



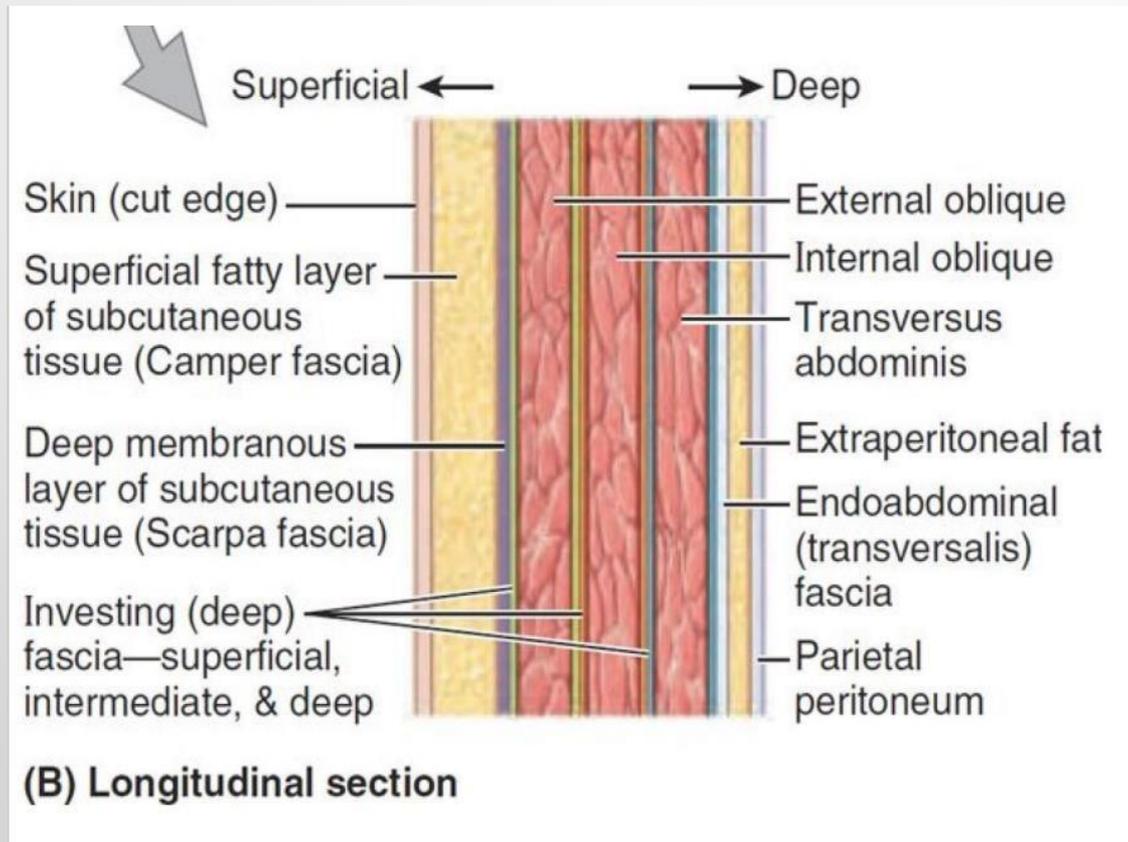
# Abdominal incisions

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## Layers of the anterior abdominal wall:

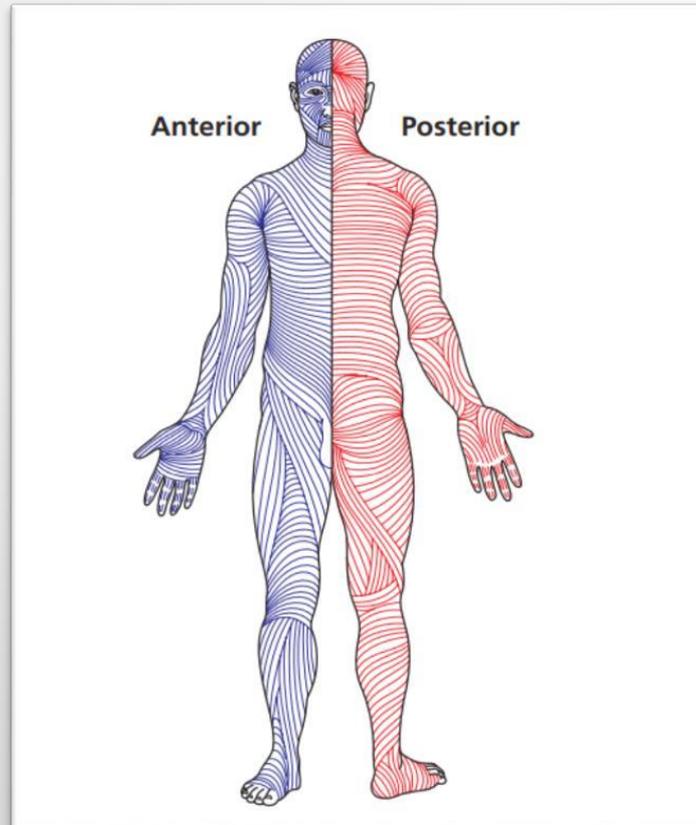
It is formed of the following layers:

1. Skin
- 2&3. superficial fascia (no deep fascia).
4. Abdominal muscles.
5. Fascia transversalis
6. Extraperitoneal fat
7. Parietal peritoneum.



When planning a skin incision, five factors should be considered (criteria for ideal incision):

**1 Skin tension lines (Langer's lines):** These lines represent the orientation of the dermal collagen fibers and any incision placed parallel to these lines result in a better scar (for maximal wound strength and minimal scarring).

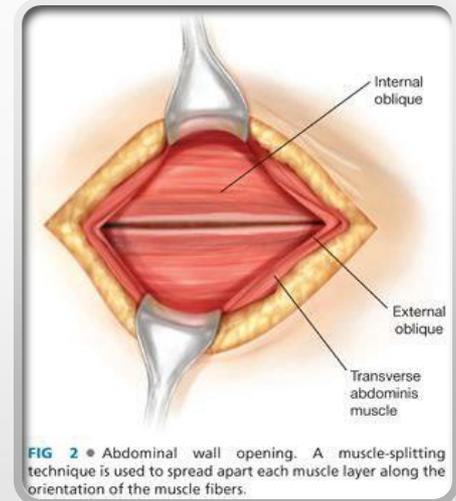


**2) Anatomical structure:** incisions should avoid bony prominences and crossing skin creases if possible, and take into consideration underlying structures, such as nerves and vessels.

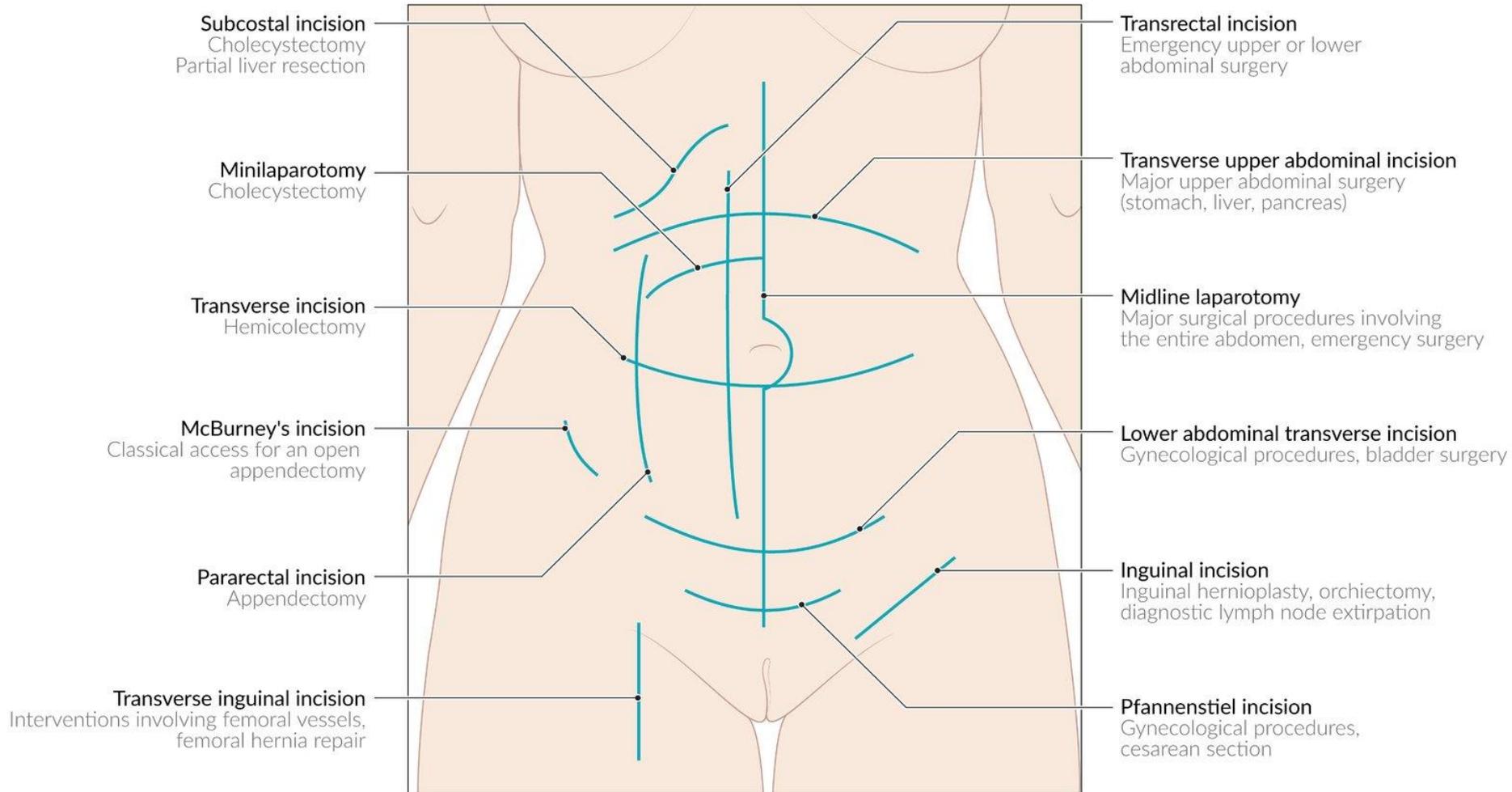
**3) Cosmetic factors:** any incision should be made bearing in mind the ultimate cosmetic result, especially in exposed parts of the body, as an incision is the only part of the operation the patient sees.

**4) Adequate access for the procedure:** the incision must be functionally effective for the procedure in hand as any compromise purely on cosmetic grounds may render the operation ineffective or even dangerous.

**5) muscle should be split not cut,** and being easily opened and closed



# Types of incisions:



## 1-Gridiron and lanz incisions:

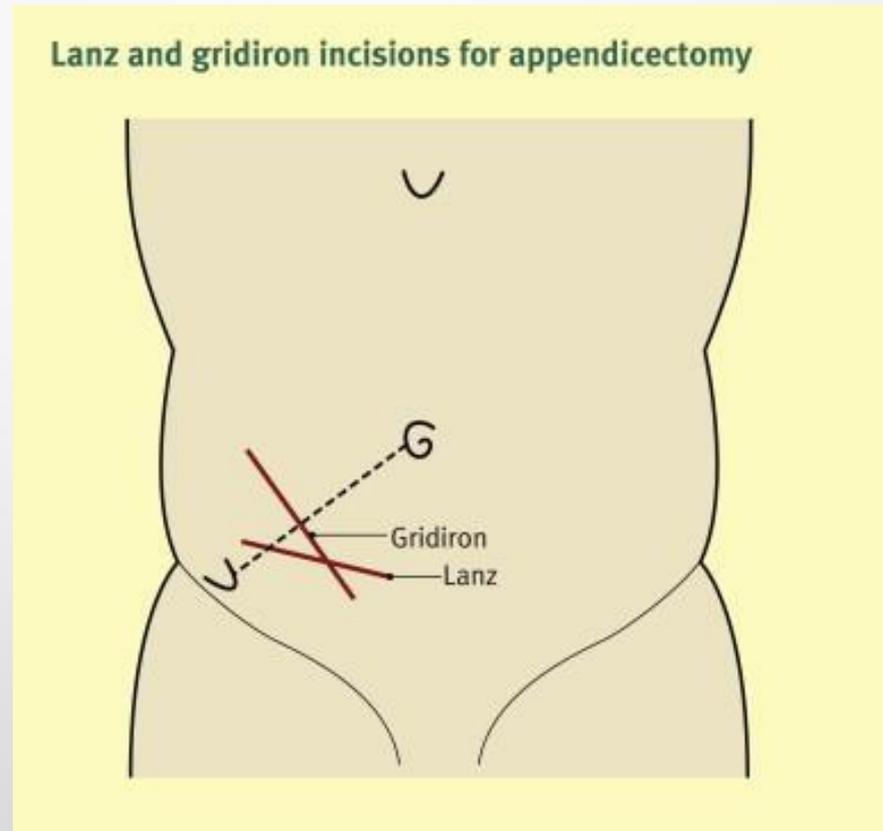
-The gridiron and lanz incisions are both incisions that can be used to access the appendix predominantly for appendectomy.

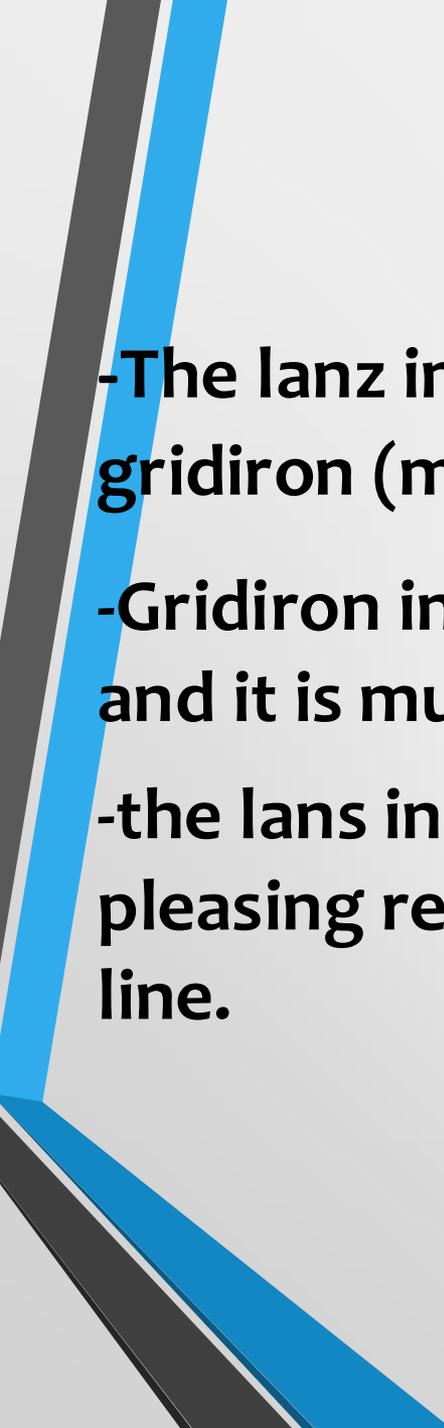
### -The incisions cut through: -

- 1 Skin
- 2 subcutaneous fat and fascia
- 3-external and internal oblique
- 4-transversus abdominis
- 5-transversalis fascia.

### -Disadvantages include:-

The risk of injury to the Ilioinguinal and iliohypogastric nerves.

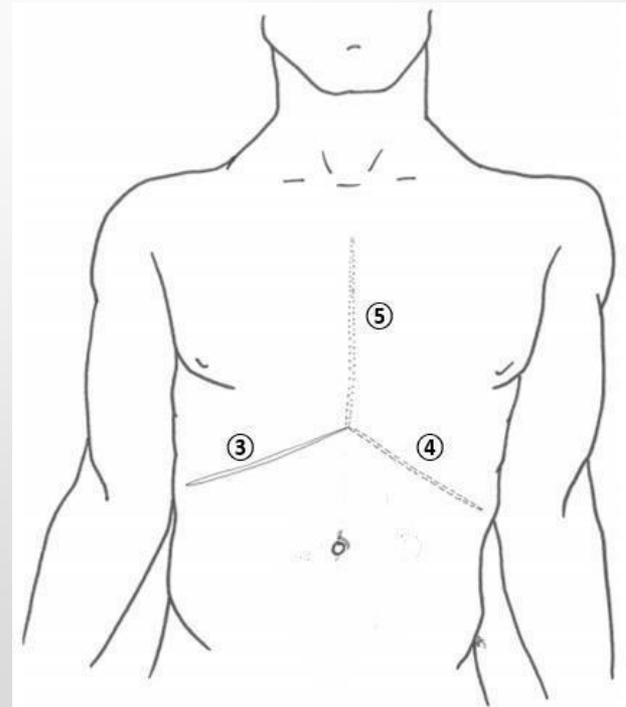


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- The Lanz incision is a transverse incision while the Gridiron (McBurney incision) is oblique.**
  - Gridiron incision is oriented along the Langer Lines and it is a muscle splitting incision.**
  - The Lanz incision produces much more aesthetically pleasing results as the scar is hidden beneath the bikini line.**

## 2-Kocher incision:

- An incision made parallel to the **right subcostal margin** to access the underlying liver and biliary tree (3 on its own).
- It may be mirrored on the contralateral side to provide access to the spleen or performed bilaterally.
- Indications of the Kocher incision:** gall bladder and biliary tract operation (usually open cholecystectomy)

**3** represent Kocher incision  
**3+4** represent chevron incision (Rooftop)  
**3+4+5** represent Mercedes Benz incision



## -Kocher cuts through:

1 Skin

2 subcutaneous fat and fascia

3 Lateral half: External oblique / Internal oblique / Transversus abdominis

4 Medial half: anterior rectus sheath / Rectus abdominis / posterior rectus sheath

5 Transversalis fascia\*

6 Extraperitoneal fat 7-peritoneum

### Disadvantages include:-

**-The risk of injuring the superior epigastric vessels, and lateral extension of the incision risks disruption of intercostal nerves.**

**Chevron incisions** may be used for oesophagectomy, gastrectomy, bilateral adrenalectomy, hepatic resections, or liver transplantation.

**Mercedes Benz** may be used for the same indications as the Chevron incision, and diaphragmatic hernia, **However classically seen in liver transplantation.**

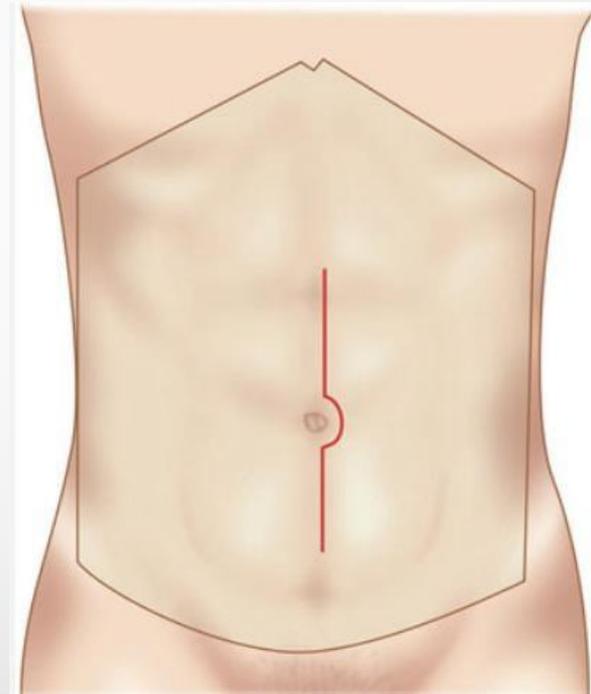
### 3-Midline laparotomy:

- Incision down **the middle of abdomen** along and through the linea Alba. (Upper or lower midline).
- commonly used for procedures **requiring emergency laparotomy**, such as: faecal peritonitis secondary to malignant intestinal perforation, ischaemic bowel, trauma.
- This incision generally provides **the best visualization and intra- abdominal access**.
- Immediate complications** of a midline laparotomy incision may include anaesthetic difficulties, haemodynamic instability, primary haemorrhage from cut vessels and iatrogenic injury to surrounding tissues and viscera.

**-It will encounter the following layers of tissue:**

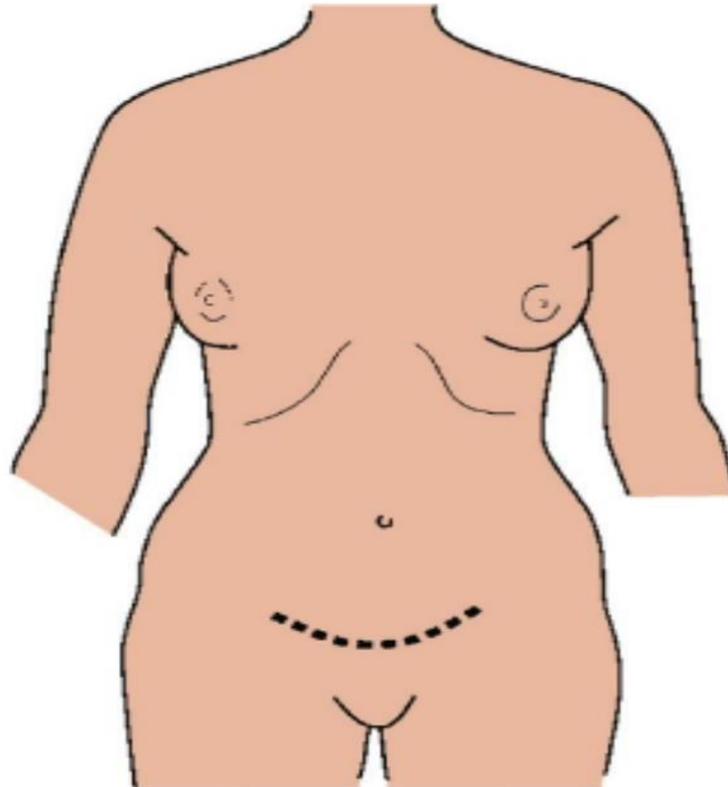
- 1 Skin
- 2 Subcutaneous fatty layer (Camper's fascia)
- 3-Membranous fascia (Scarpa's)
- 4 Linea Alba\* Transversalis fascia
- 5 Preperitoneal fat
- 6 Parietal peritoneum

**Disadvantages include** patients experiencing more pain than they would from a transverse incision, particularly during deep breathing postoperatively, and the incision is perpendicular to the Langer's skin tension Lines resulting in poorer cosmesis.



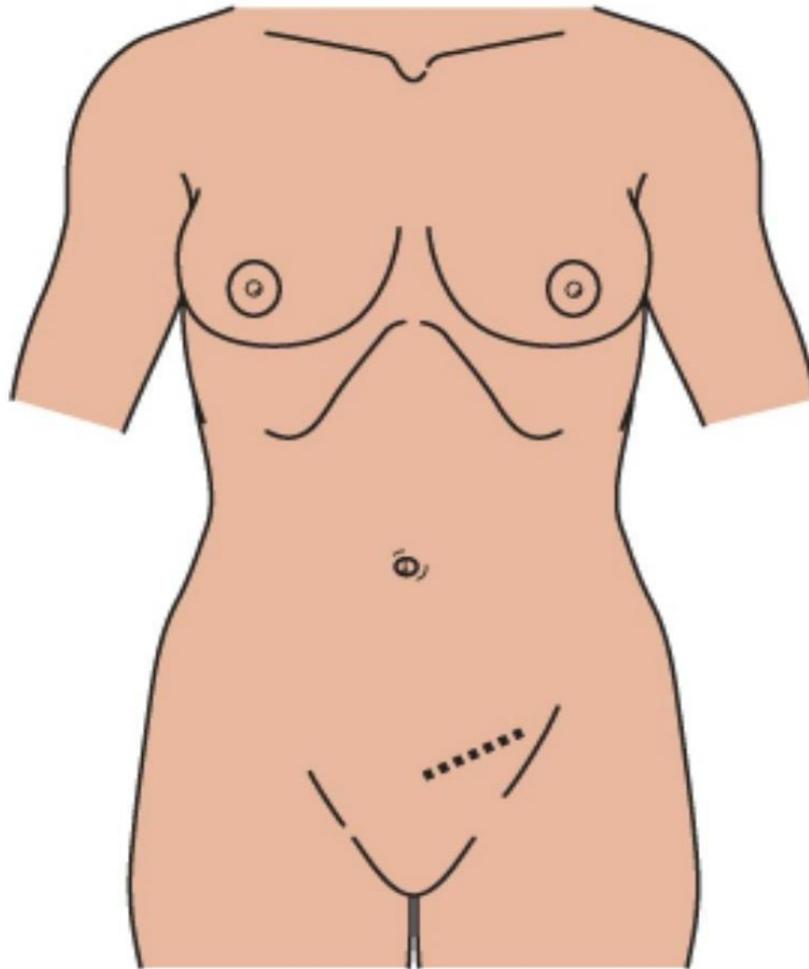
## **Pfannenstiel (“fan-en-steel”)**

Low transverse abdominal incision with retraction of the rectus muscles laterally; most often used for gynecologic procedures:



## Inguinal hernia repair (open)

Fig 41



# Complications of abdominal surgical incisions:

-Wound complications are important causes of **early and late** postoperative morbidity following laparotomy.

-Surgical wounds in normal, healthy individuals heal through an orderly sequence of physiologic events that includes inflammation, epithelialization, fibroplasia, and maturation.

-**Mechanical failure or failure of wound healing at the surgical site can lead to disruption of the closure leading to:**

**seroma, hematoma, wound dehiscence, or hernia.**

**Other complications include surgical site infection and nerve injury.**

Thank You

