- Three basic principles to guide selection of the incision and closure of the wound. These are **accessibility, flexibility, and security**.

Choice of Incision

Many factors influence the choice of incision for abdominal surgery. These include:

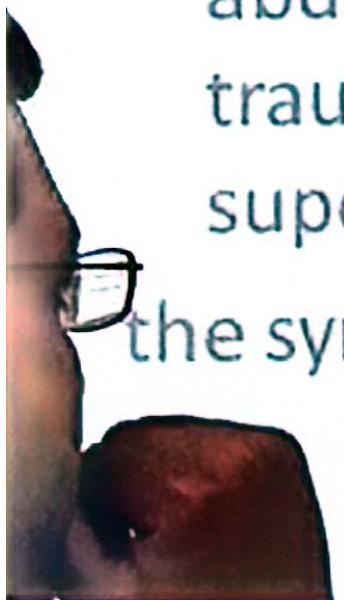
- The organ of interest ,
- Anticipated procedure,
- The body habitus of the patient and degree of obesity,
- The urgency of the operation and whether speed is a pressing consideration,
- The presence of previous abdominal incisions, and
- The Preference and experience of the operating surgeon.

Four main anatomic categories.

Vertical.

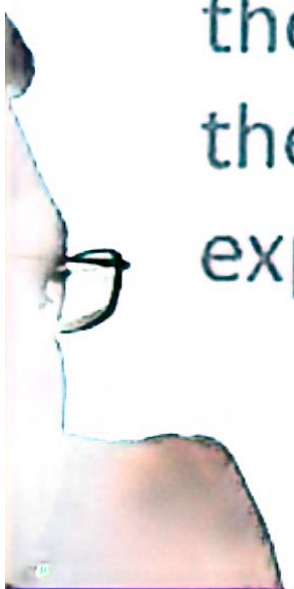
Vertical incisions may be midline or paramedian.

They may be supraumbilical or infraumbilical and can be extended superiorly or inferiorly in either direction. For optimal exposure of the entire abdominal cavity, as in the case of abdominal trauma, a midline vertical incision can be taken superiorly to the xiphoid process and inferiorly to the symphysis pubis.



Transverse and oblique

These incisions can be placed in any of the four quadrants of the abdomen. Common incisions include the Kocher subcostal incision for biliary surgery, the Pfannenstiel infraumbilical incision for gynecologic surgery, the McBurney incision for appendectomy, and the transverse or oblique lateral incision for exposure of the colon.



Abdominal Incision Types

- Right Subcostal
  gallbladder, biliary system
- Left Subcostal
  spleen
- Median Upper Abdominal
  stomach, duodenum, pancreas
- Median Lower Abdominal
  uterus, adnexa (ovaries, fallopian tubes),
  bladder

The infraumbilical midline incision also divides the linea alba. Because the linea alba is anatomically narrow at the inferior portion of the abdominal wall, the rectus sheath may be opened unintentionally, although this is of no consequence. In the lower abdomen, the peritoneum should be opened in the uppermost area to avoid possible injury to the bladder.

Kocher subcostal incision

Theodore Kocher originally described the subcostal incision; it affords excellent exposure to the gall bladder and biliary tract and can be made on the left side to afford access to the spleen. It is of particular value in obese and muscular patients and has considerable merit if diagnosis is known and surgery planned in advance.

Transverse Incisions

Transverse incisions include

- the Kocher subcostal incision,
- transverse muscle dividing,
- McBurney,
- Pfannenstiel, and
- Maylard incisions.

Kocher subcostal incision

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Chevron (Roof Top) Modification :

The incision may be continued across the midline into a double Kocher incision or roof top approach (Chevron Incision) (Figure 6), which provides excellent access to the upper abdomen particularly in those with a broad costal margin . This is useful in carrying out total gastrectomy, operations for renovascular hypertension, total oesophagectomy, liver transplantation, extensive hepatic resections, and bilateral adrenalectomy etc.

Transverse Muscle-dividing incision

The operative technique used to make such an incision is similar to that for the Kocher incision. In newborns and infants, this incision is preferred, because more abdominal exposure is gained per length of the incision than with vertical exposure because the infant's abdomen has a longer transverse than vertical girth . This is also true of short, obese adults, in whom transverse incision often affords a better exposure.

- McBurney Grid iron or Muscle-split incision
- (Figure 7)
- The McBurney incision, first described in 1894
- by
- Charles McBurney
- is the incision of choice for
- most appendicectomies (
- McBurney, 1894)
- . The
- level and the length of the incision will vary
- according to the thickness of the abdominal wall and
- the suspected position of the appendix (
- Jelenko &
- Davis 1973; Watts & Perrone, 1997)
- . Good healing
- and cosmetic appearance are virtually always
- achieved with a negligible risk of wound disruption
- or herniation.

Classically, the McBurney incision is made at the junction of the middle third and outer thirds of aline running from the umbilicus to the anterior superior iliac spine, the McBurney point After the skin and subcutaneous tissue are divided, the external oblique aponeurosis is divided in the direction of its fibres; exposing the underlying internal oblique muscle. A small incision is then made in this muscle adjacent to the outer border of the rectus sheath. The opening is enlarged to permit introduction of two index fingers between the muscle fibres so that internal oblique and transversus can be retracted with a minimal amount of damage. The peritoneum is then grasped with a thumb forceps, elevated and opened.

Oblique Muscle-cutting incision
Rutherford-Morrison incision

This is extension of the McBurney incision by division of the oblique fossa and can be used for

- a right or left sided colonic resection,
- caecostomy or

sigmoid colostomy.

The Pfannenstiel incision is used frequently by gynaecologists and urologists for access to the pelvis organs, bladder, prostate and for caesarean Section . The skin incision is usually 12 cm long and is made in a skin fold approximately 5 cm above symphysis pubis. The incision is deepened through fat and superficial fascia to expose both anterior rectus sheaths which are divided along the entire length of the incision. The sheath is then separated widely, above and below from the underlying rectus muscle.

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Maylard Transverse Muscle Cutting Incision

Many surgeons prefer this incision because it gives excellent exposure of the pelvic organs. The skin incision is placed above but parallel to the raditional placement of Pfannenstiel incision. The rectus fascia and muscle are then cut transversely, and the incision is continued laterally as far as necessary, dividing external and internal oblique muscles; the transverses abdominis and transversalis fascia are opened in the direction of their fibres.

Thoracoabdominal Incision

The thoracoabdominal incision, either right or left, converts the pleural and peritoneal cavities into one common cavity and thereby gives excellent exposure. Laparotomy incisions, whether upper midline, upper paramedian or upper oblique can be easily extended into either the right or left chest for better exposure.

Laparoscopy

- Port-Sites
  - Hernia
  - Appendectomy
  - Bowel Resection
- Equipment/Room-Set-Up