Surgery of the Intestines

Definitions

- Enterotomy : gain access to the lumen of the small bowel to remove a foreign body or help define a disease by acquiring a full thickness biopsy.
- Enterectomy :intestinal resection and anastomosis after remove bowel necrosis.

Indications

Indications for enterotomy :

1-remove intestinal foreign body.

2- a full thickness biopsy.

Indications for enterectomy :

1-diseases causing bowel necrosis: (e.g. foreign bodies(Ingested foreign body, dried feces, indigested food like a piece of bone, heavy parasite infestation) , trauma, volvulus (an axial rotation of portion of intestine), strangulation (part of intestine loop slips through an opening)

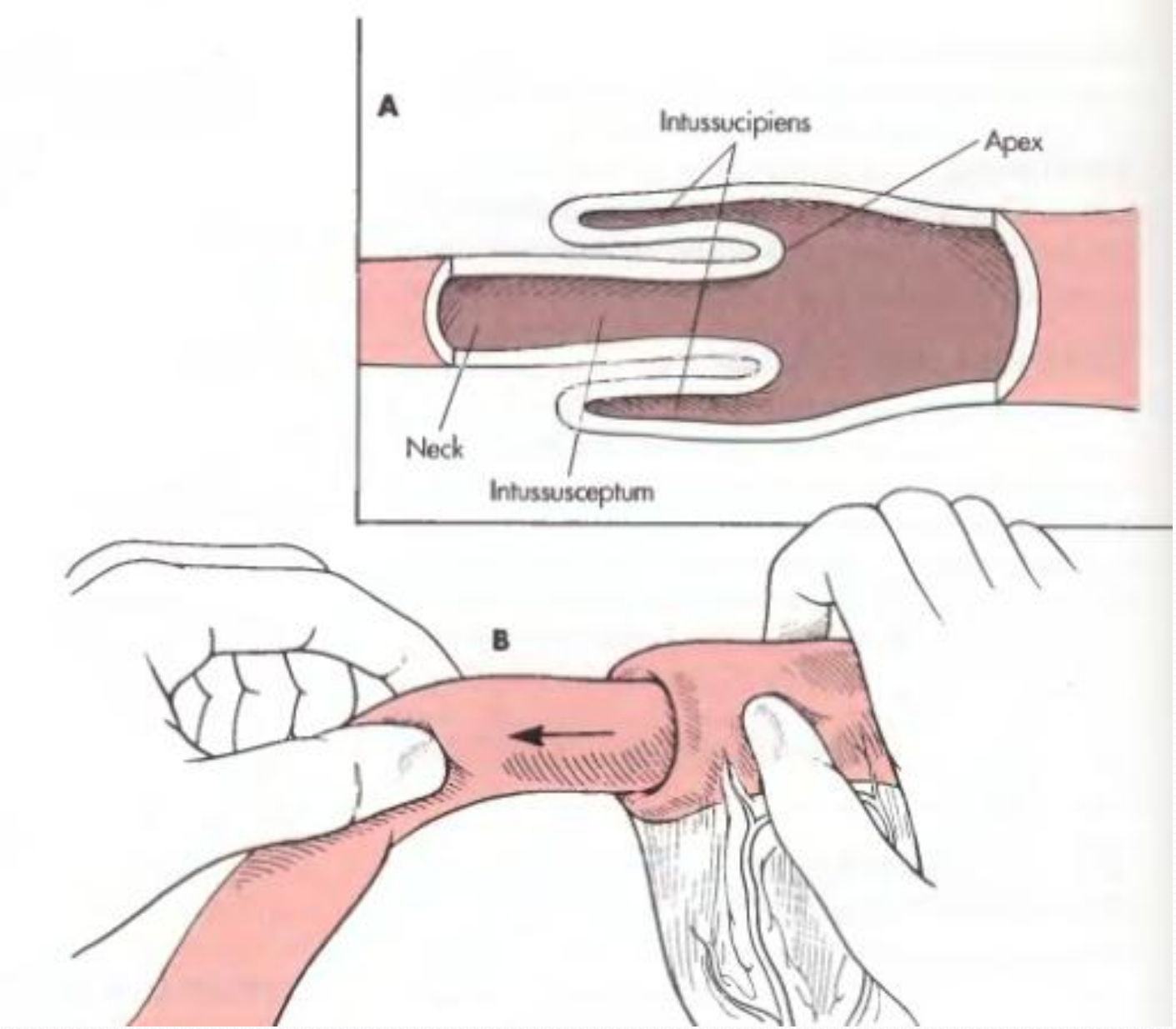
2- neoplasia.

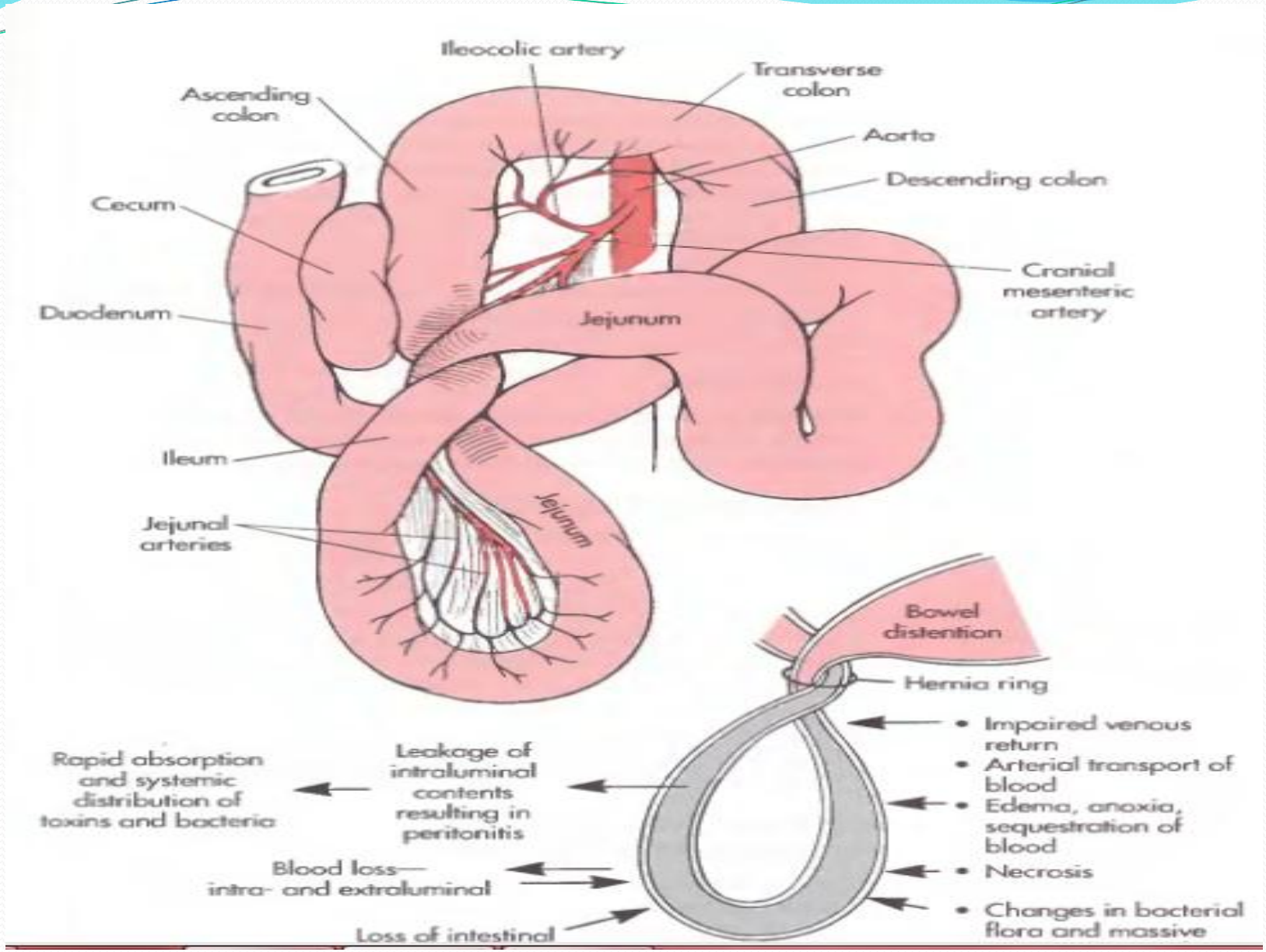
3- intussusception.(invagination of a portion of intestine into the part that follows or precedes)

4- sever, focal infiltrative bowel disease (e.g. phycomycosis pythiosis, zygomycosis.

5-congenital obstruction :(e.g. atresia)

6-ulcers.


A
Intussucipiens
Apex
Neck
Intussusceptum
B

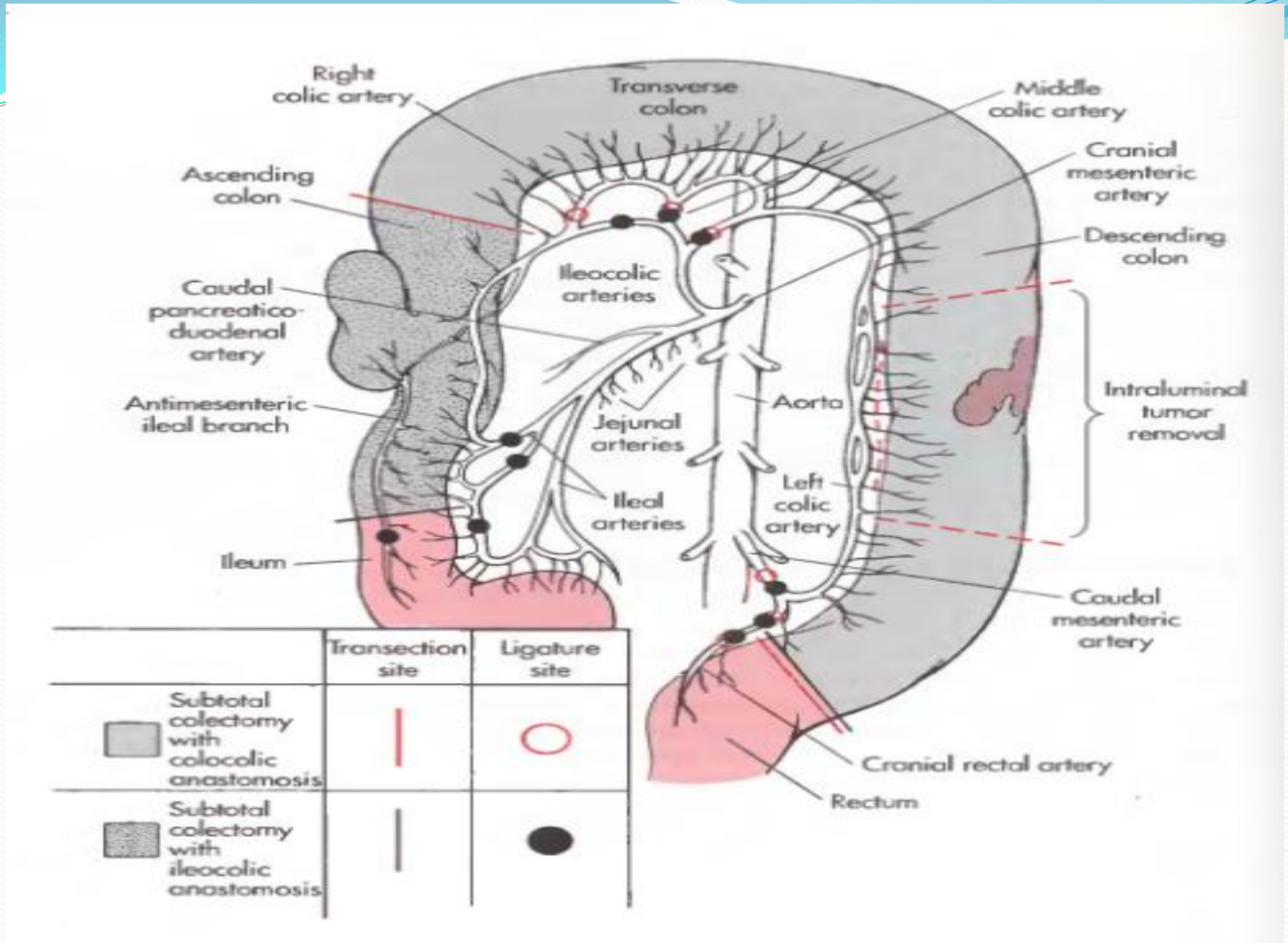

Ileocolic artery
Transverse colon
Ascending colon
Aorta
Descending colon
Cecum
Cranial mesenteric artery
Duodenum
Jejunum
Ileum
Jejunum
Jejunal arteries
Bowel distention
Hernia ring
Impaired venous return
Arterial transport of blood
Edema, anoxia, sequestration of blood
Necrosis
Changes in bacterial flora and massive
Leakage of intraluminal contents resulting in peritonitis
Rapid absorption and systemic distribution of toxins and bacteria
Blood loss— intra- and extraluminal
Loss of intestinal

Anatomy

- *S.I.* extend from the pylorus to the cecum and occupies the ventro-caudal part of abdomen. Its length about 3.5 times of the length of the body .
- *The* major portion of the S.I. is jejunum, which is a very mobile structure.
- *The* tunica of S.I includes the mucosa,submucosa ,mascularis and serosa.

Blood supply

- Blood supply of small intestine from the *cranial mesenteric A*. which is apart of Aorta
- The cranial mesentric A. devides into 15- 20 intestinal branches.


Right colic artery
Transverse colon
Middle colic artery
Cranial mesenteric artery
Ascending colon
Descending colon
Ileocolic arteries
Caudal pancreatico-duodenal artery
Intraluminal tumor removal
Antimesenteric ileal branch
Aorta
Jejunal arteries
Left colic artery
Ileal arteries
Ileum
Caudal mesenteric artery
Cranial rectal artery
Rectum
Transection site
Ligature site
Subtotal colectomy with colocolic anastomosis
Subtotal colectomy with ileocolic anastomosis

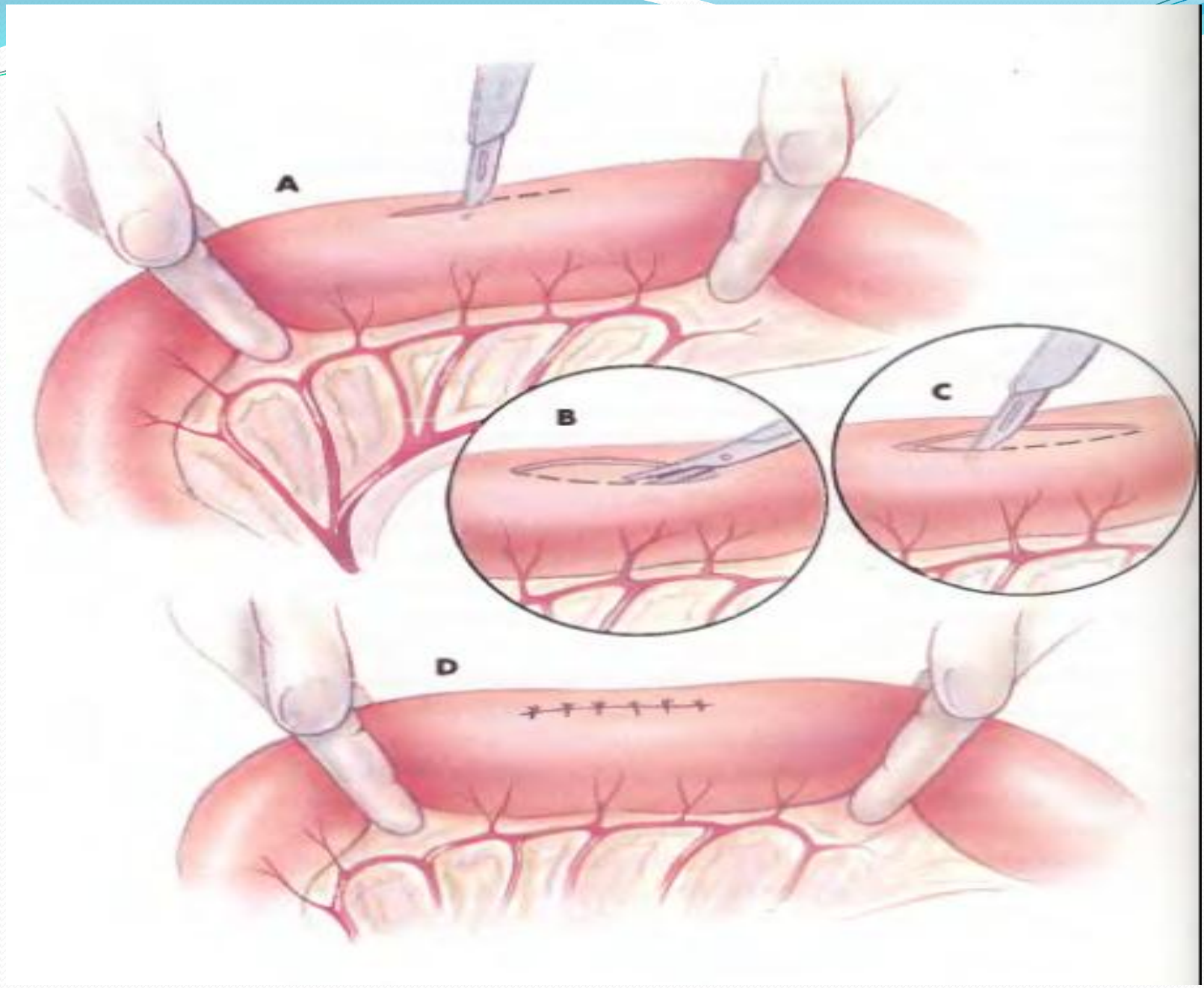
Surgical technique

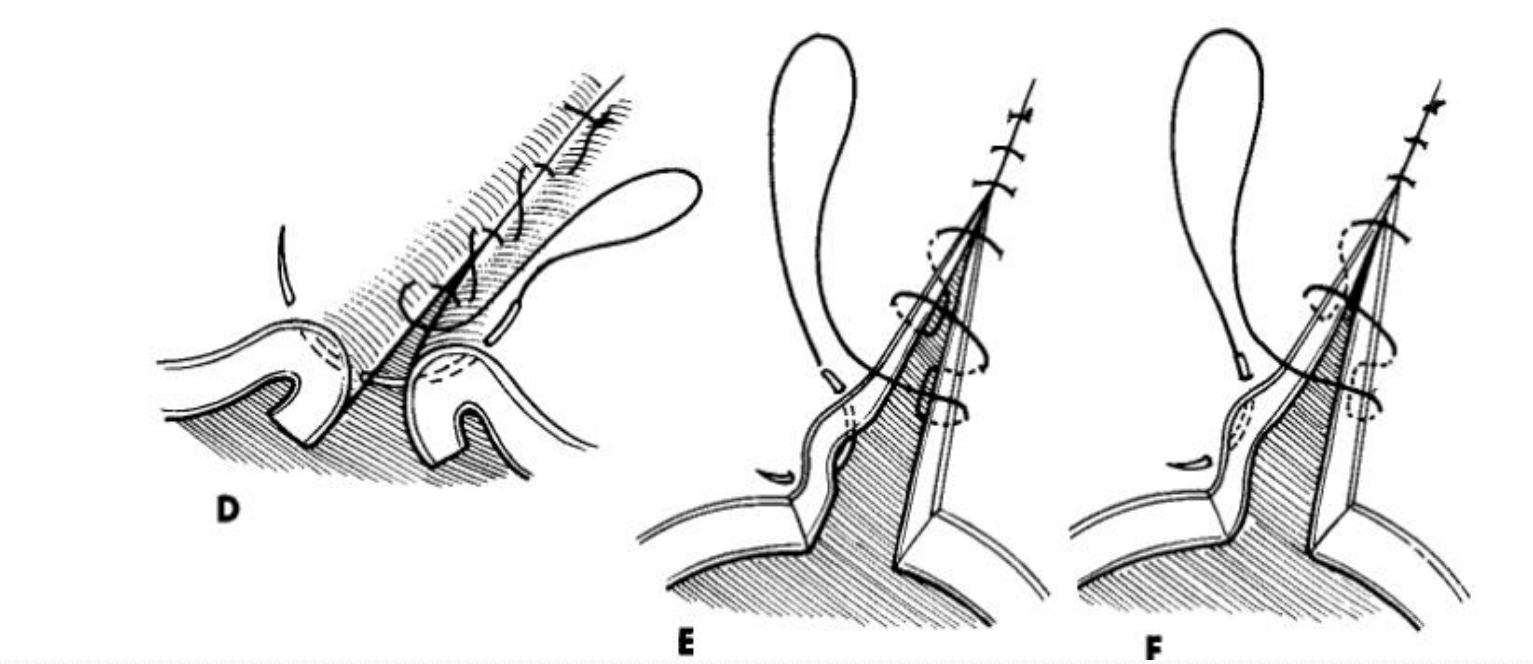
Not:

- must perform within 12 hr. of diagnosis. within this time fluid ,acid base and electrolytes abnormalities should be correct .
- Prophylactic antibiotics administered preoperatively are indicated in small bowel surgery

Enterotomy technique

- Make midline abdominal incision.
- Isolate the segment of bowel to entered with moisture laparotomy sponges.
- Place a 3/0 stay of both ends of the preposed enterotomy incision .
- Milk bowel contents away from the preposed enterotomy site.
- Place non –crushing intestinal forceps (or an assistant's finger) across the bowel to minimized spillage.
- Make a full thickness stab incision into the lumen enlarge the incision with scisores.
- Perform the enterotomy over healthy bowel distal to the foreign body.
- Close the enterotomy incision with 3/0 or 4/0 synthetic absorbable suture material or mono filament non – absorbable suture material .
- Appositional suture pattern is preferred.
- Rinse the enterotomy site thoroughly with warm saline.
- Use omentum or jejunal onlay patch to reinforce the suture line
- even in relatively healthy tissue .
- perform ruotine abdominal closure.

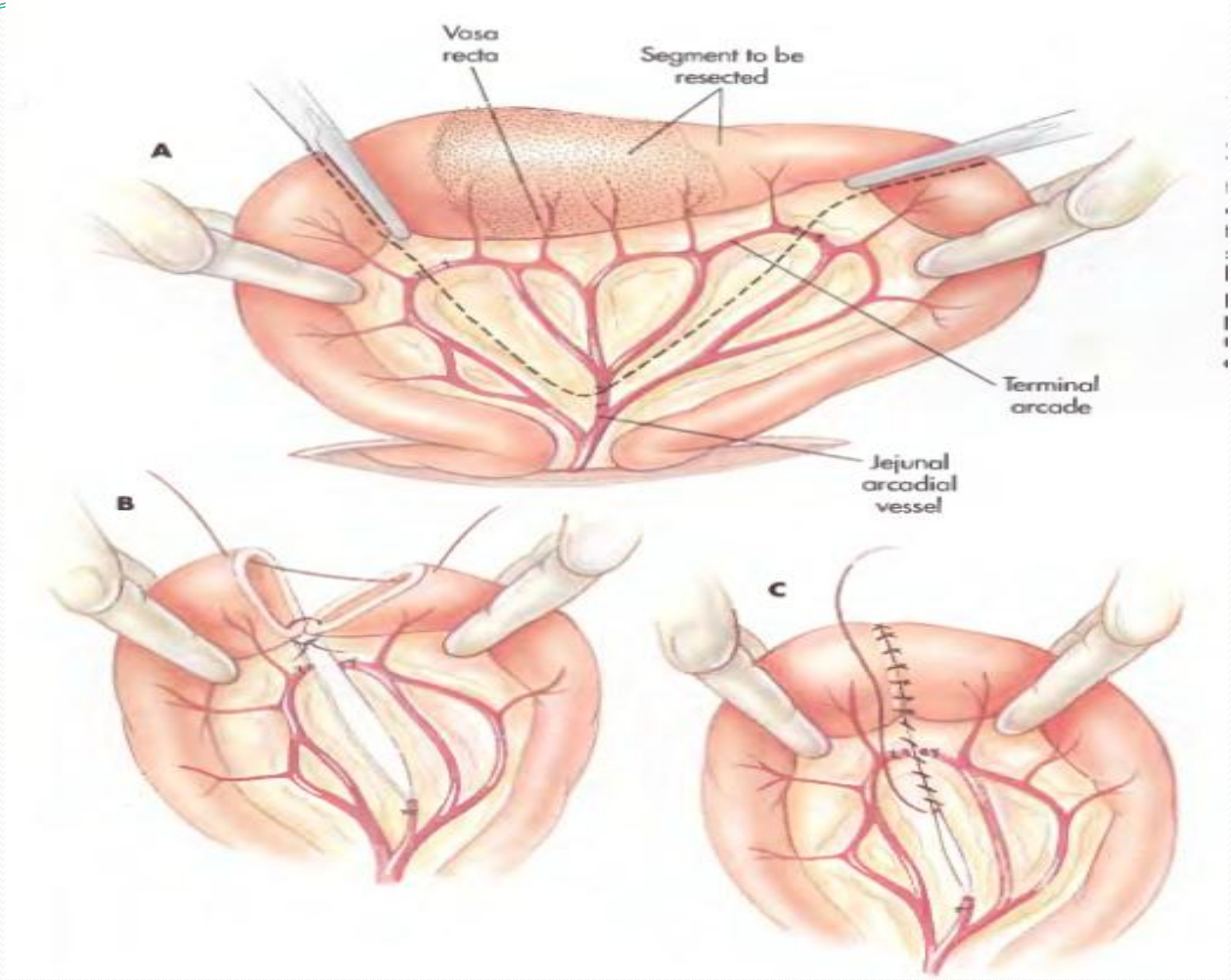

A
B
C
D


D
E
F

Enterectomy technique

- Make midline abdominal incision long enough to accommodate a thorough abdominal exploratory procedure .
- Isolate the affected bowel segment with saline-moistured laparotomy sponges.
- Isolate and ligate the mesenteric vessels to the affected area.
- Place crushing clamp across the bowel at a 60 degree angle to the long axis of the bowel .
- Milk the ingesta away from the crushing clampsplace a non –crushing clamp across the viable segments of bowel to be anastomosed or have an assistant gently hold the bowel segments during the anastomosis .

- Excise the diseased bowel by between the crushing clamp and arcadia vessel ligation.
- Suture by 3/0 or 4/0,all knots are extra luminal
- Carefully place the first suture at the mesenteric border. The second suture apposes the antimesentric border. place sutures approximately 2-3 mm apart along the “near” side of the anastomosis. include the entire thickness of the bowel.
- Appose the “far” side or back wall similarly
- Gently flush warm sterile saline over the anastomotic site and adjacent lengths of bowel.
- Wrap a piece of omentum around the line of anastomosis and gently tack it to the bowel above and below the anastomosis.
- Close the defect in the mesentery with a continuous suture.


Vasa recta
Segment to be resected
A
Terminal arcade
Jejunal arcadial vessel
B
C

Post- operative considerations

- The animal should be monitored closely for vomiting during recovery.
- Analgesics should be provided as need.
- Hydration should be maintained with IV fluids and electrolyte abnormalities should be monitored and correction
- Small amount of water may be offered 8-12 hr after surgery, if no vomiting occurs small amounts of food maybe offered 12 to 24 hr after surgery, and should be fed a bland , low fat food.
- Antibiotic should be discontinued within 2 to 6 hr of surgery unless peritonitis is present.
- After intestinal surgery clinical signs(depression, high fever, excessive abdominal tenderness, vomiting and or ileus.

Complication

The most complication of intestinal surgery are

- Shock
- Leakage
- Ileus
- Dehiscence
- Peritonitis
- stenosis