Abdominal Incisions

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Surgical Incision is a cut made through the skin to facilitate an operation or precedure.

It should be the aim of the surgeon to employ the type of incision considered to be the most suitable for that particular operation to be performed.

In doing so, three essentials should be achieved:

1. Accessibility
2. Extensibility
3. A reliable closure

Principles

- Incision should be long enough for good exposure
- Splitting is better than cutting
- Avoid cutting of nerves and vessels
- Retract muscle, abdominal organs towards neurovascular bundle
- Insert DT through a separate incision
- Transverse incisions better than vertical incisions
- Close the wound layer by layer

Choice of incision

- Depend upon
- Type of surgery [elective/emergency]
- Target organ
- Surgeons own experience and preference and
- Previous surgery.

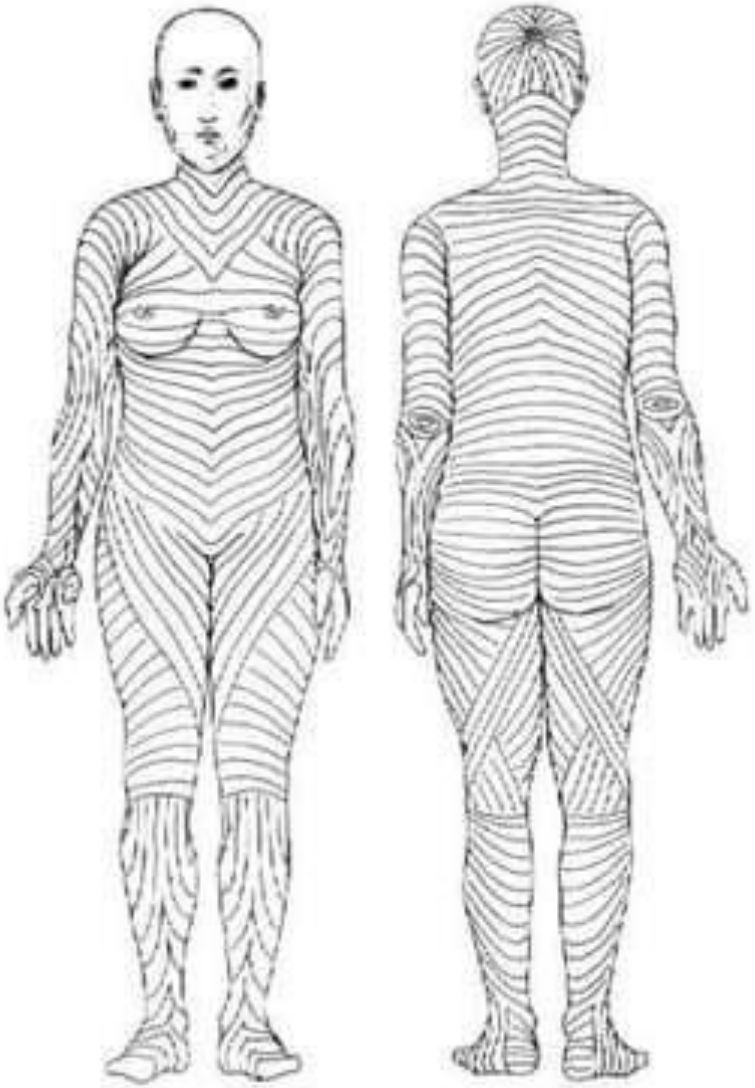
The ideal incision allows:

- ✓ ease of access to the desired structures
- ✓ can be extended if needed
- ✓ ideally muscles should be split rather than cut
- ✓ heals quickly with minimal scarring

Langer's Line

- Langer's Line correspond to the natural orientation of collagen fibers in the dermis, and are generally parallel to the orientation of the underlying muscle fibers

- Incisions made parallel to Langer's lines may heal better and produce less scarring than those that cut across.



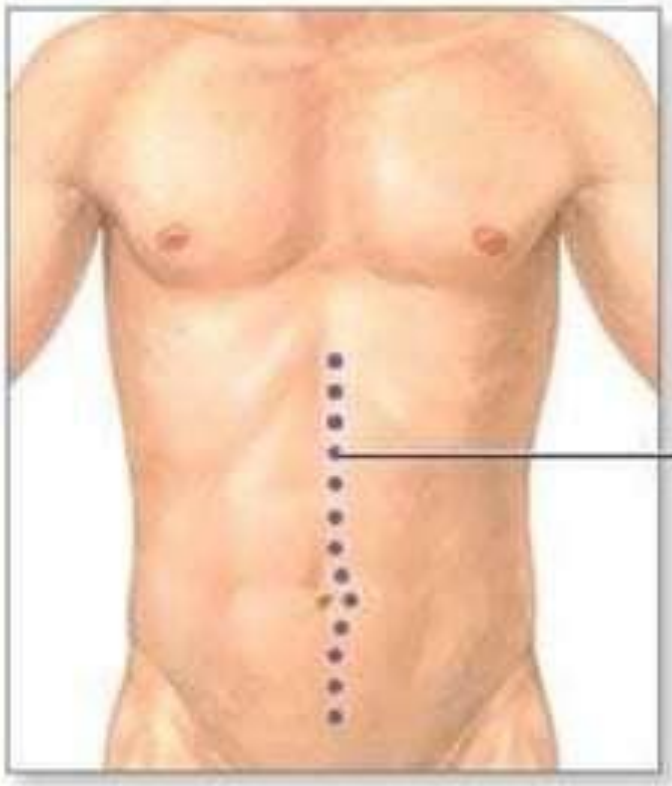
Abdominal & Pelvic incisions

- VerticalIncisions
  - Midline
  - Paramedian

- Transverse & Oblique Incisions
  - Kochler Subcostal Incision
  - Transverse Muscle Dividing
  - McBurney Incisions
  - Oblique Muscle cutting
  - Pfannenstiel Incision
  - Maylard Incision

- Abdominothoracic Incisions
- Retroperitoneal & extra-peritoneal approaches

Vertical Incisions



1)Median Incision

vertical incision which follows the linea alba.
It may be,

- ❑ upper midline incision;
- ❑ lower midline incision
- ❑ single incision.

SIGNIFICANCE-it is favored In diagnostic laparotomy, as it allows wide access to abdominal Cavity.

Advantages:

- almost bloodless
- no muscle fibers are divided
- no nerves are injured
- good access to upper abdominal viscera
- very quick to make as well as to close
- can be extended full lenght of abdomen curving around umblical scar.

Disadvantages

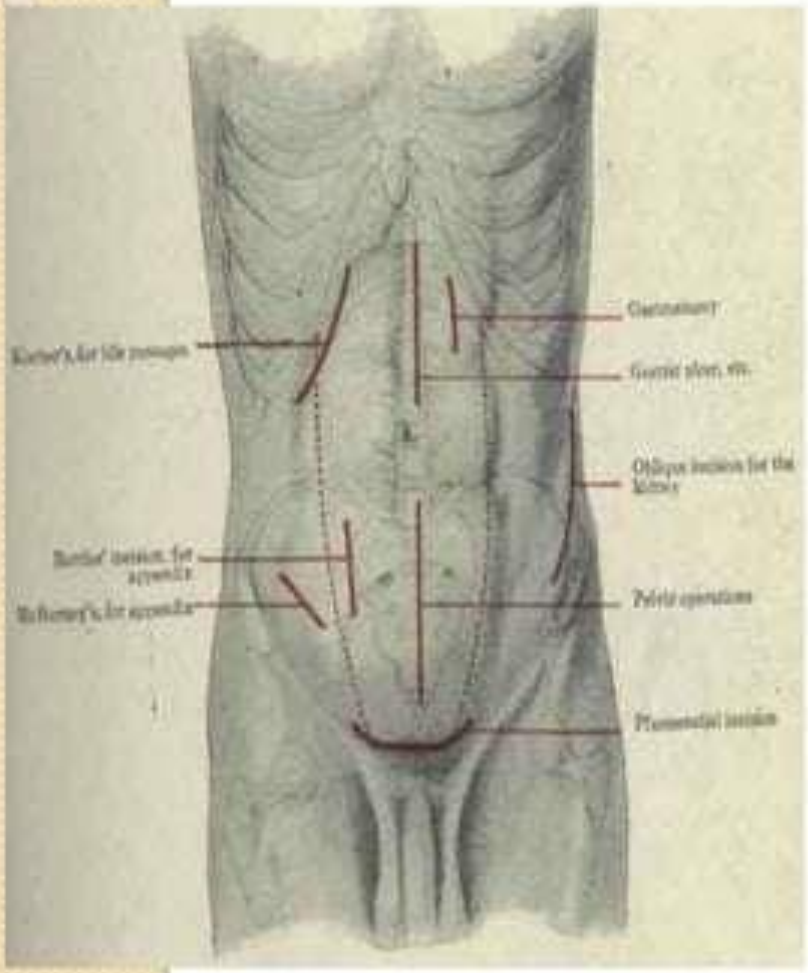
- Care needs to be taken just above the umbilicus where the falciform ligament is
- Midline scar
- Bladder injury

Upper midline incision

From xiphoid to above umbilicus.

Division of the peritoneum is best performed at the lower end of the incision,just above the umbilicus ,so that the falciform ligament can be seen and avoided

Lower midline incision



From the umbilicus superiorly to the pubis symphysis inferiorly

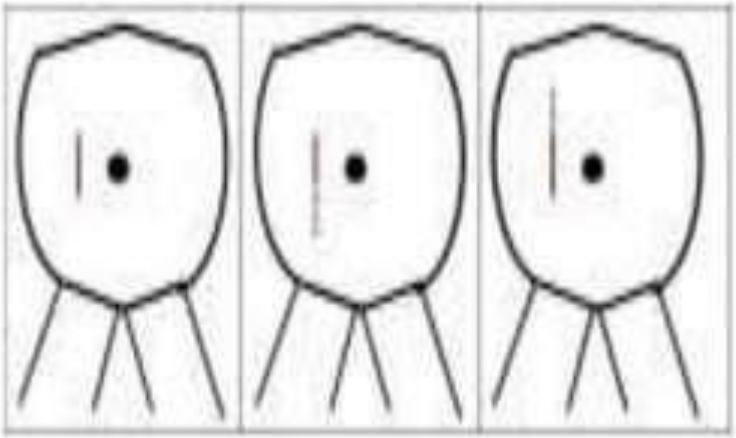
Allow access to pelvic organs the peritoneum should be opened in the uppermost area to avoid injury to the bladder

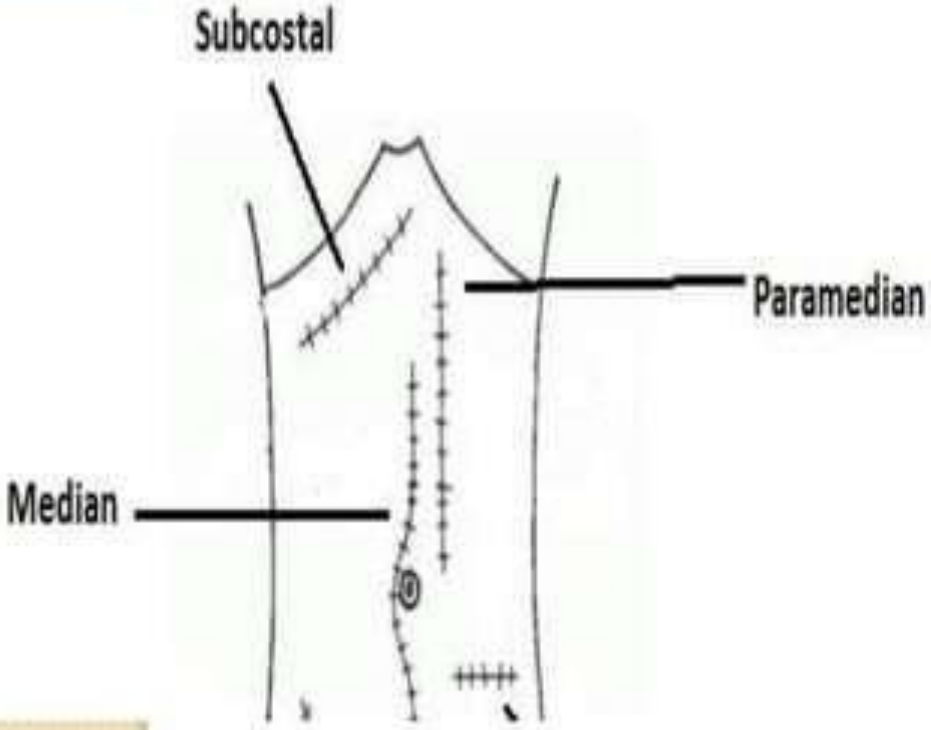
Full midline incision

- From xiphoid to pubis symphysis

Paramedian Incisions

placed 2 to 5 cm lateral to midline over median aspect of bulging transverse convexity of rectus muscle.





- **Advantages**
  - Provides access to lateral structures
  - Avoids injury to nerves,limits trauma to rectus muscle.
  - Permits good restoration of abdominal wall function
  - Can be extended by slanting the upper end of the incision medially towards the xiphoid process if required

- **Disadvantages**
  - Time consuming.
  - Incision needs to be closed in layers
  - Difficult extension superiorly as limited by the costal margin
  - Tends to strip the muscles of their lateral blood and nerve supply resulting in atrophy of the muscle medial to the incision

Transverse Incisions

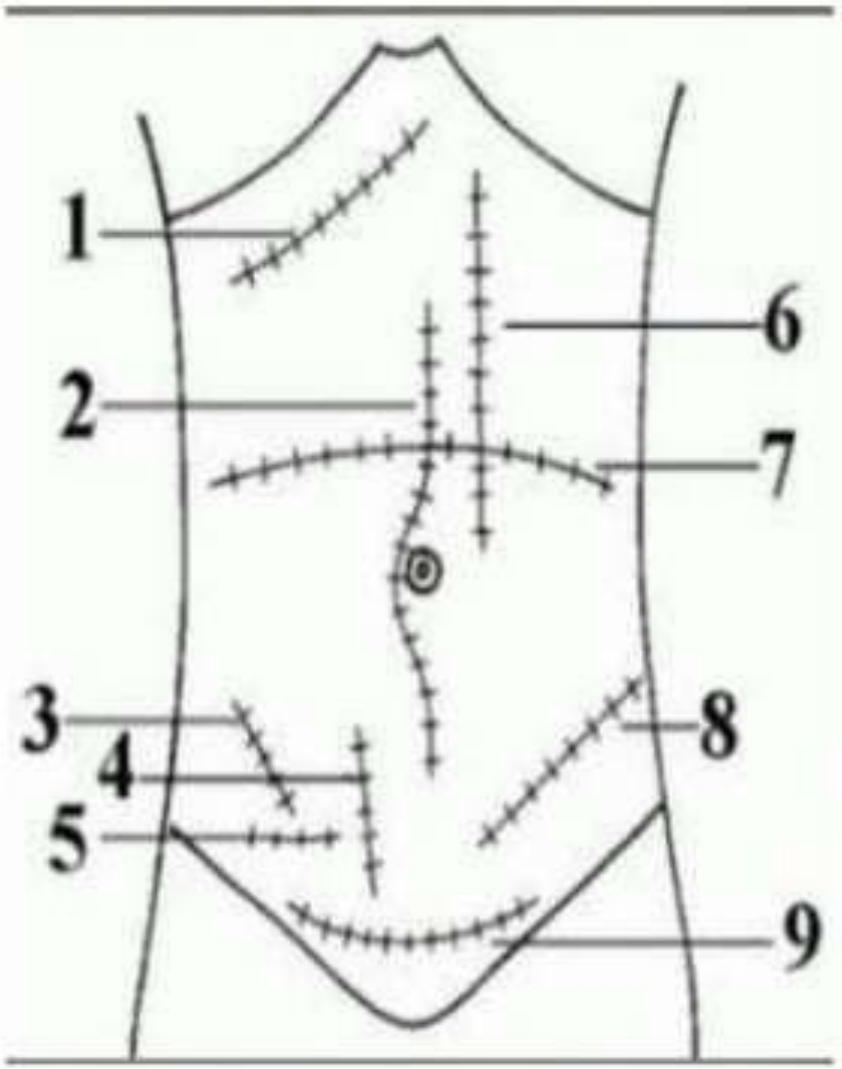
Advantages

- better cosmetically
- Stronger than vertical
- Less painful
- Good access to upper GI structures
- More advantageous in children b/c of more transverse length of abdomen.

Disadvantages

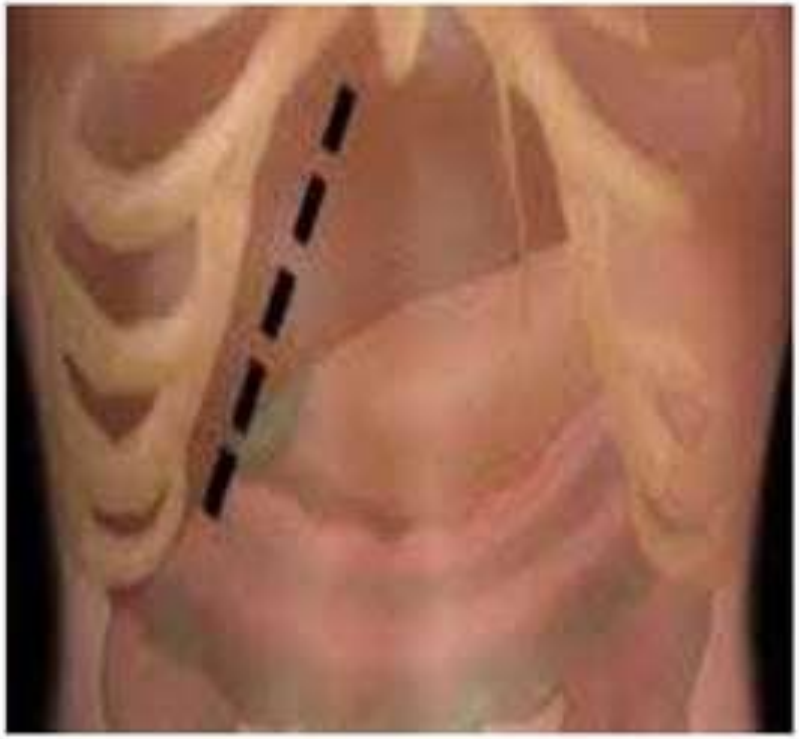
- Limited exposure to the organs

1)Kocher
2)Median
3)McBurny
4)Battle
5)Ianz
6)Paramedian
7)Transverse
8)Rutherford Morrison
9)Pfannensteil



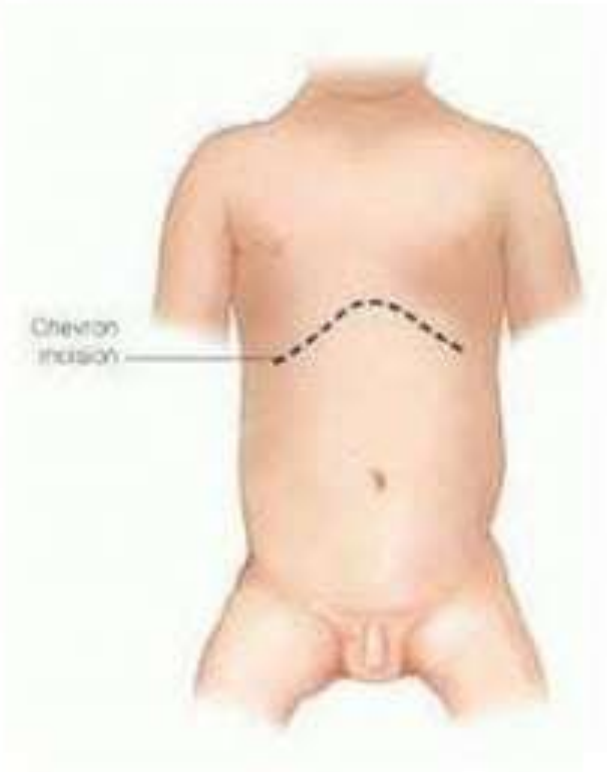
Kocher Subcostal Incision

- It affords excellent exposure to gall bladder and biliary tract and can be made on left side to afford access to spleen.
- İs started at midline ,2 to 5 cm below the xiphoid,and extends downwarda, outwards and paralel to and about 2.5 cm below costal margin
- Especially used in cholecystectomy



❖There are two modifications
Chevron (rooftop)modification
Mercedes benz modification

Chevron (rooftop) modification



The incision may be continued across the midline into double kocher's incision or rooftop appearance which provide excellent access to upper abdomen particularly in those with broad costal margin

Uses-

- total gastrectomy
- total oesophagectomy
- extensive hepatic resection
- bilateral adrenectomy

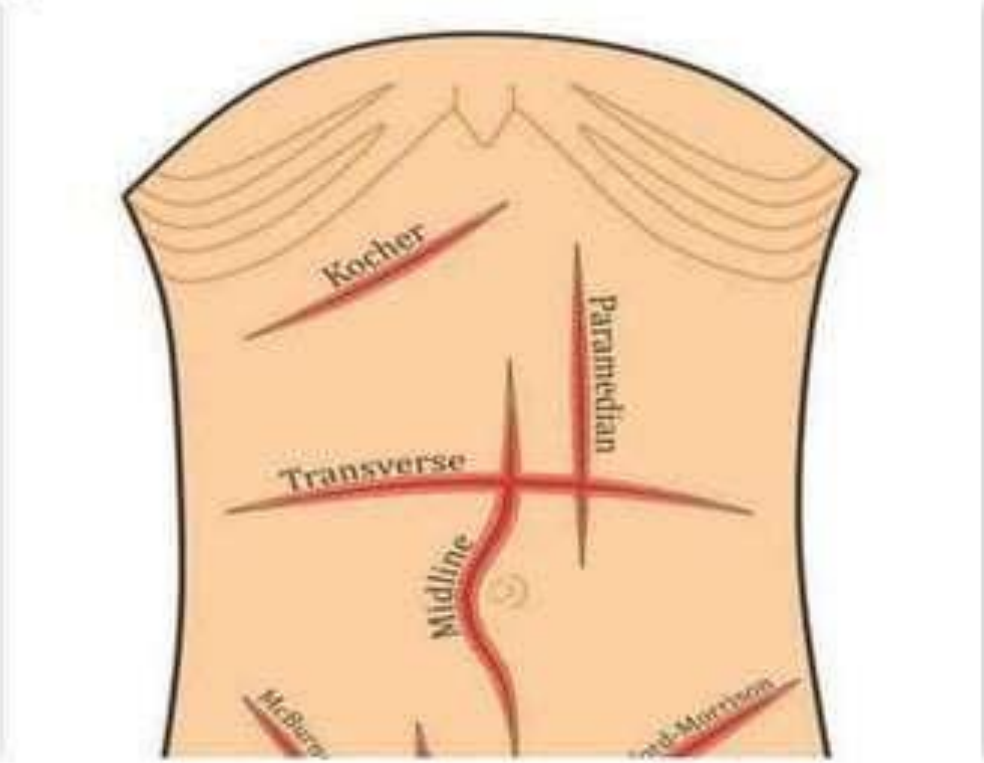
Mercedes benz modification

Consists of bilateral low kocher's incision with upper midline
incision upto the xiphisternum.

Provides excellent access to the upper abdominal viscera mainly the diaphragmatic
hiatuses

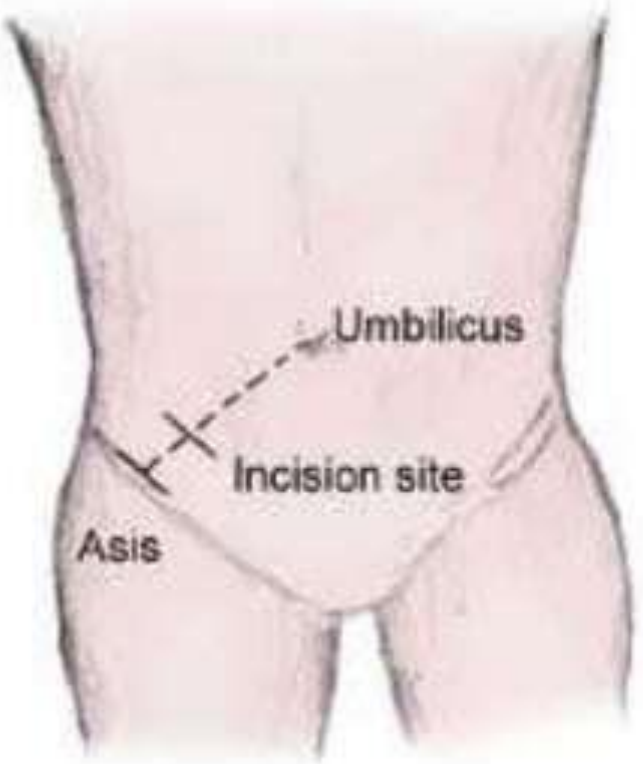
Transverse Muscle dividing

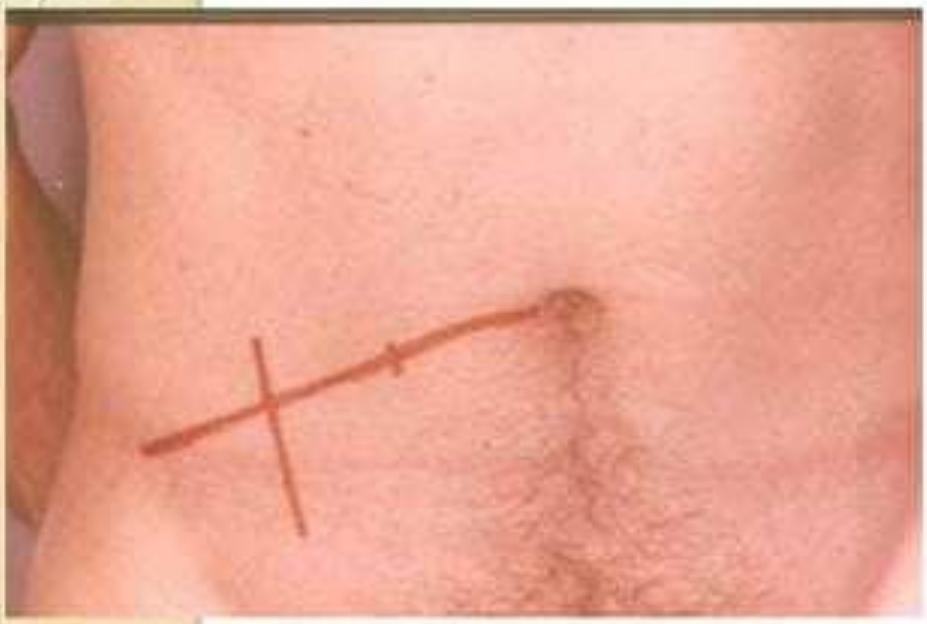
- In newborn and infants, this incision is preferred bcs more abdominal exposure is gained per lenght of incision than with vertical exposure
- Because infants' abdomen longer transverse than vertical girth.
- Also true of short, obese adult



McBurney grid iron(muscle splitting)incision

- İncision of choice most appendicectomies
- The level and lenght of incision will vary according to thickness of abd. wall and suspected position of apendix.





is made at the junction of middle third and outer third of a line running from umblicus to anterior superior iliac spine,McBurney point.

Originally placed the incision obliquely from above laterally to below medially.

Also used in left lower quadrant to deal with certain lesion of sigmoid colon such as drainage of diverticular abscess.

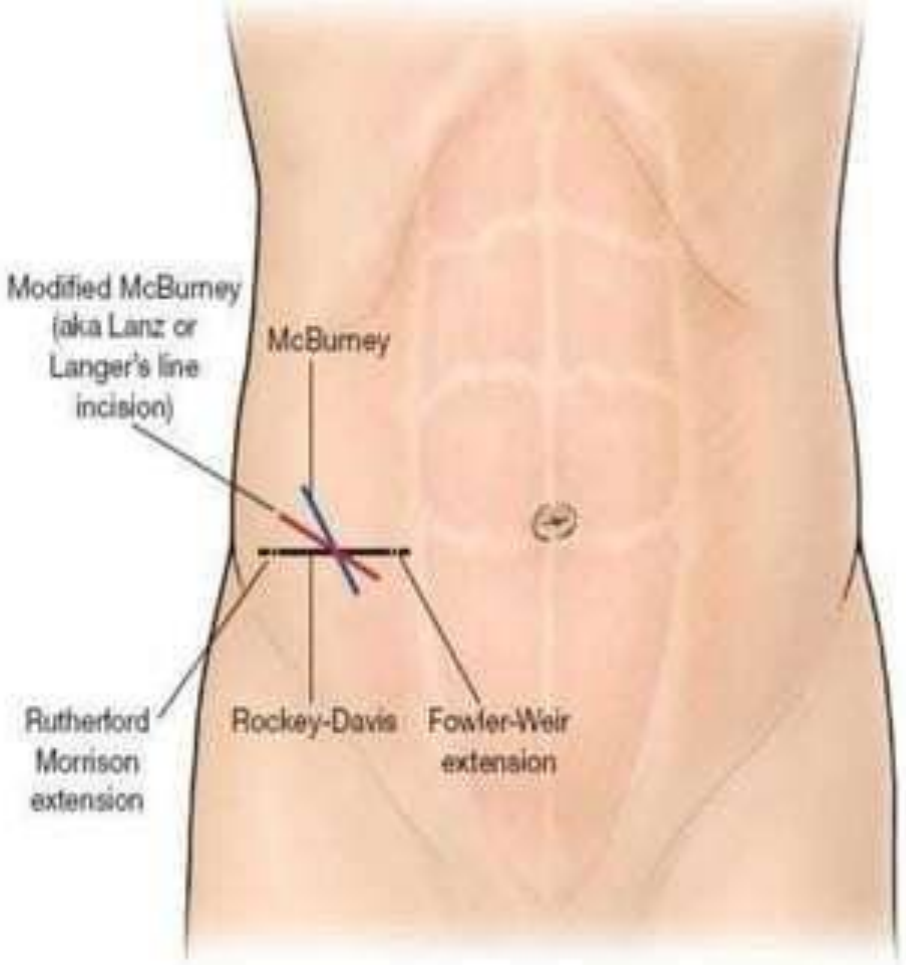
The level and length of the incision vary according to

- Thickness of abdominal wall
- Suspected position of the appendix

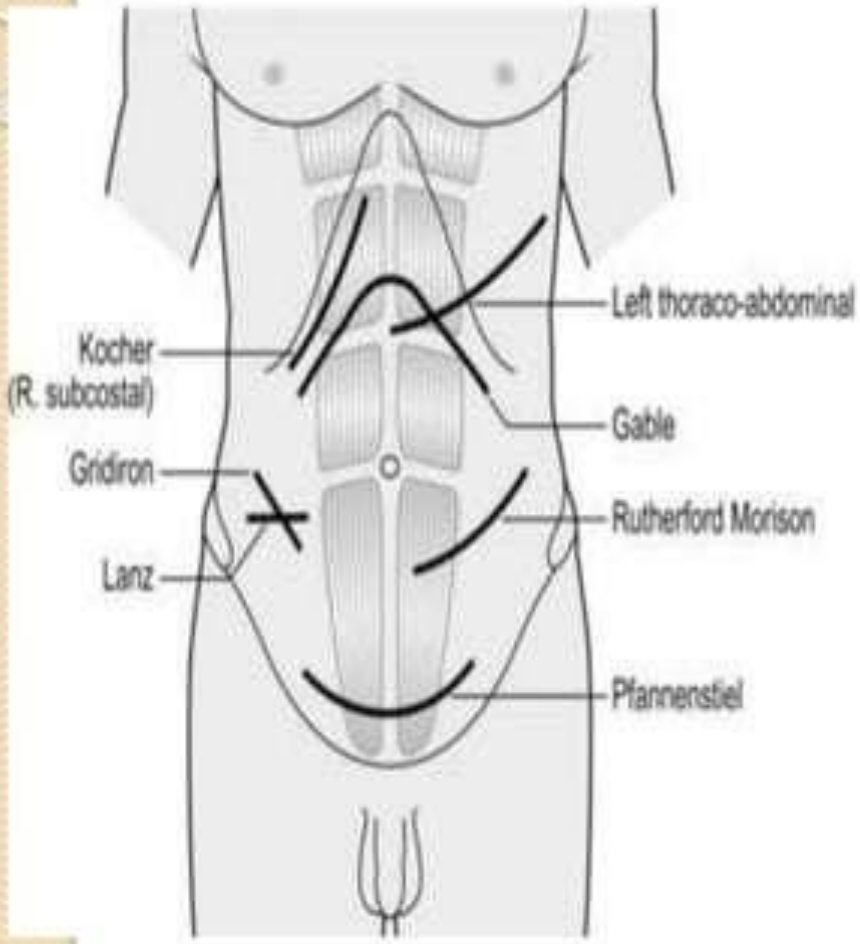
Lanz incision

It is a variation of McBurneys incision that is made the same point but in transverse plane.

It gives cosmetically good scar



Rutherford-Morrison Incision

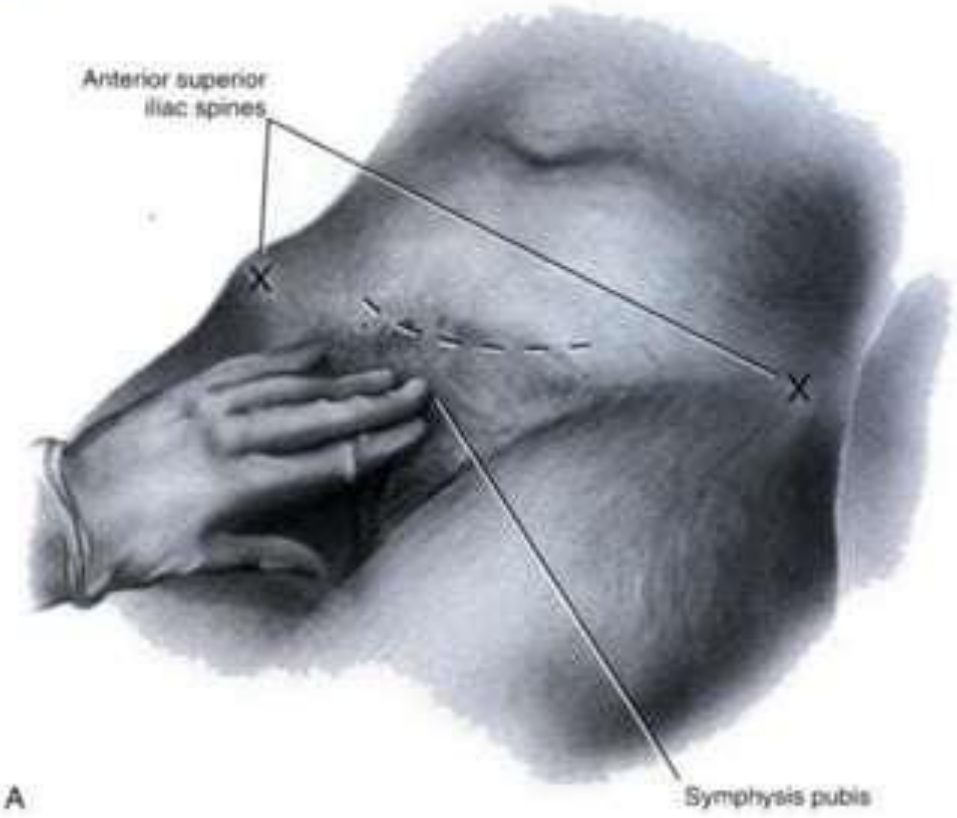


- Oblique Muscle Cutting Incision
- Extension of McBurney incision by division of oblique fossa
- Can be used for right and left sided colonic resection, caecostomy or sigmoid colostomy

Pfannenstiel Incision

The patient's position for this operation can be lithotomy, supine, or modified dorsal supine lithotomy. The latter is shown here.

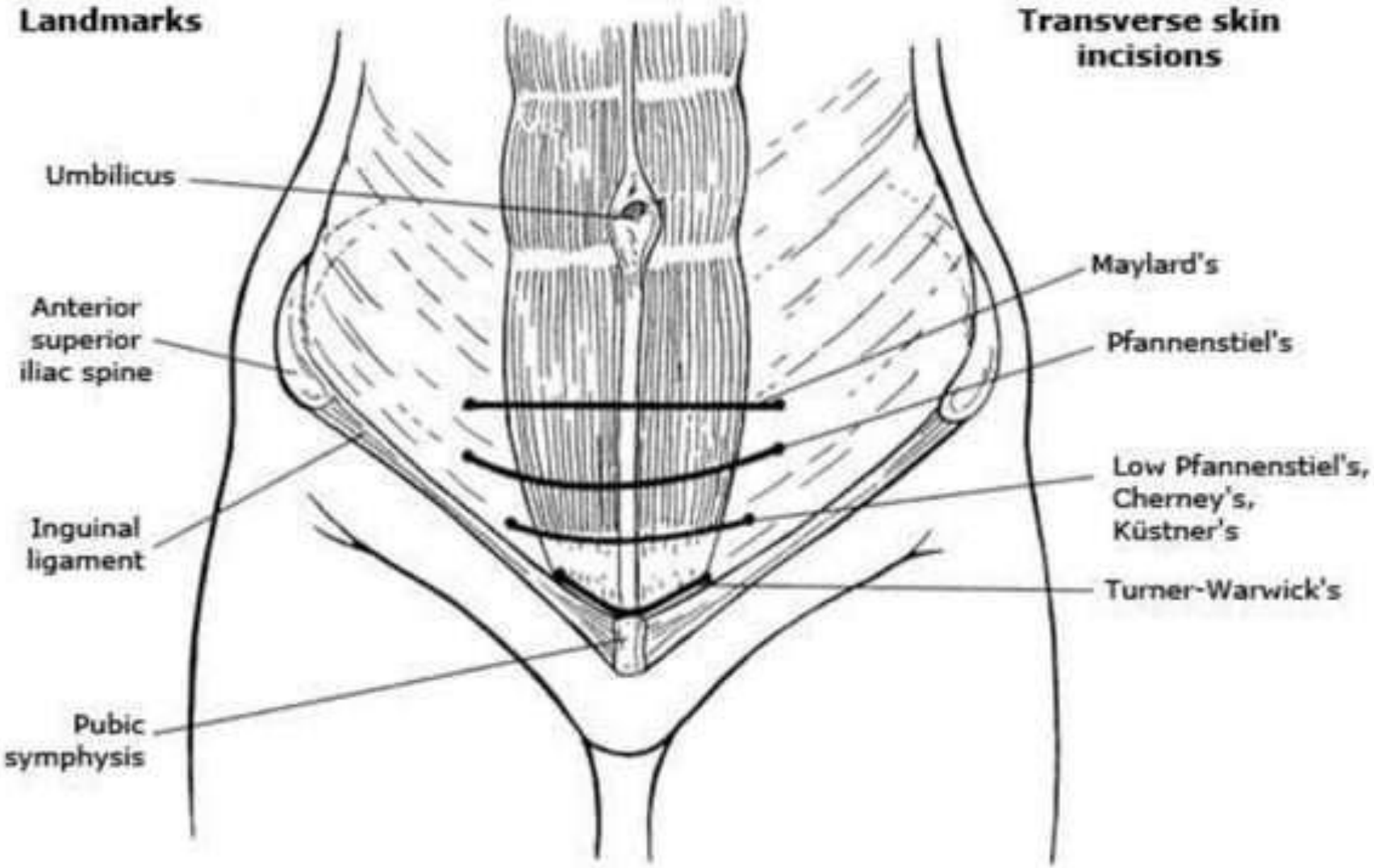
The Pfannenstiel incision is semicircular and is made slightly above the mons pubis for a length of about 12 cm. Care must be taken to ensure that hemostasis is complete prior to entering the peritoneal cavity. The rectus fascia is opened transversely.



- Used frequently by gynecologist and urologist for access to pelvic organ, bladder, prostate and for c-section.
- is usually 12 cm long and is made in skin fold approximately 5 cm above symphysis pubis.

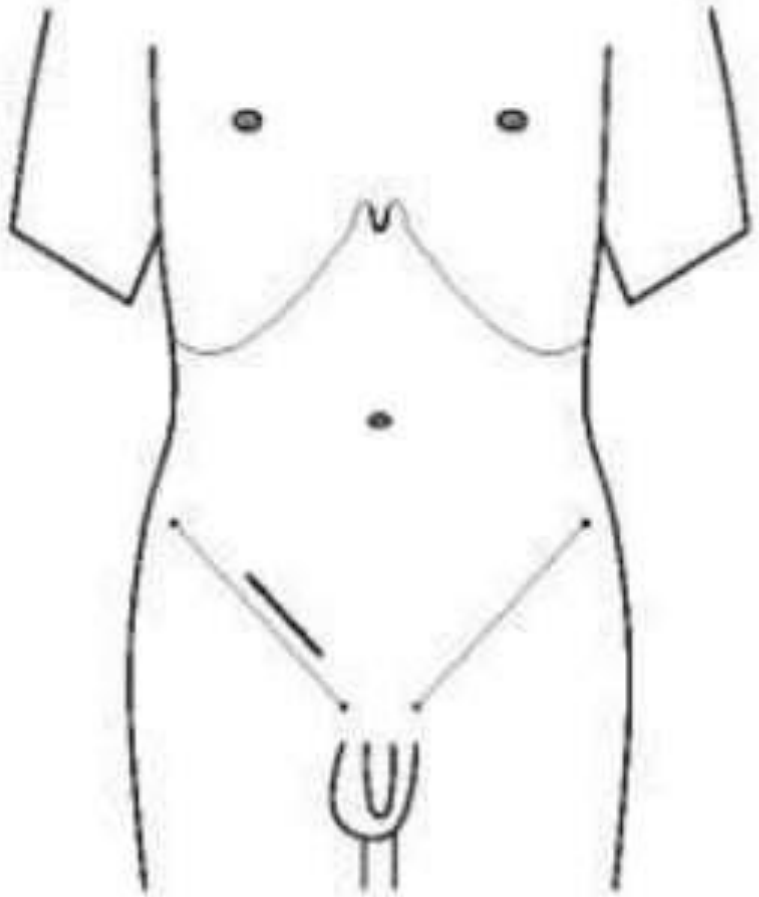
Maylard Transverse Muscle Cutting Incision

- gives excellent exposure to pelvic organ
- Skin incision is placed above but parallel to traditional placement of Pfannenstiel incision

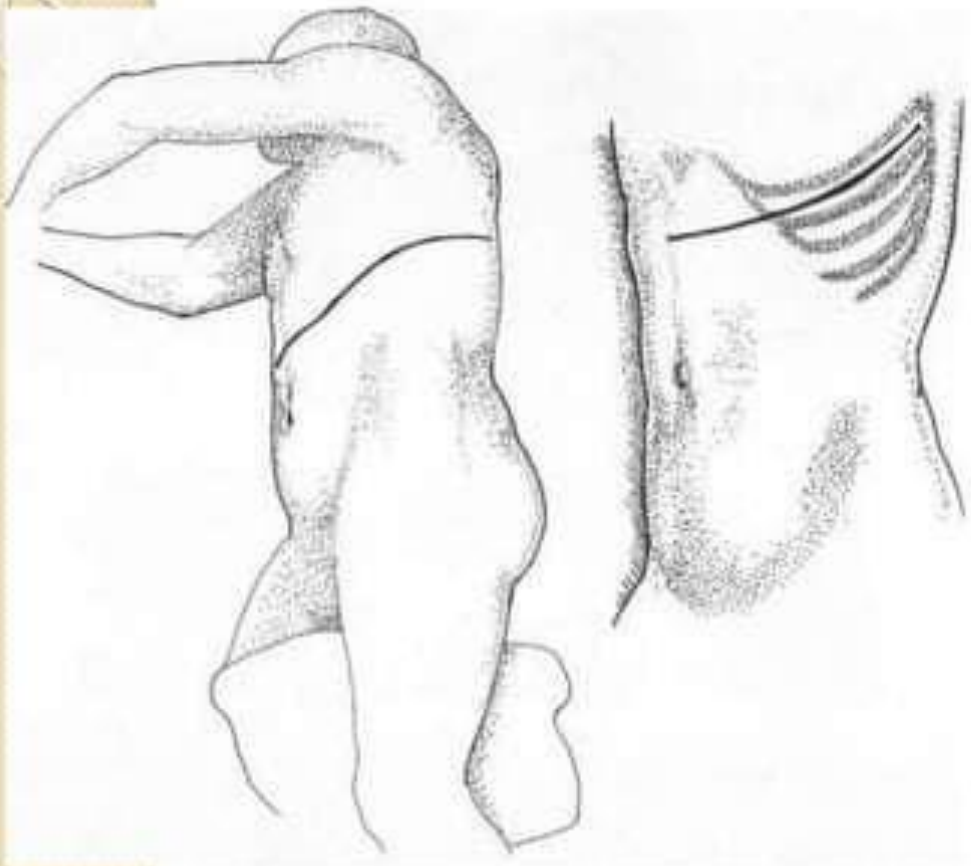

Landmarks
Transverse skin incisions
Umbilicus
Anterior superior iliac spine
Inguinal ligament
Pubic symphysis
Maylard's
Pfannenstiel's
Low Pfannenstiel's, Cherney's, Küstner's
Turner-Warwick's

Inguinal incision

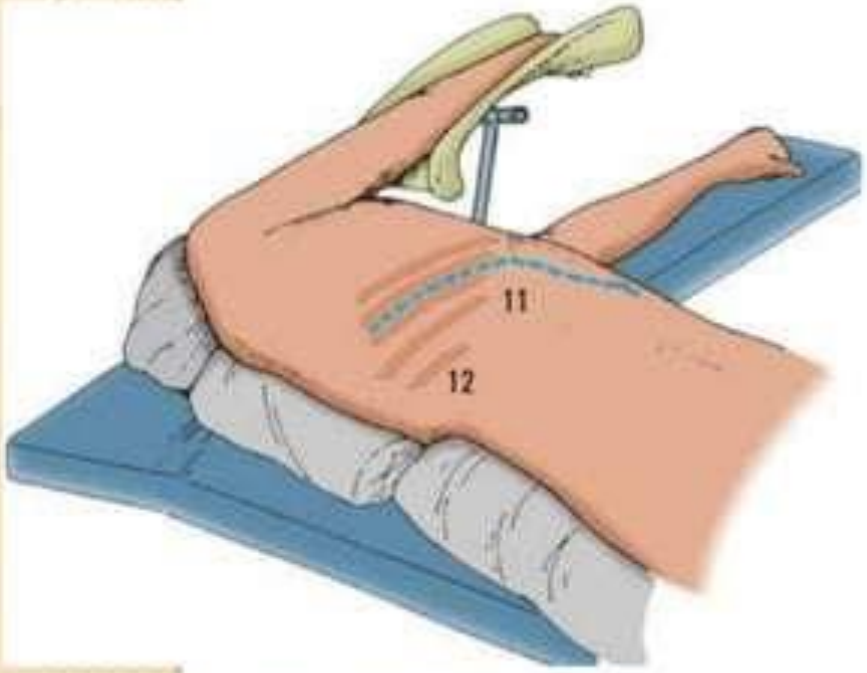
- Done for inguinal hernia's, testicular cancer, cryptorchridism, hydrocele, varicocele.

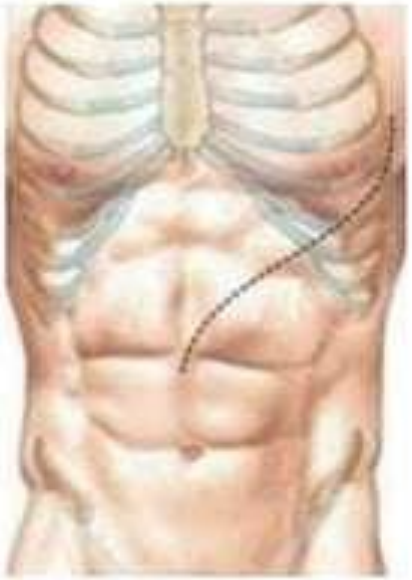


Thoracoabdominal Incisions

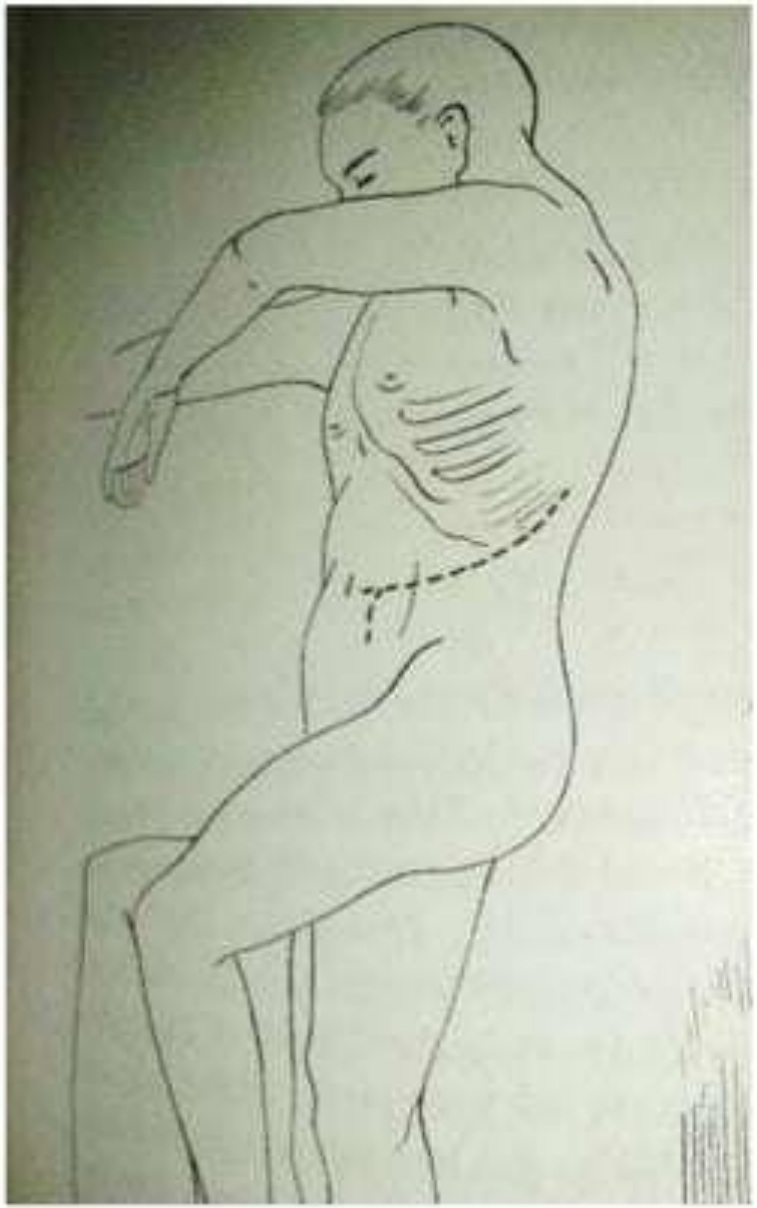


- Either right or left
- Converts pleural and peritoneal cavities into one common cavity
- Thereby gives excellent exposure



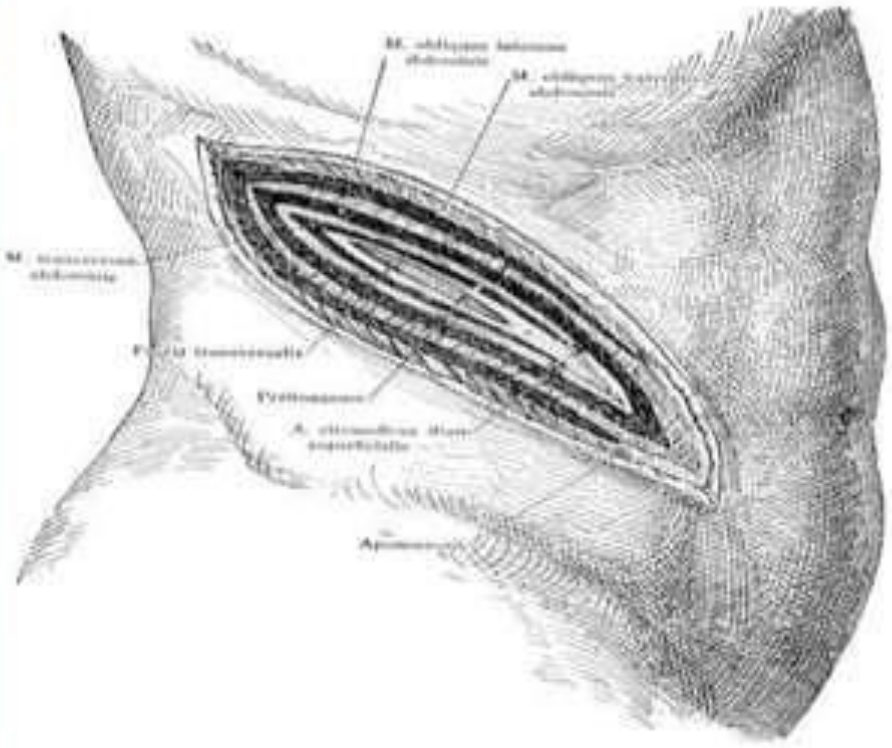


- Right incision may be particularly useful in elective and emergency hepatic resections
- Left incision may be used in resection of lower end of esophagus and proximal portion of stomach.
- Incision is extended along line of 8th intercostal space,the space immediately distal to inferior pole of scapula.



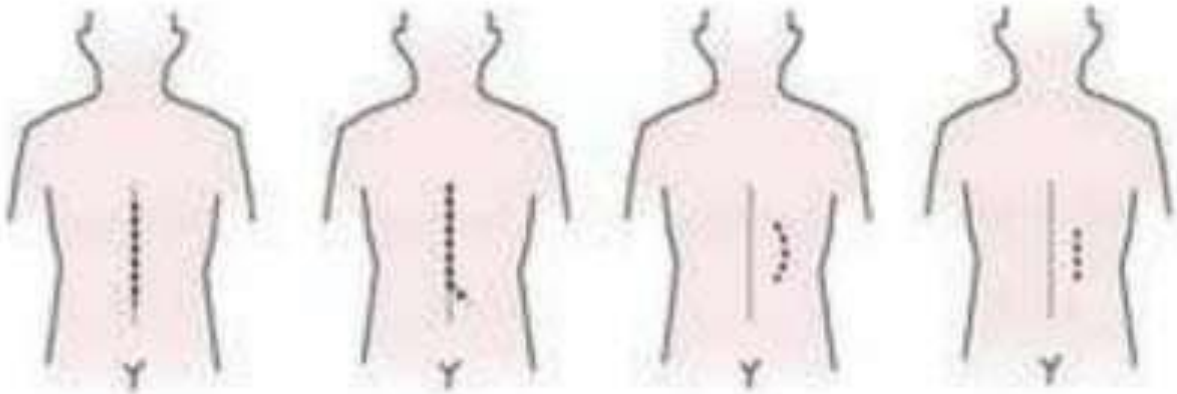
Retroperitoneal approach

Oblique lumbar incision



- It commences 1.25cm below and lateral to renal angle and passes downwad towards the anterior superior iliac spine.

Incisions on posterior abdominal wall



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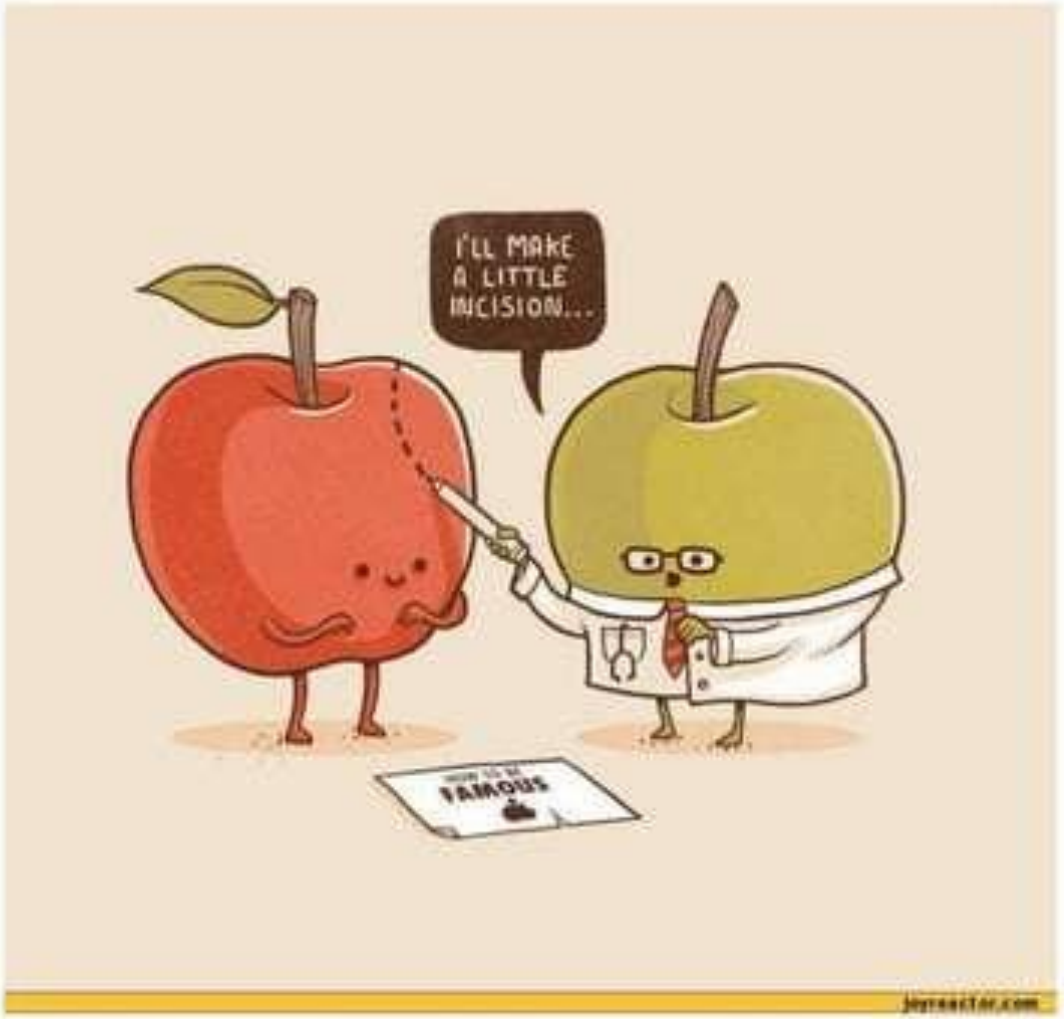
Complications of abdominal incision

- Hematoma, Stitch abscess, Wound infection
- Wound dehiscence
- Burst abdomen
- Fistula formation
- Wound pain
- Incisional hernia
- Adhesion and its complications
- Unsightly scar

Factors affecting the strength of scar

- Types of surgery(acute abdomen, surgery for malignancy, major surgery)
- Types of incision
- Obesity
- Pregnancy
- Straining
- Cough
- Ascites
- Nutrition
- Diabetes
- Immunosuppression



THANK YOU