at first , then to right iliac fossa within a few hours it becomes persistent . Onset is usually sudden , may arise in right iliac fossa and remains there

2

Retrocaecal appendix may cause flank or back pain
Pelvic appendix may cause suprapubic pain

3

Anorexia nearly always accompanies appendicitis
Vomiting occurs in about 75% of patients
(most vomit once or twice)

Clinical Features

4

Most patients give history of constipation before onset of pain , diarrhea in some particularly children

5

Fever
Low grade
Around 100 degee F
Oc. Haematuria

6

Murphy's Triad
Pain
Vomiting
Fever

LOCAL SIGNS

Tenderness of a localised & persistent nature is the most important abdominal finding , situated at RIF , classically at **McBurney's point**
(junction of middle & outer third of a line from umbilicus to anterior superior iliac spine

Rigidity over RIF

Rebound tenderness (best elicited by percussion)

Tenderness on right side during rectal examination (may be only sign with pelvic appendicitis)

CLINICAL FEATURES

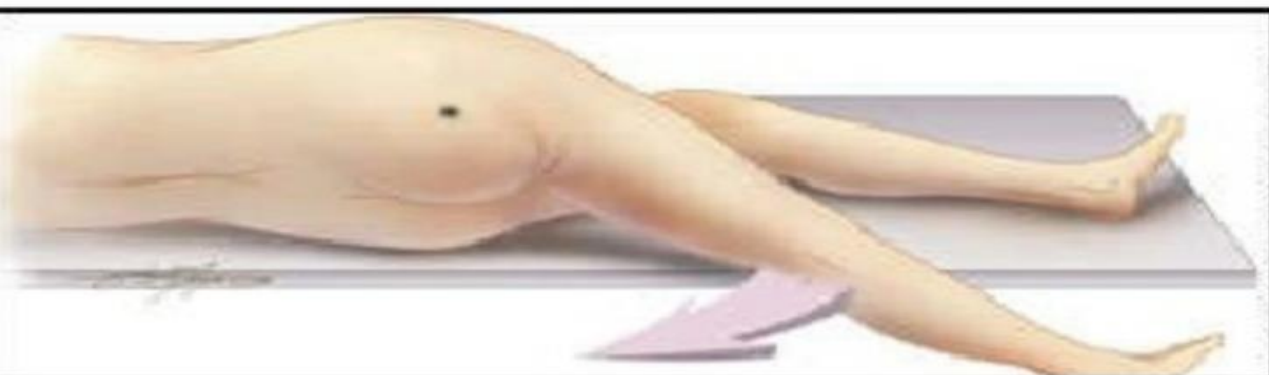
ROVSING'S SIGN



Continuous deep palpation starting from the left iliac fossa upwards (anti clockwise along the colon) may cause pain in the right iliac fossa, by pushing bowel contents towards the ileocaecal valve and thus increasing pressure around the appendix. This is the Rovsing's sign.

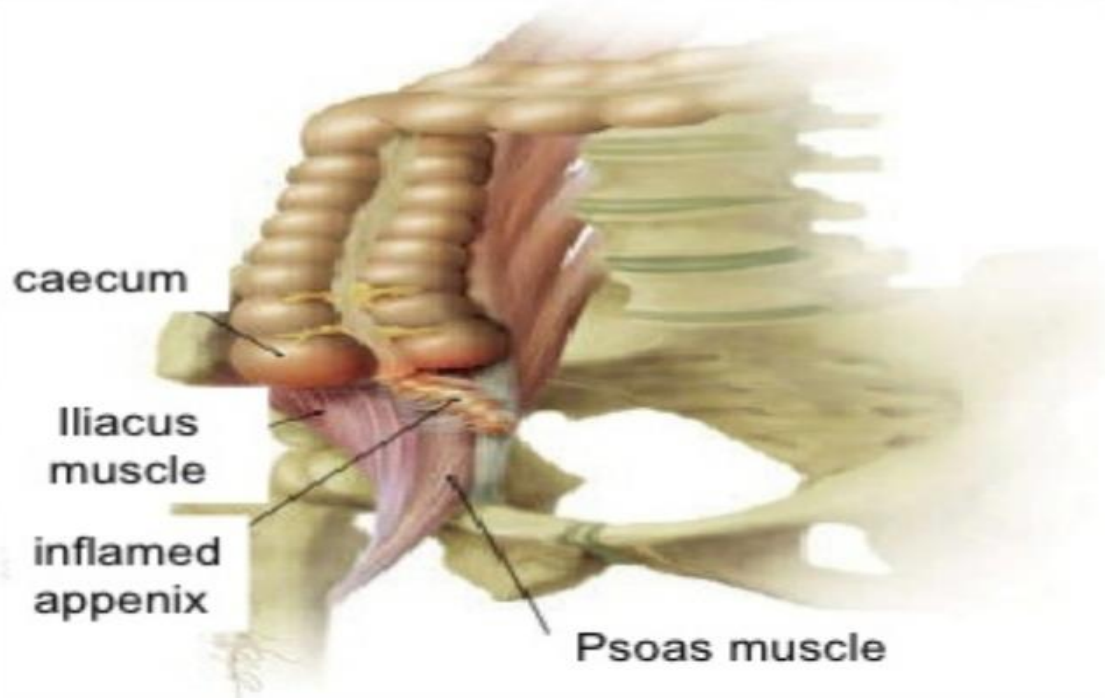
CLINICAL FEATURES

PSOA'S SIGN



Psoas sign is right lower-quadrant pain that is produced with the patient extending the hip due to inflammation of the peritoneum overlying the psoas muscles and inflammation of the psoas muscles themselves.

Straightening out the leg causes the pain because it stretches the muscles, and flexing the hip into the "fetal position" relieves the pain.

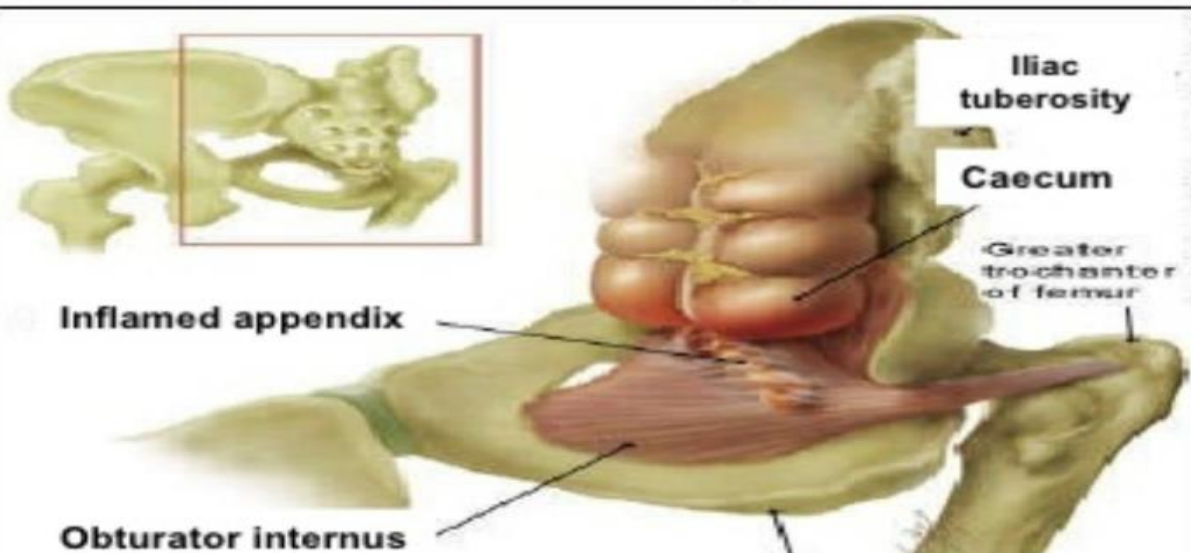


CLINICAL FEATURES

OBTURATOR'S SIGN



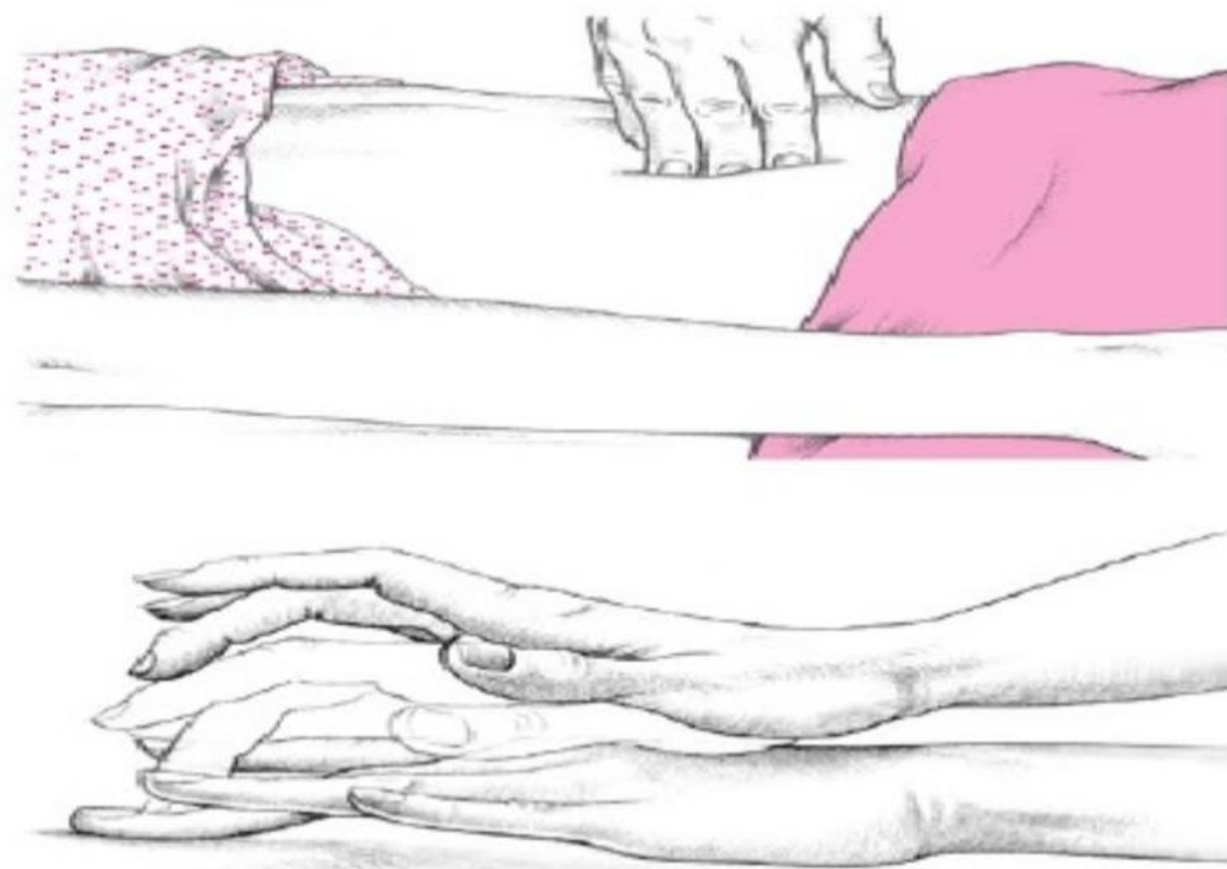
The obturator sign. Pain on passive internal rotation of the flexed thigh. Examiner moves lower leg laterally while applying resistance to the lateral side of the knee (asterisk) resulting in internal rotation of the femur..



CLINICAL FEATURES

BLOOMBERG'S SIGN

Eliciting rebound tenderness

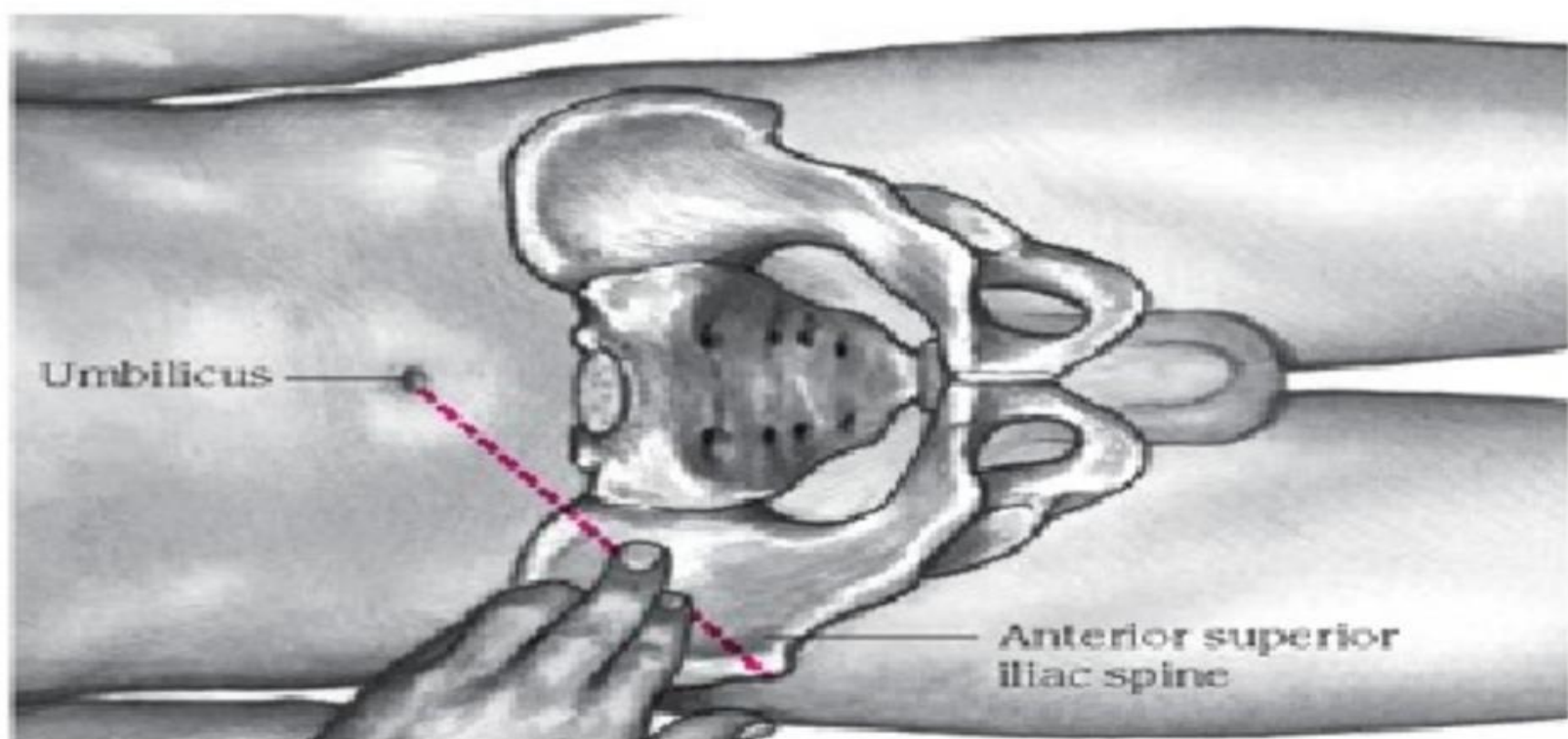


Also referred as **rebound tenderness**. Deep palpation of the viscera over the suspected inflamed appendix followed by sudden release of the pressure causes the severe pain on the site indicating positive Blumberg's sign and peritonitis

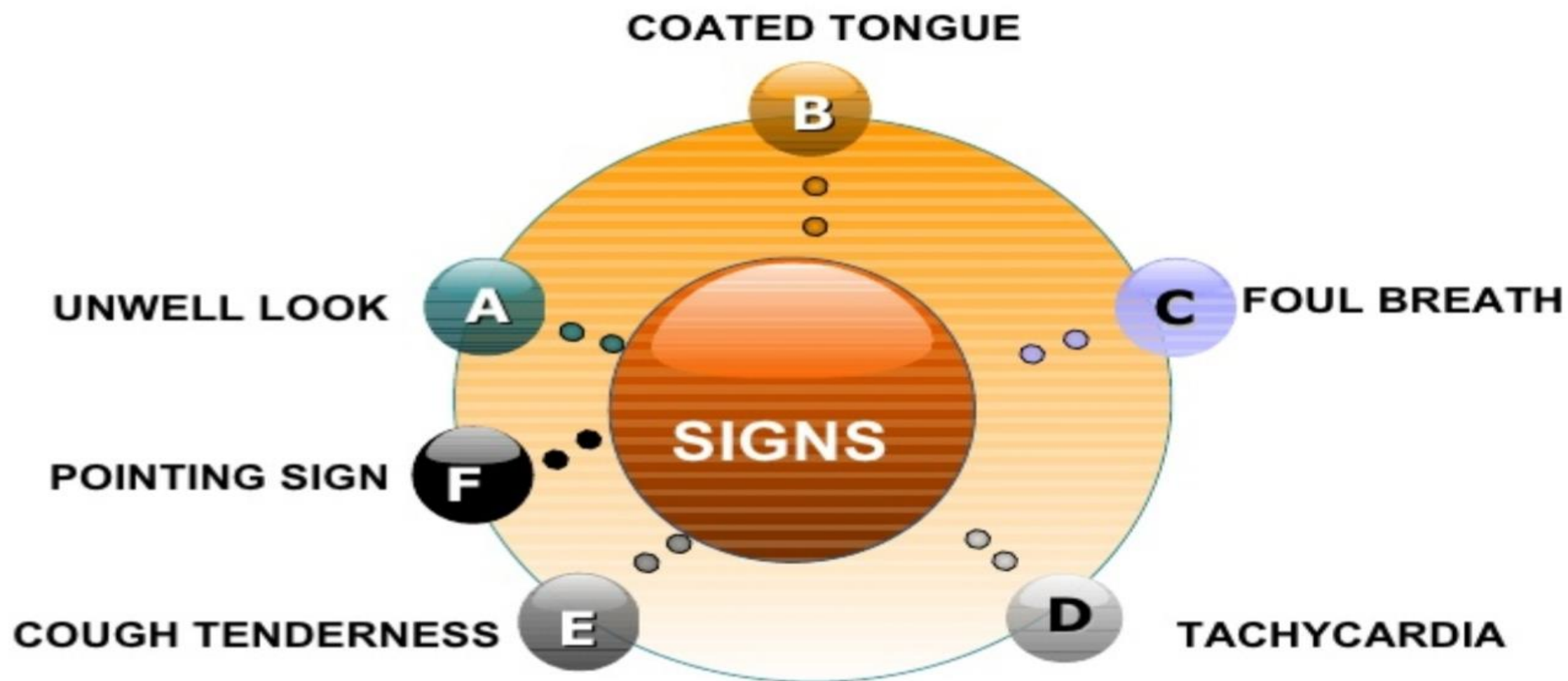
CLINICAL FEATURES

MCBURNNEY'S SIGN

To elicit McBurney's sign patient should be in supine position with his knees slightly flexed and his abdominal muscles relaxed. Palpate deeply and slowly in the right lower quadrant over McBurney's point located about 2" from the Rt. Ant. Sup. Iliac Spine. On a line between the spine and umbilicus. Point pain and tenderness is a positive sign and indicates appendicitis.

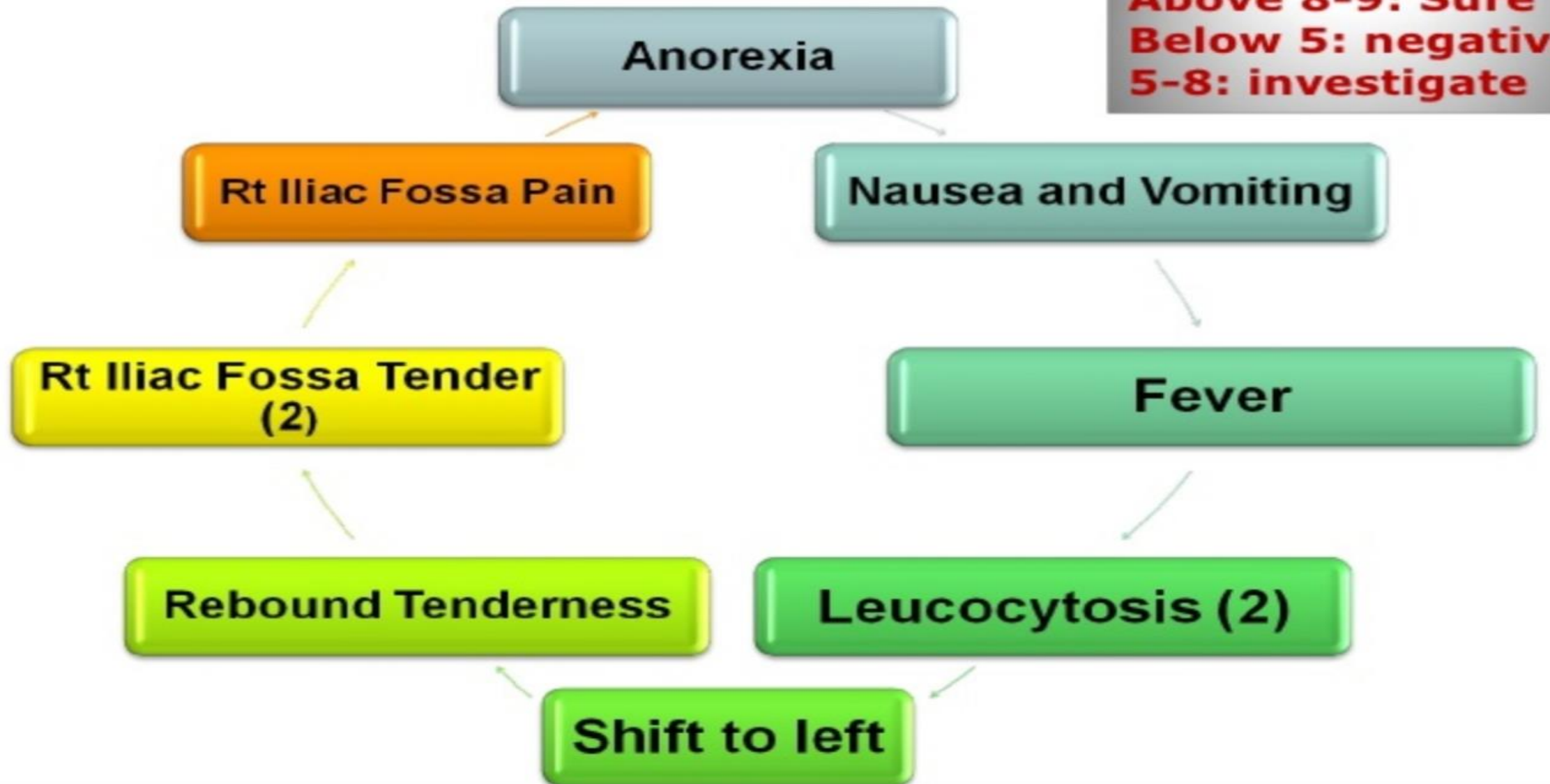


Clinical Features



Alvarado Score

Above 8-9: Sure
Below 5: negative
5-8: investigate



Differential Diagnosis



A decorative header image showing a cluster of surgical lights in a teal color scheme.

Differential Diagnosis

CHILD

Gastroenteritis, Mesenteric adenitis, Meckel's diverticulum, Intussusception

ADULT

Regional enteritis, Ureteric Colic, Perforated P.U., Torsion of Testis, Pancreatitis

FEMALE

Pelvic Inflammatory Diseases, Pyelonephritis, Ectopic Pregnancy, Ovarian Cyst, Endometriosis, uterine fibroids.

OLD

Diverticulitis, intestinal obstruction, carcinoma colon etc.