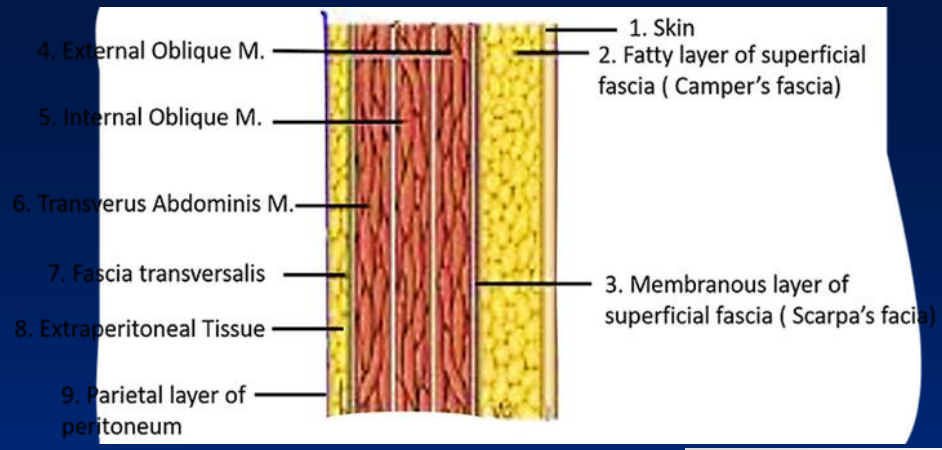
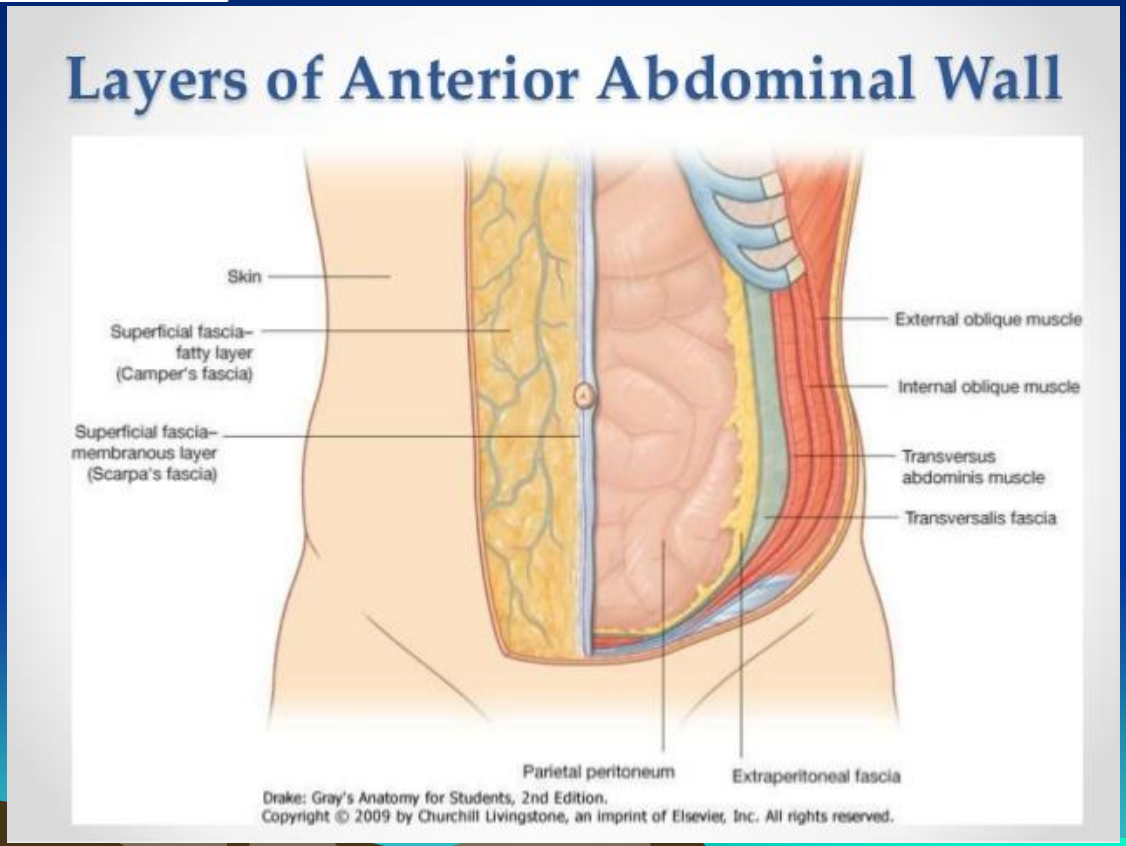
Kỹ thuật mở - đóng thành bụng

ThS. BS. HUỲNH BÁ TẤN

1. Nhắc lại giải phẫu


1. Skin
2. Fatty layer of superficial fascia (Camper's fascia)
3. Membranous layer of superficial fascia (Scarpa's facia)
4. External Oblique M.
5. Internal Oblique M.
6. Transverus Abdominis M.
7. Fascia transversalis
8. Extraperitoneal Tissue
9. Parietal layer of peritoneum


Layers of Anterior Abdominal Wall
Skin
Superficial fascia–fatty layer (Camper's fascia)
Superficial fascia–membranous layer (Scarpa's fascia)
External oblique muscle
Internal oblique muscle
Transversus abdominis muscle
Transversalis fascia
Parietal peritoneum
Extraperitoneal fascia
Drake: Gray's Anatomy for Students, 2nd Edition.
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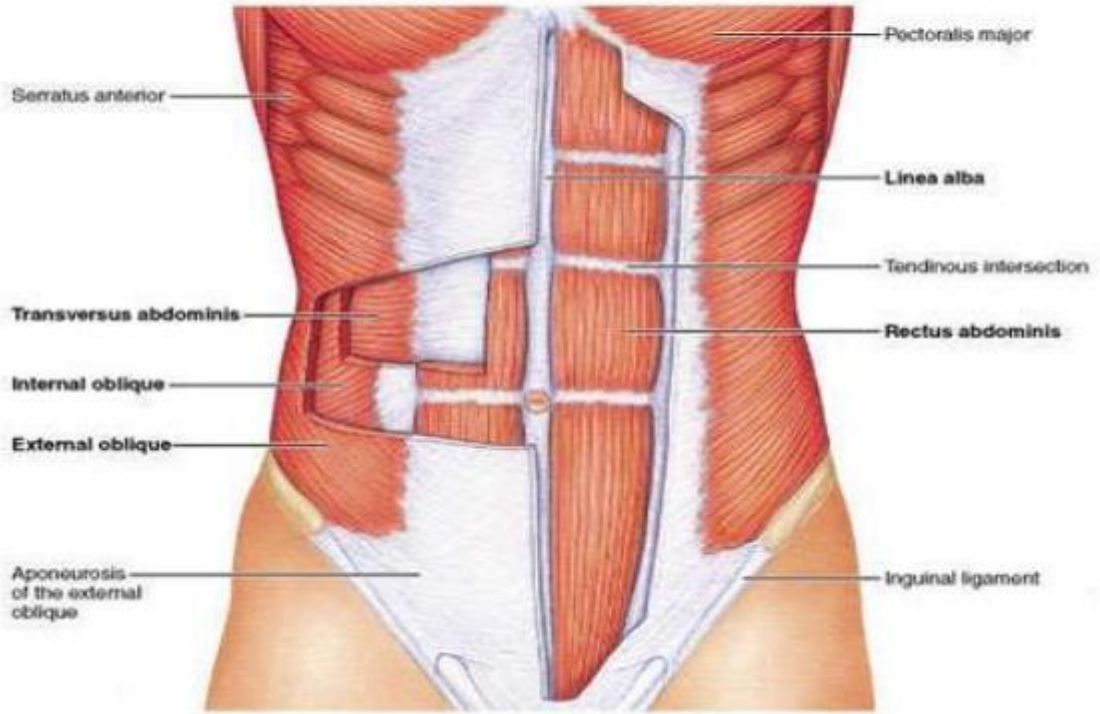
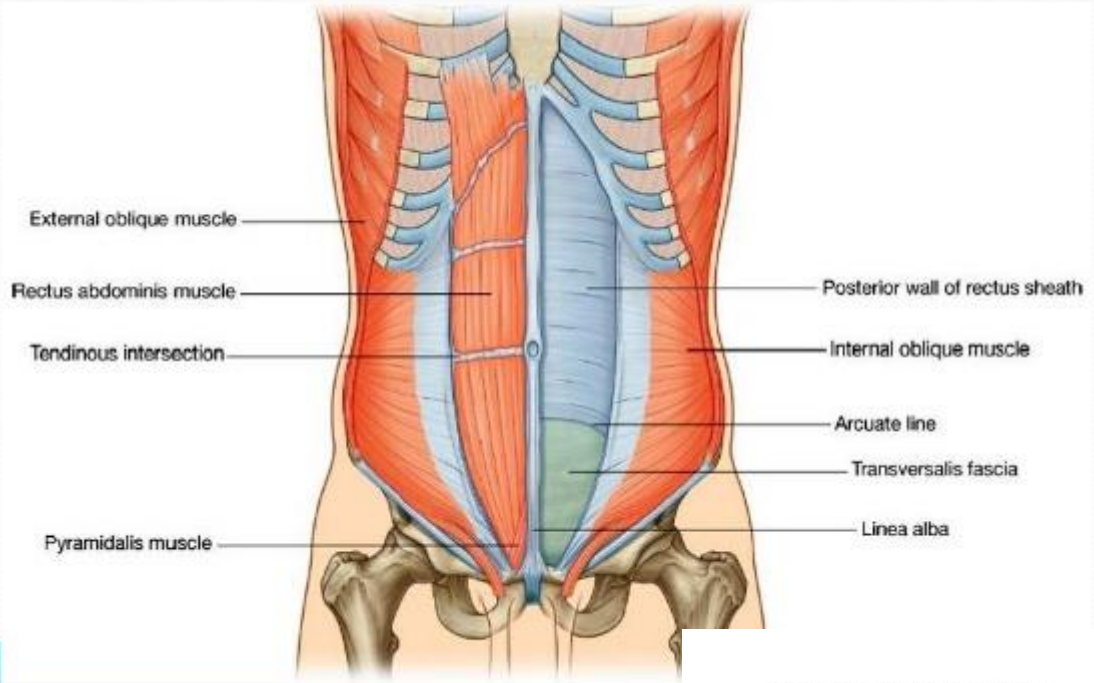
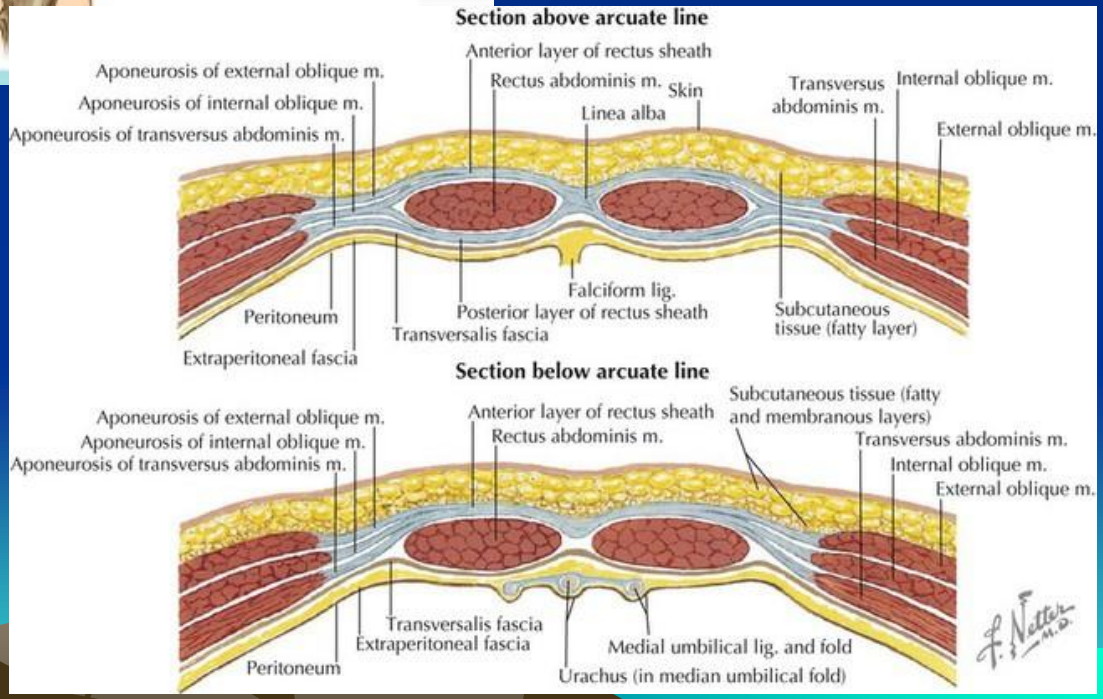
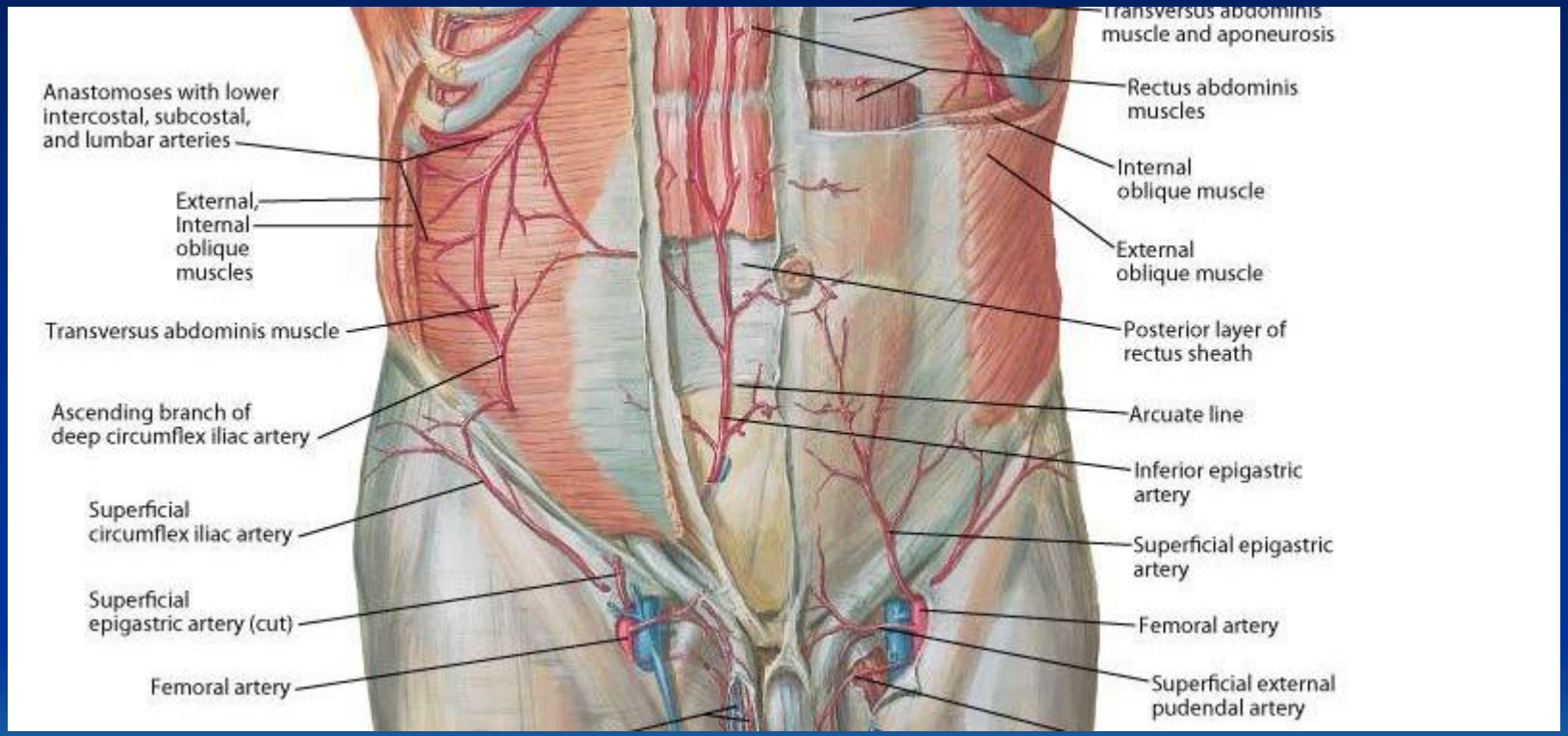
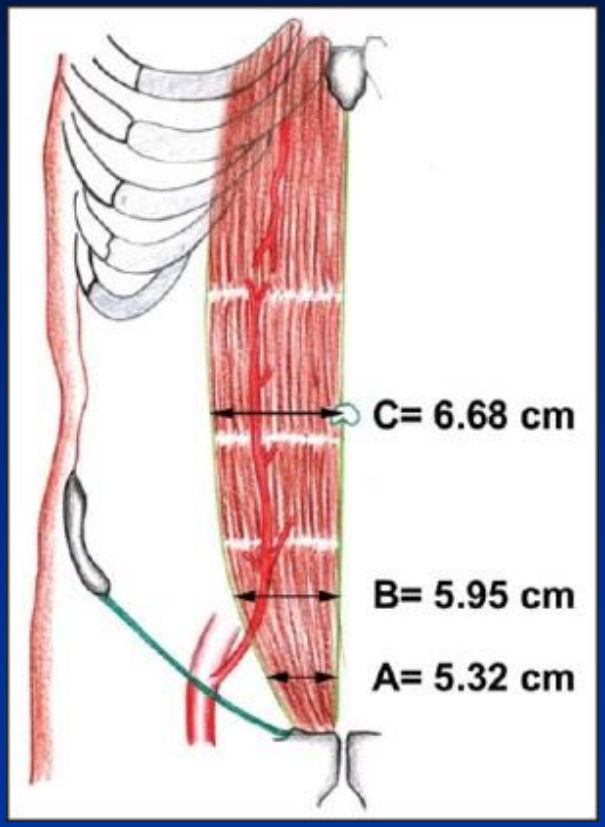
ABDOMINAL MUSCLES

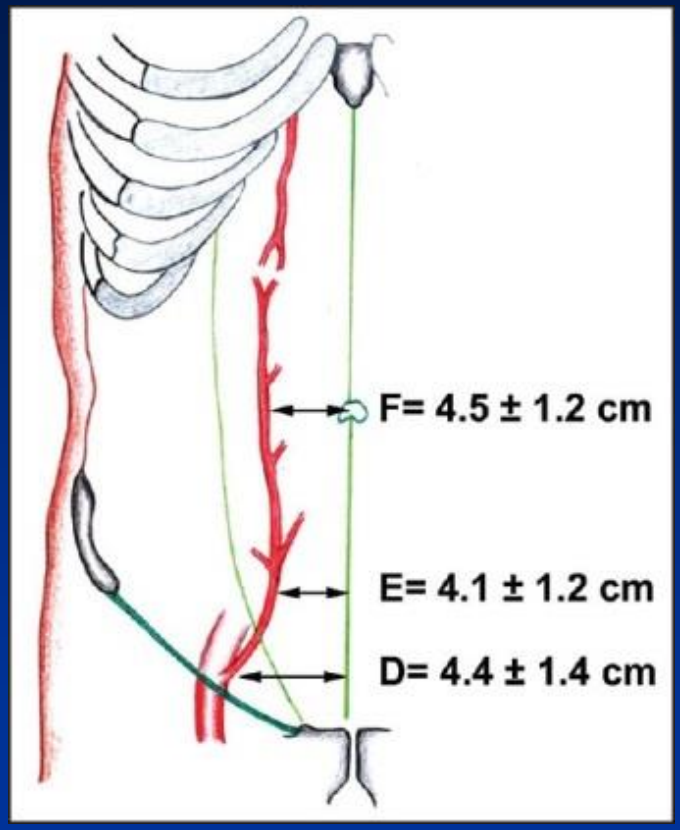



External oblique muscle
Rectus abdominis muscle
Tendinous intersection
Pyramidalis muscle
Posterior wall of rectus sheath
Internal oblique muscle
Arcuate line
Transversalis fascia
Linea alba


Section above arcuate line
Aponeurosis of external oblique m.
Aponeurosis of internal oblique m.
Aponeurosis of transversus abdominis m.
Anterior layer of rectus sheath
Rectus abdominis m.
Skin
Linea alba
Transversus abdominis m.
Internal oblique m.
External oblique m.
Falciform lig.
Peritoneum
Posterior layer of rectus sheath
Transversalis fascia
Subcutaneous tissue (fatty layer)
Extraperitoneal fascia
Section below arcuate line
Subcutaneous tissue (fatty and membranous layers)
Aponeurosis of external oblique m.
Aponeurosis of internal oblique m.
Aponeurosis of transversus abdominis m.
Anterior layer of rectus sheath
Rectus abdominis m.
Transversus abdominis m.
Internal oblique m.
External oblique m.
Transversalis fascia
Extraperitoneal fascia
Peritoneum
Medial umbilical lig. and fold
Urachus (in median umbilical fold)
F. Netter M.D.


Anastomoses with lower intercostal, subcostal, and lumbar arteries
External, Internal oblique muscles
Transversus abdominis muscle
Ascending branch of deep circumflex iliac artery
Superficial circumflex iliac artery
Superficial epigastric artery (cut)
Femoral artery
Transversus abdominis muscle and aponeurosis
Rectus abdominis muscles
Internal oblique muscle
External oblique muscle
Posterior layer of rectus sheath
Arcuate line
Inferior epigastric artery
Superficial epigastric artery
Femoral artery
Superficial external pudendal artery





CONCLUSION:

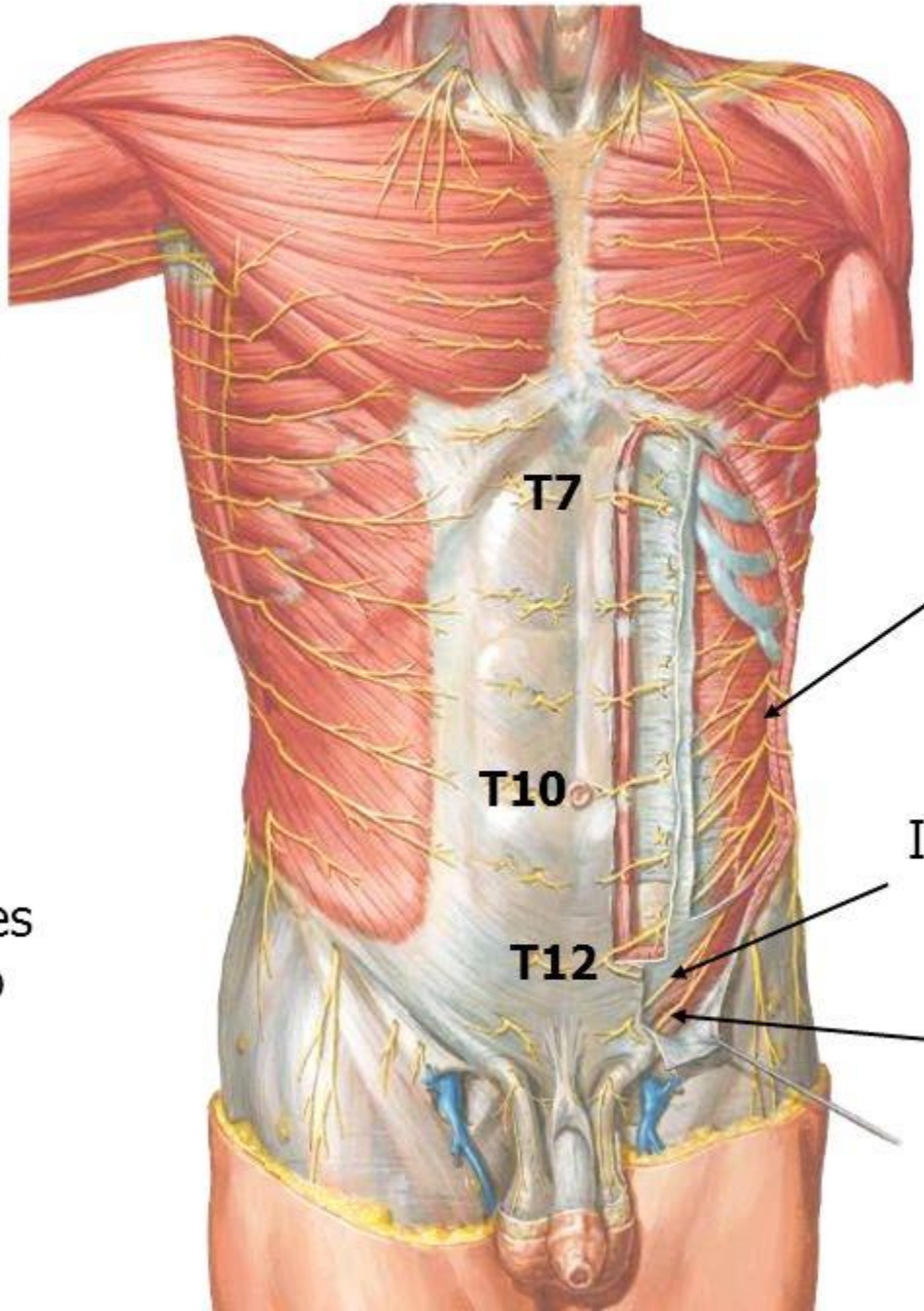
To avoid injury to IEA, trocars can be safely inserted 5.5 cm [mean + 1 standard deviation (SD)] away from the midline (or) slightly more than one-third of the distance between the midline and a sagittal plane running through ASIS. These findings may be useful not only for laparoscopic procedures but also for image-guided biopsy, abdominal paracentesis, and placement of abdominal drains.

Plate 257

Nerves of Anterior Abdominal Wall

Abdomen

T7-T12 intercostal nerves and L1



Nerves course between the IO and TA

Iliohypogastric Nerve (L1)

Ilioinguinal Nerve (L1)

L1

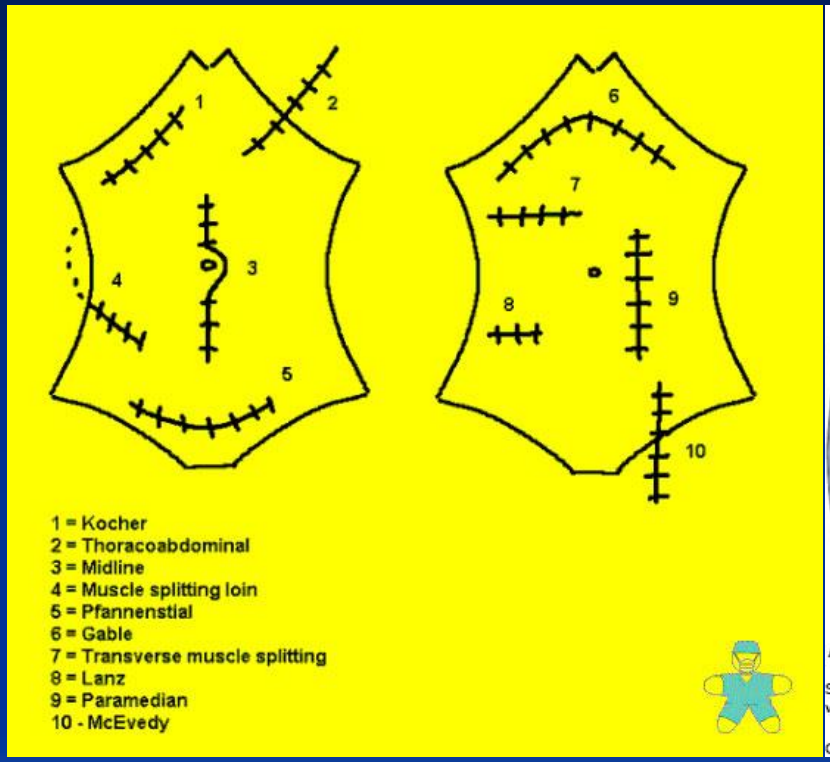
Motor to muscles and sensory to skin and peritoneum

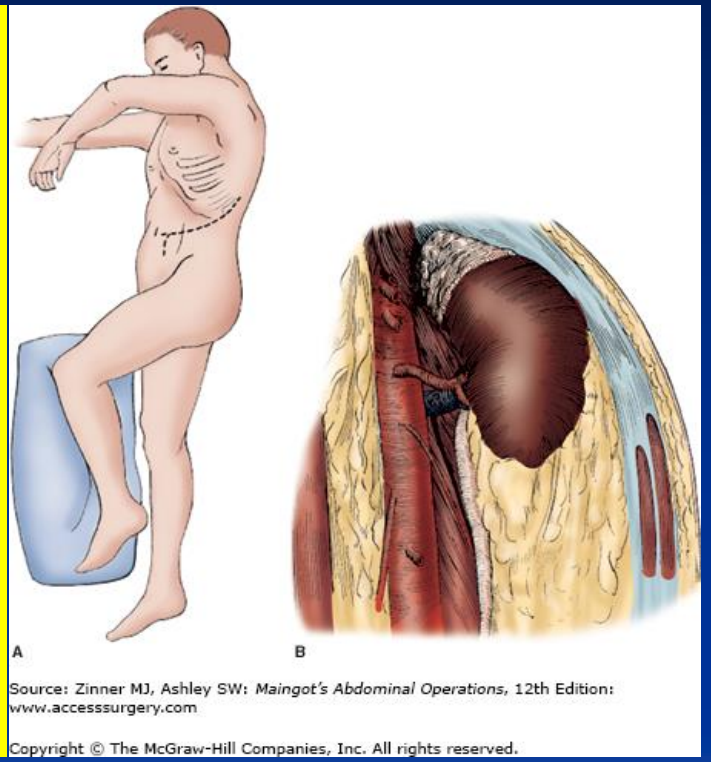
- Chạy phía ngoài qua phần đầu cơ psoas và xuyên qua cơ ngang bụng trước khi đến thành bụng trước.
- Thường không bị tổn thương trừ khi đường rạch da Pfannenstiel quá bờ ngoài cơ thẳng bụng.
- Tổn thương xảy ra trực tiếp, hoặc khi đóng cân, hoặc do sự tạo mô sẹo sau mổ.
- Phòng ngừa: giới hạn đường rạch da ở bờ cơ thẳng
- Biểu hiện: đau như dao cắt và cảm giác bỏng rát ở đường rạch da. Có thể gây dị cảm ở gò mu, môi lớn, mặt trong đùi.

2. Nguyên tắc lựa chọn đường mổ

- Ellis đưa ra ba nguyên tắc cơ bản:
  - Dễ tiếp cận
  - Cơ động
  - An toàn

3. Phân loại đường mổ





Source: Zinner MJ, Ashley SW: *Maingot's Abdominal Operations*, 12th Edition: www.accesssurgery.com

Bốn nhóm chính (dựa theo giải phẫu):

1. Đường dọc

2. Đường ngang và chếch

3. Đường ngực – bụng

4. Đường mổ sau phúc mạc và ngoài phúc mạc

4. Lựa chọn đường mổ

1. **Đường dọc hay đường ngang ?**

2. Đường giữa hay cạnh giữa ?

Tùy thuộc:

→ cơ quan mang bệnh và phẫu thuật dự kiến

→ thể trạng của bệnh nhân và mức độ béo phì

→ tính khẩn cấp và áp lực thời gian

→ vết mổ cũ

→ thói quen và kinh nghiệm

■ Đường rạch ngang trong phẫu thuật bụng có *cơ sở về giải phẫu học* tốt hơn và nên được ưu tiên lựa chọn hơn

■ Đường rạch ngang có ưu điểm hơn đường rạch dọc về:

đau,

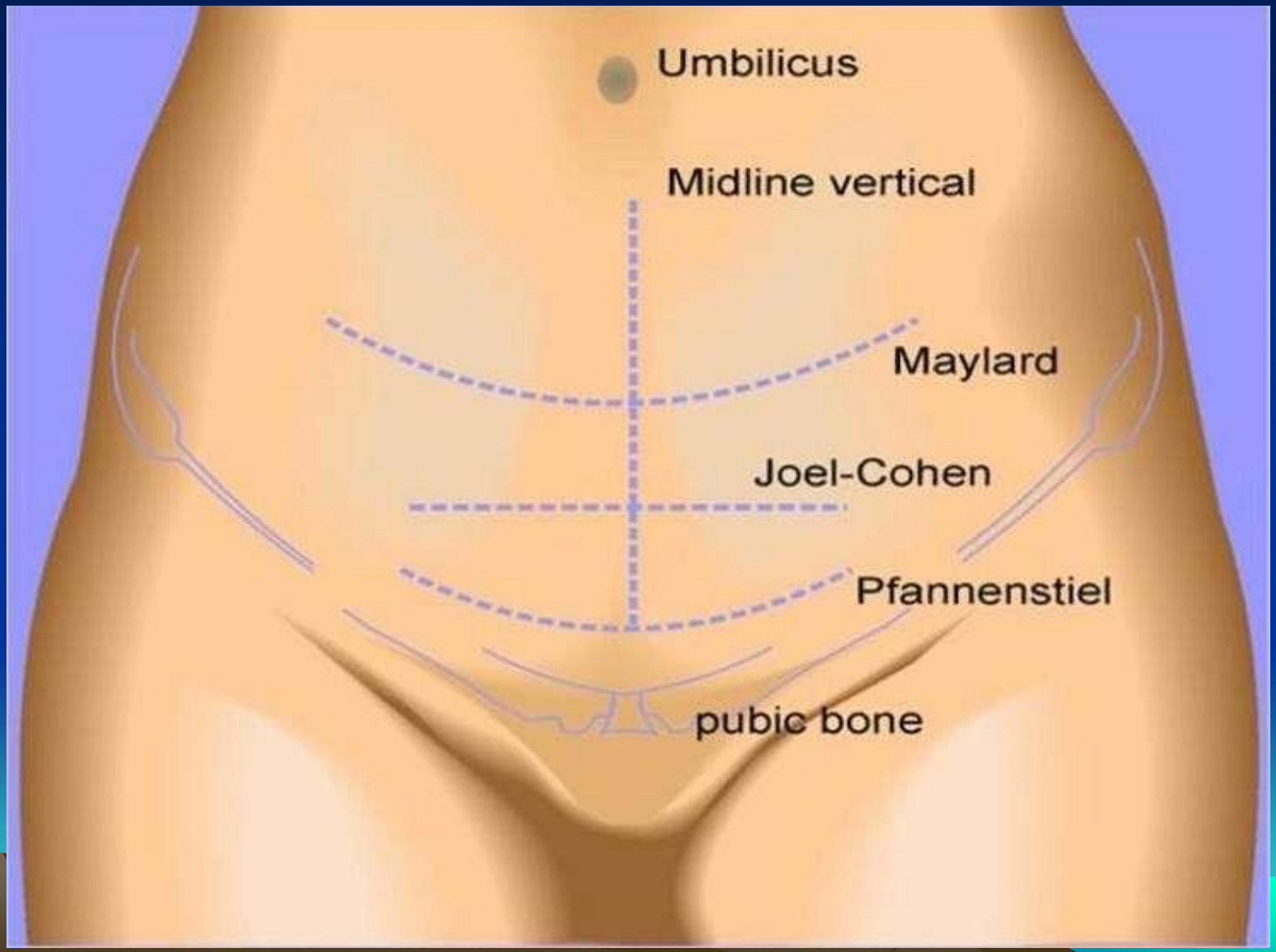
biến chứng phổi,

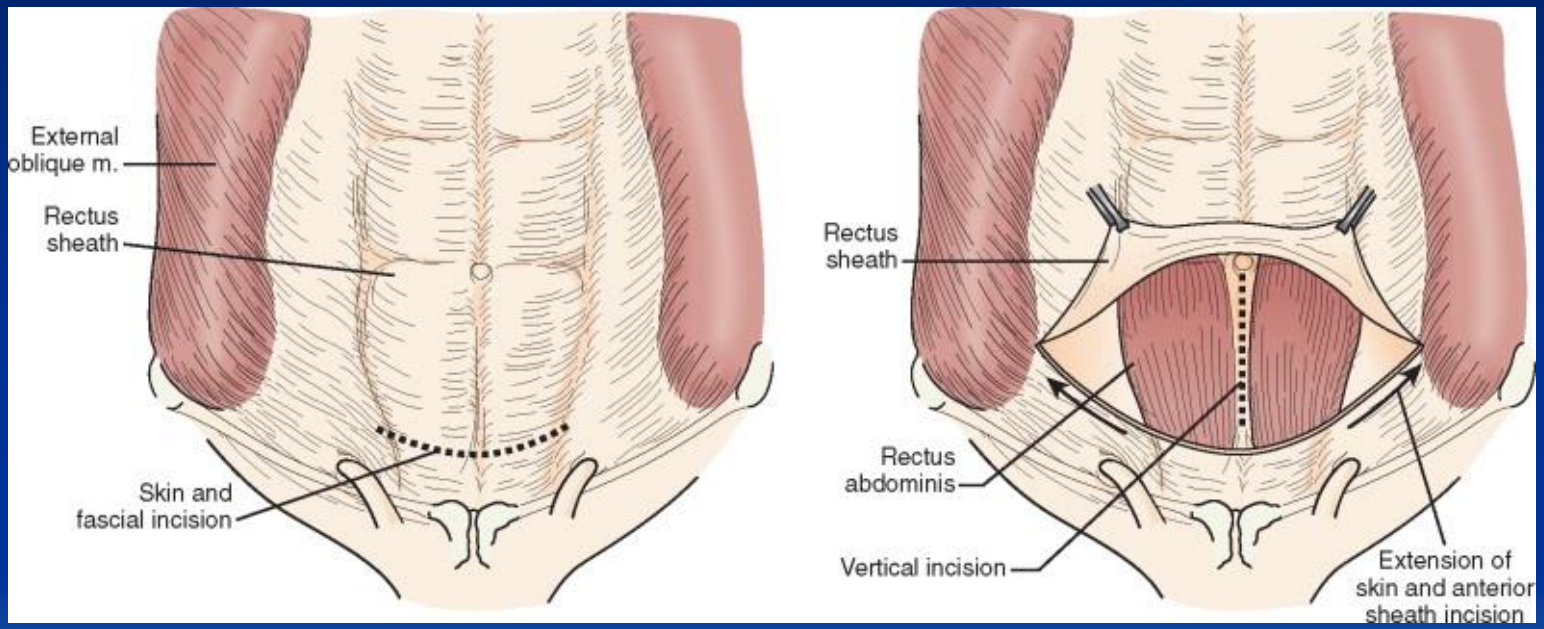
thoát vị vết mổ (+/-),

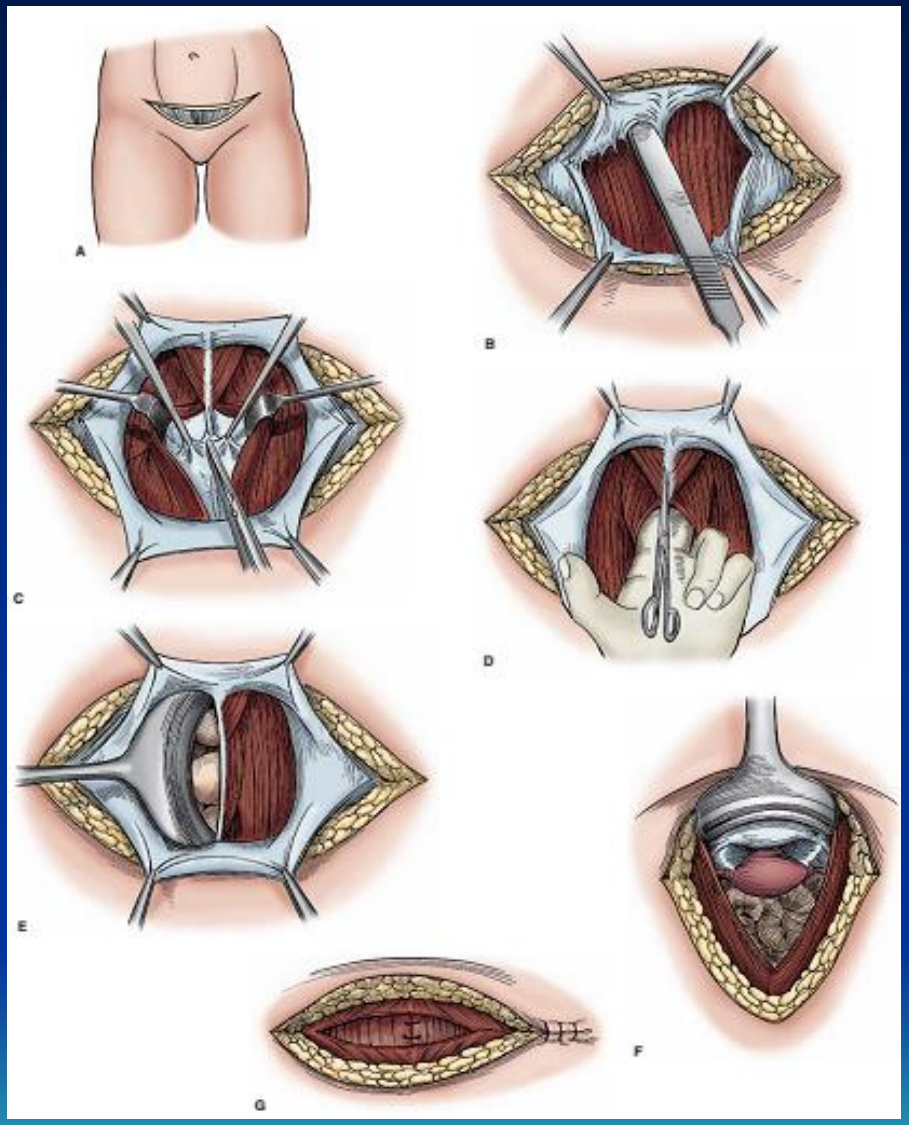
bung thành bụng (+/-)

5. Mô tả kỹ thuật

Đường Pfannenstiel




External oblique m.
Rectus sheath
Skin and fascial incision
Rectus sheath
Rectus abdominis
Vertical incision
Extension of skin and anterior sheath incision


A
B
C
D
E
F
G

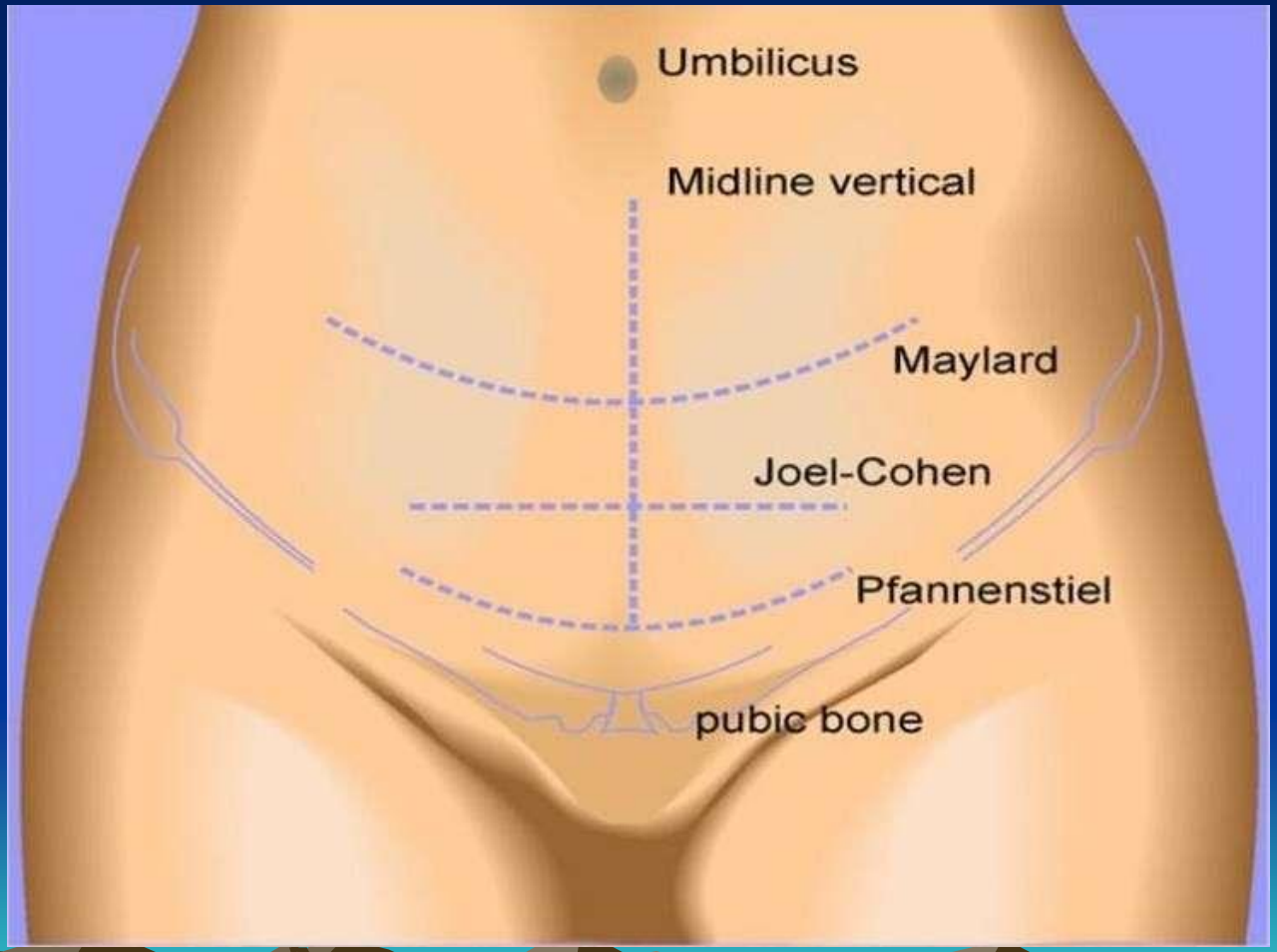
- Vị trí: 2-5cm trên khớp mu
- Dài 10 – 15 cm, cong lên trên theo nếp da
- Các bước:
  - Rạch da và mỡ dưới da
  - Rạch ngang lá trước bao cơ thẳng bụng
  - Bóc tách lá trước bao cơ thẳng bụng **đến rốn** và **khớp mu**.
  - Tách rời hai cơ thẳng qua hai bên, bộc lộ cân cơ ngang bụng và lá sau bao cơ thẳng bụng
  - Xẻ các lớp này (cân cơ ngang bụng, lá sau bao cơ thẳng) cùng với phúc mạc theo chiều dọc

Pfannenstiel introduced the Pfannenstiel incision in 1900[6]. It is a horizontal incision about 2cm above pubic symphysis that curves gently upward, placed in a natural fold of skin. The subcutaneous tissue is incised sharply with a scalpel. Fascia on exposure is incised transversely and separated from the underlying muscles by blunt and sharp dissection. Once the fascia is dissected, rectus muscles are separated with finger dissection. The peritoneum is opened by sharp dissection in midline. The initial entry is then widened with fine scissors exposing intraperitoneal contents.

- **Đóng bụng:**
  - Khâu phúc mạc (+/-)
  - Khâu khép hai cơ thẳng bụng nếu hai cơ xa nhau
  - Khâu lá trước bao cơ thẳng bụng
  - Khâu lớp mỡ dưới da (nếu dày > 2cm)
  - Khâu da


moms into fitness

Đường Joel - Cohen



Professor Joel-Cohen (Figure 1) introduced an incision for abdominal hysterectomy in 1954, and obstetricians have since used this widely to perform Caesarean section[7]. The incision is a straight horizontal incision, being positioned slightly higher than the Pfannenstiel, about 3cm below the line joining the anterior superior iliac spines. The skin is cut; the subcutaneous tissue and the anterior rectus sheath are opened a few centimetres only in the midline. Both the fascia and subcutaneous tissue are rapidly divided by blunt finger dissection. The rectus muscles are separated by finger traction. The peritoneum is opened by blunt dissection in a transverse direction and the opening is widened by traction in a transverse direction.

Review of Advantages of Joel-Cohen Surgical Abdominal Incision in Caesarean Section: A Basic Science Perspective

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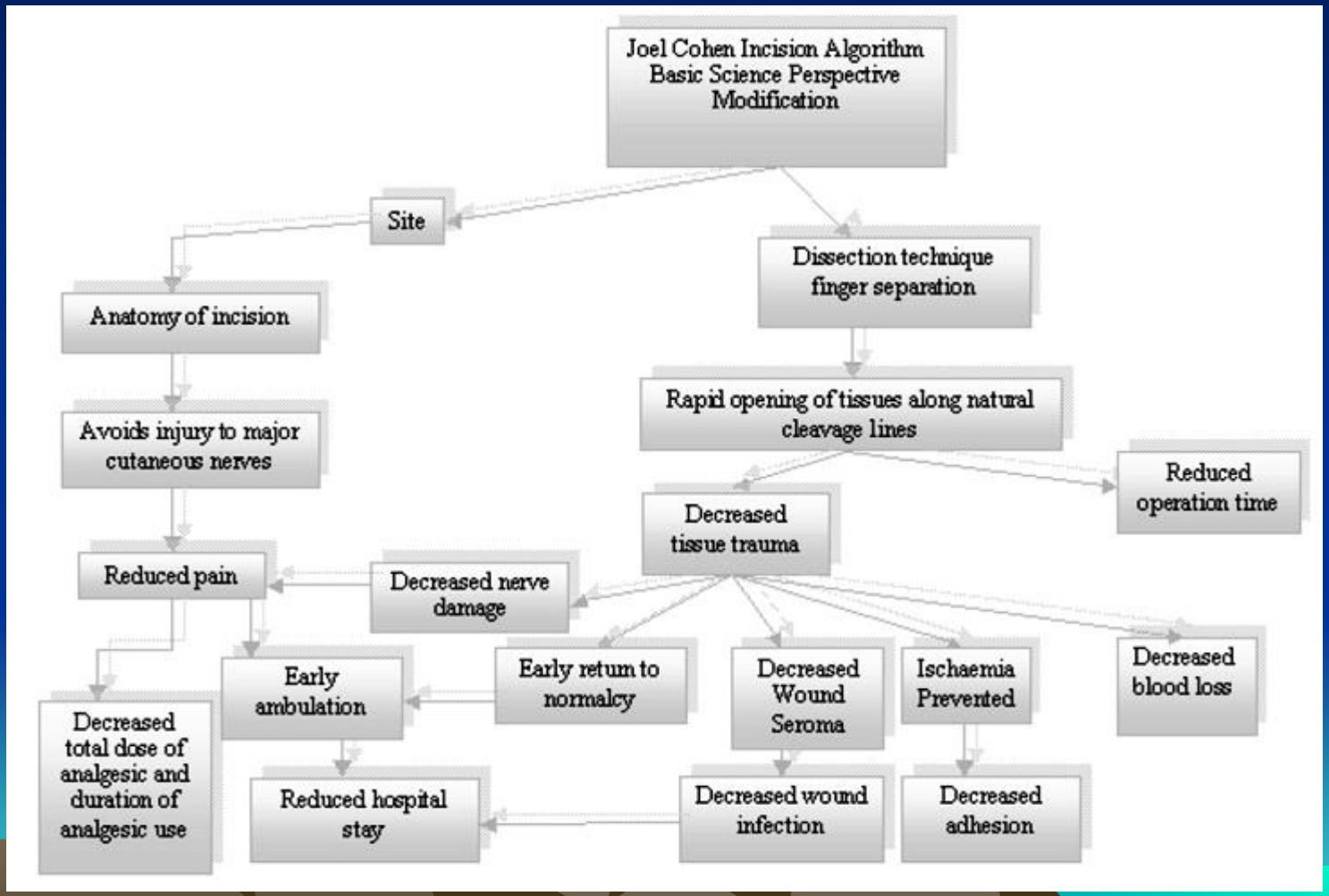
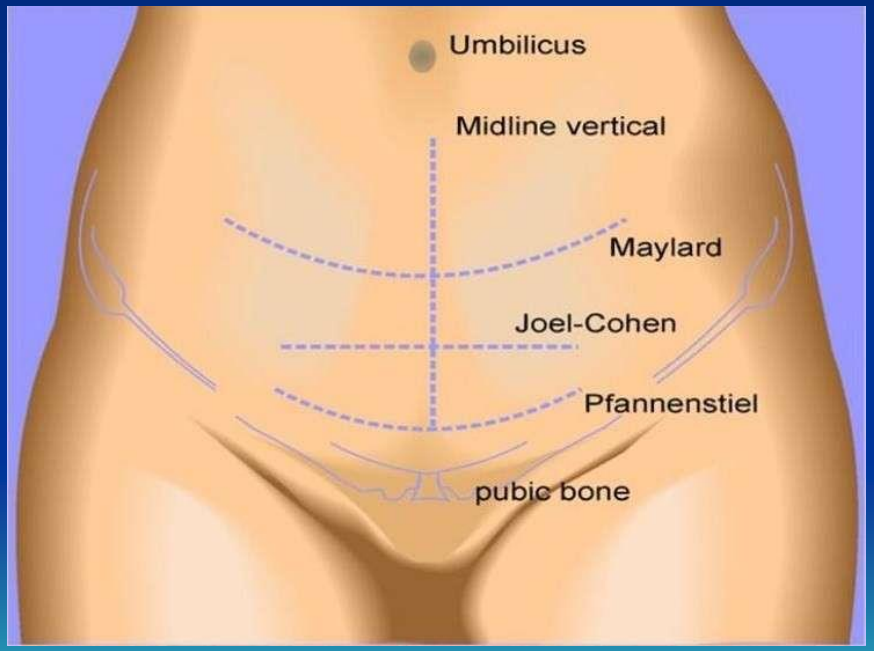
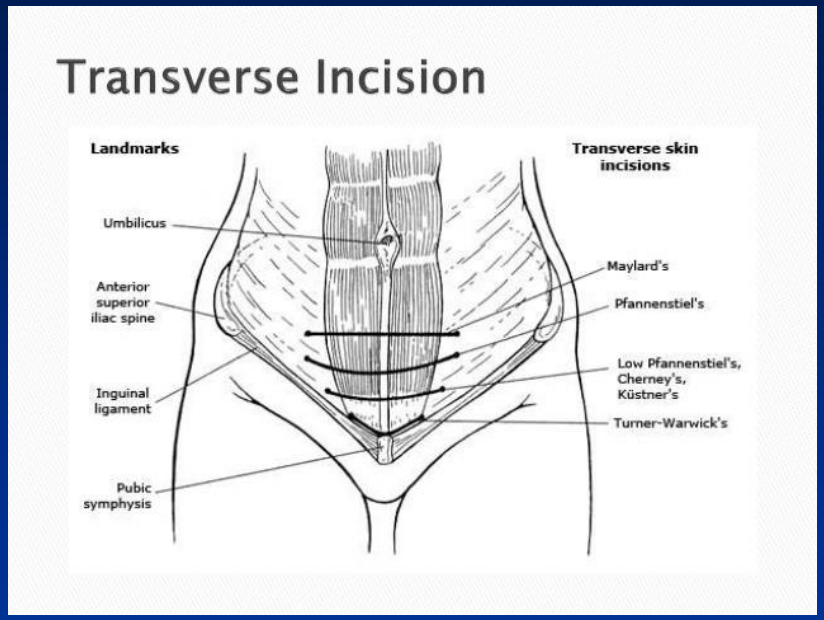


Đường Maylard (Mackenrodt)





Maylard's incision — Maylard's incision (also known as the Mackenrodt incision) is a transverse incision through all layers of the abdominal wall usually at the level of the anterior iliac spine (figure 14). Following wide transverse incision in the aponeurosis, the rectus muscles are incised transversely with a scalpel, electrosurgery, or surgical stapler.

Surgical technique. A transverse skin incision is made 3 to 8 cm above the symphysis pubis and is carried down to the anterior rectus sheath. The exact location and length of the skin incision depend on the patient's age and weight, indication for operation, and previous abdominal or pelvic operation(s). The fascial sheath is

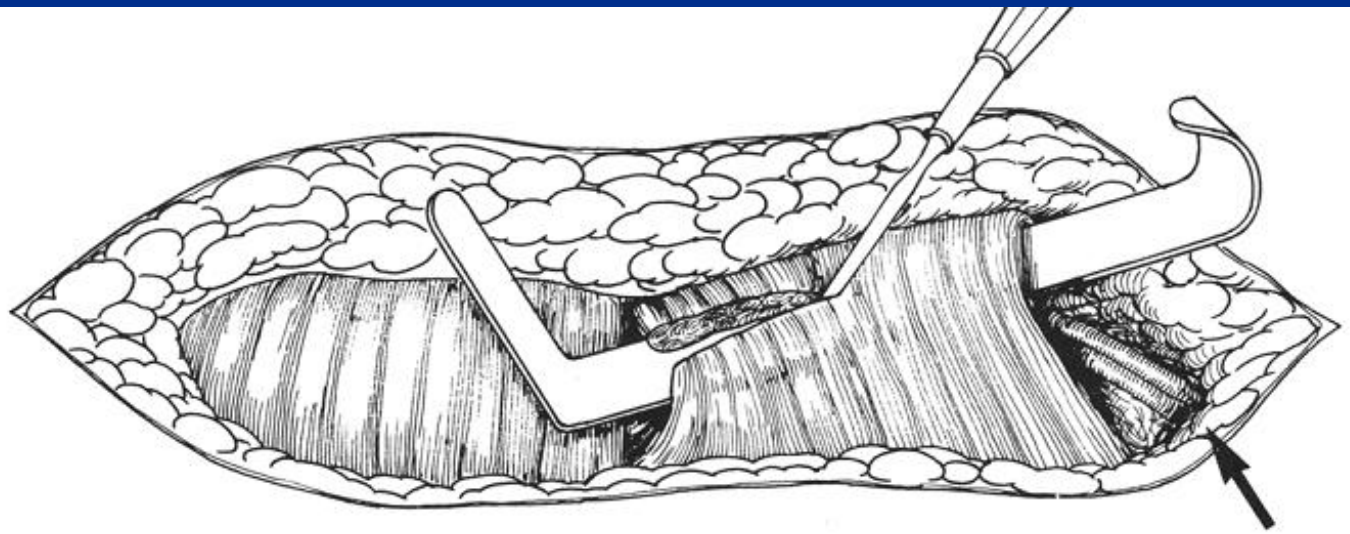
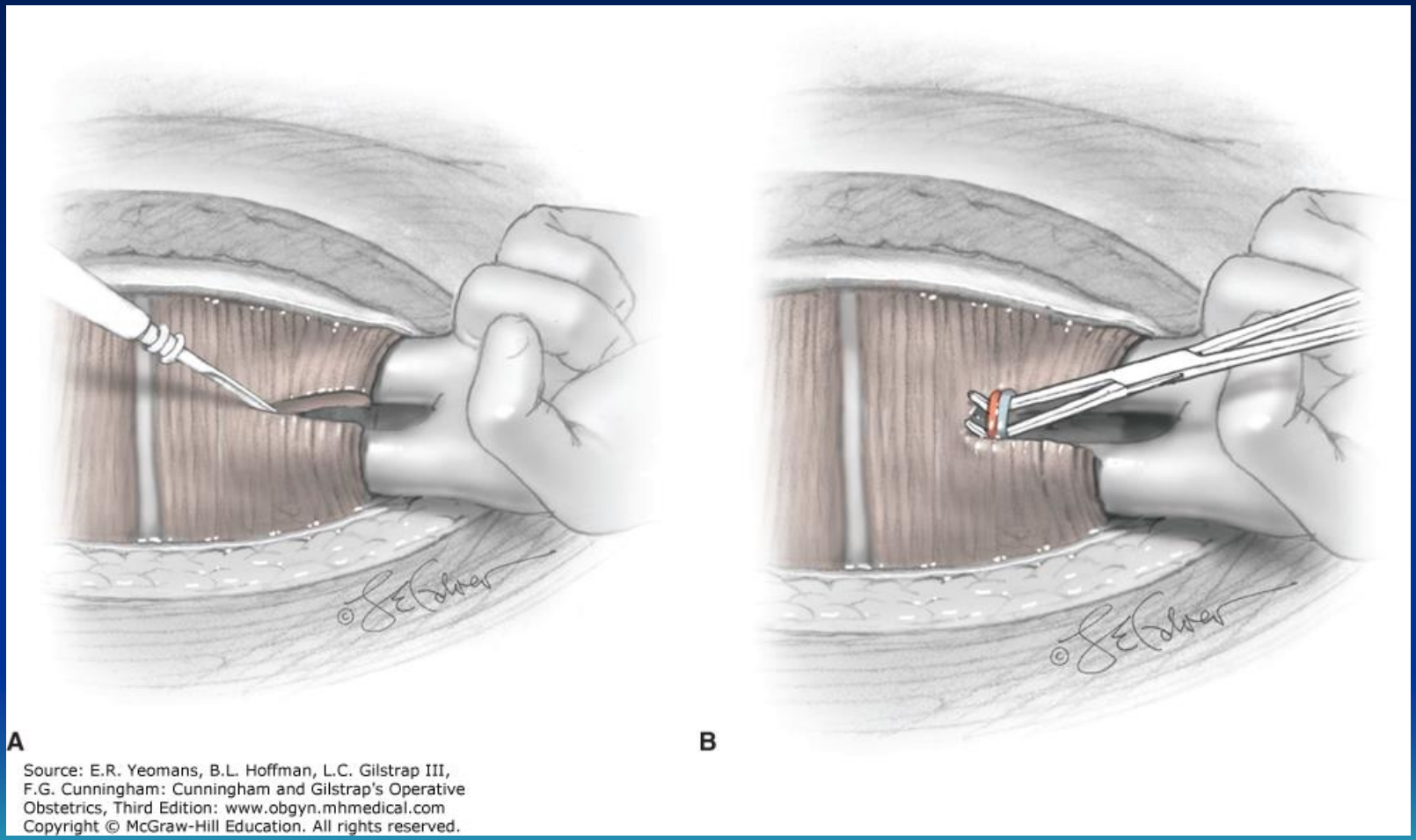


Fig. 1. A small right-angle retractor is used to elevate the rectus muscle and expose the inferior epigastric vessels *(arrow)*. Electrocautery is used to transect the rectus muscle.

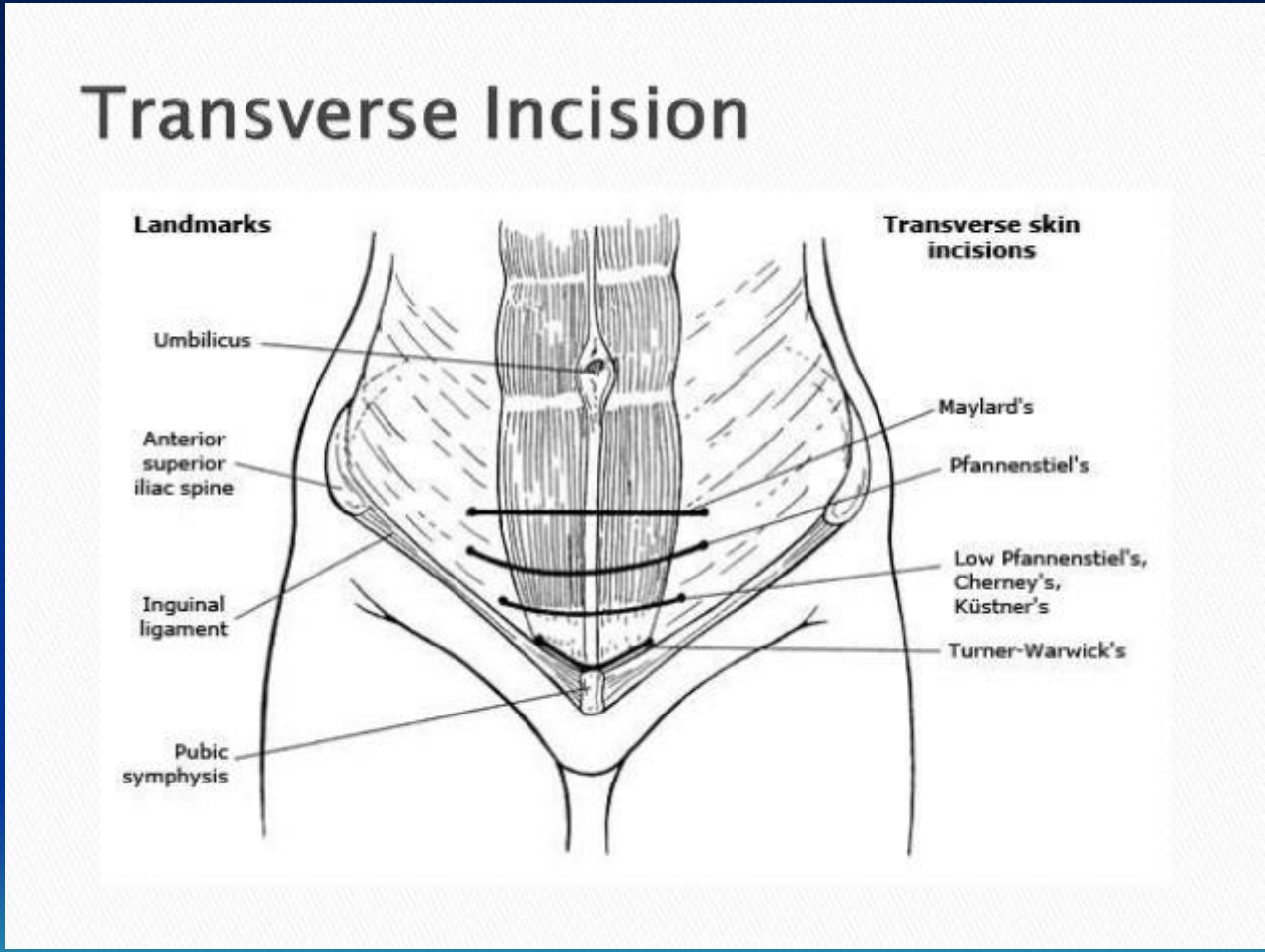


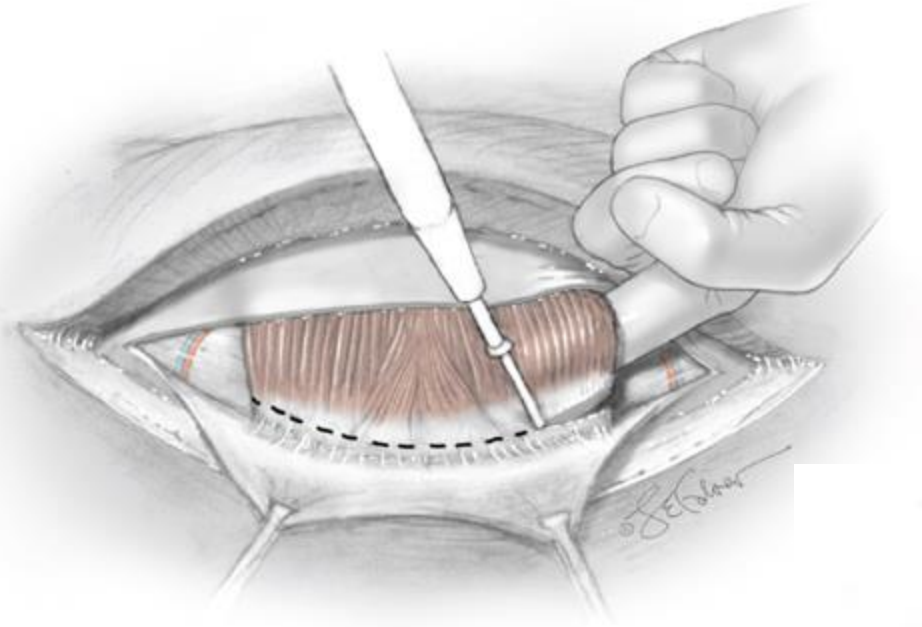
Source: E.R. Yeomans, B.L. Hoffman, L.C. Gilstrap III, F.G. Cunningham: Cunningham and Gilstrap's Operative Obstetrics, Third Edition: www.obgyn.mhmedical.com

- Cắt qua tất cả các lớp của thành bụng
- Ngang mức gai chậu trước
- Cắt ngang lá trước bao cân cơ thẳng
- Xác định bó mạch thượng vị dưới sâu→ kẹp, cắt, cột.
- Cắt ngang cơ thẳng bụng (**không tách** cơ ra khỏi lá trước bao cân cơ thẳng)
- **Khâu đầu cơ** thẳng vào lá trước bao cân cơ thẳng bằng chỉ tan 0.

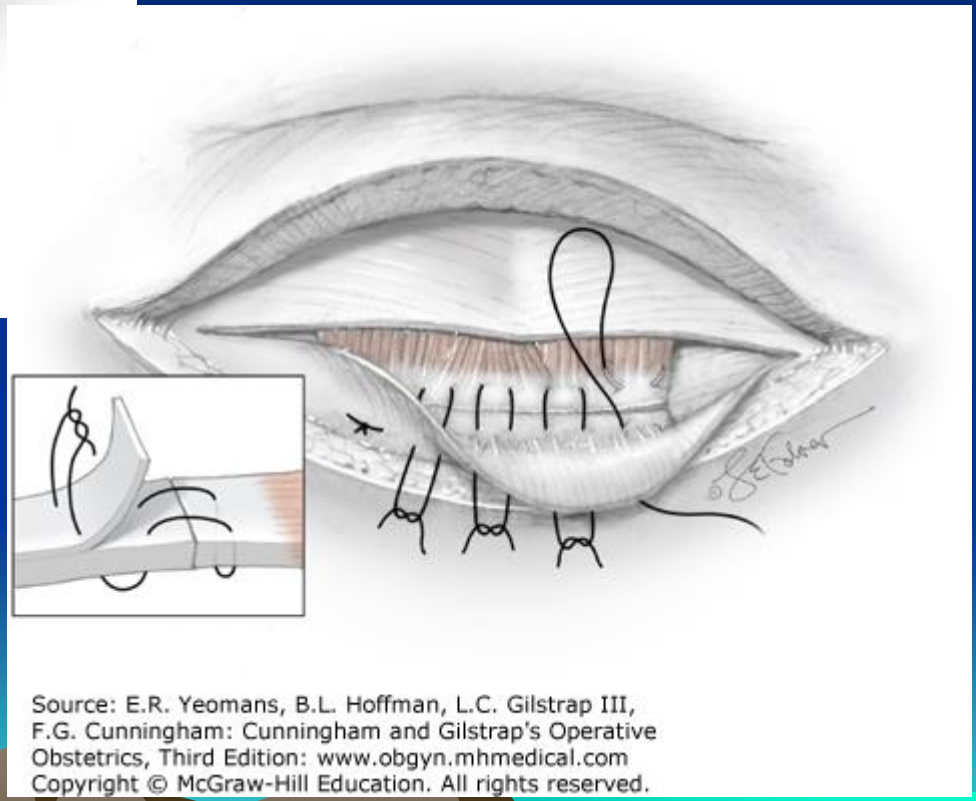
- **Nhược điểm**:
  - Hạn chế tiếp cận bụng trên
  - Chảy máu (từ đầu cơ hoặc động mạch thượng vị dưới sâu)
  - Biến chứng nghiêm trọng trên BN hẹp nặng chỗ nối ĐM chủ - chậu

Đường Cherney





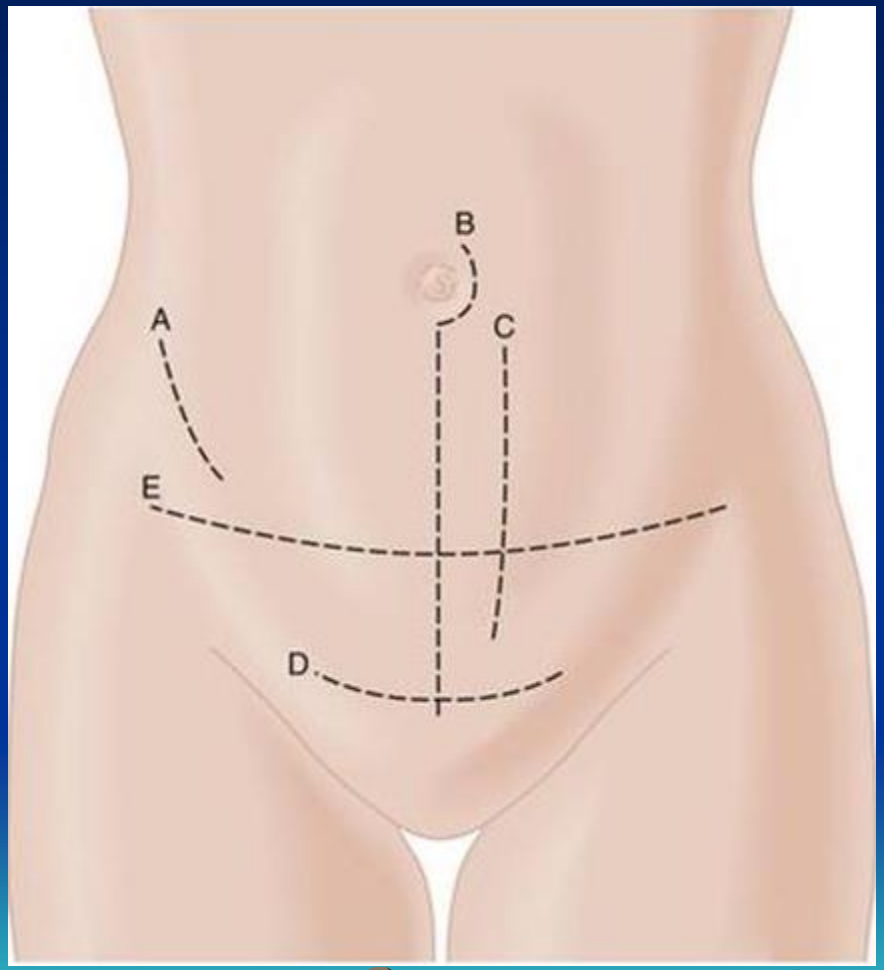
Source: E.R. Yeomans, B.L. Hoffman, L.C. Gilstrap III, F.G. Cunningham: Cunningham and Gilstrap's Operative Obstetrics, Third Edition: www.obgyn.mhmedical.com



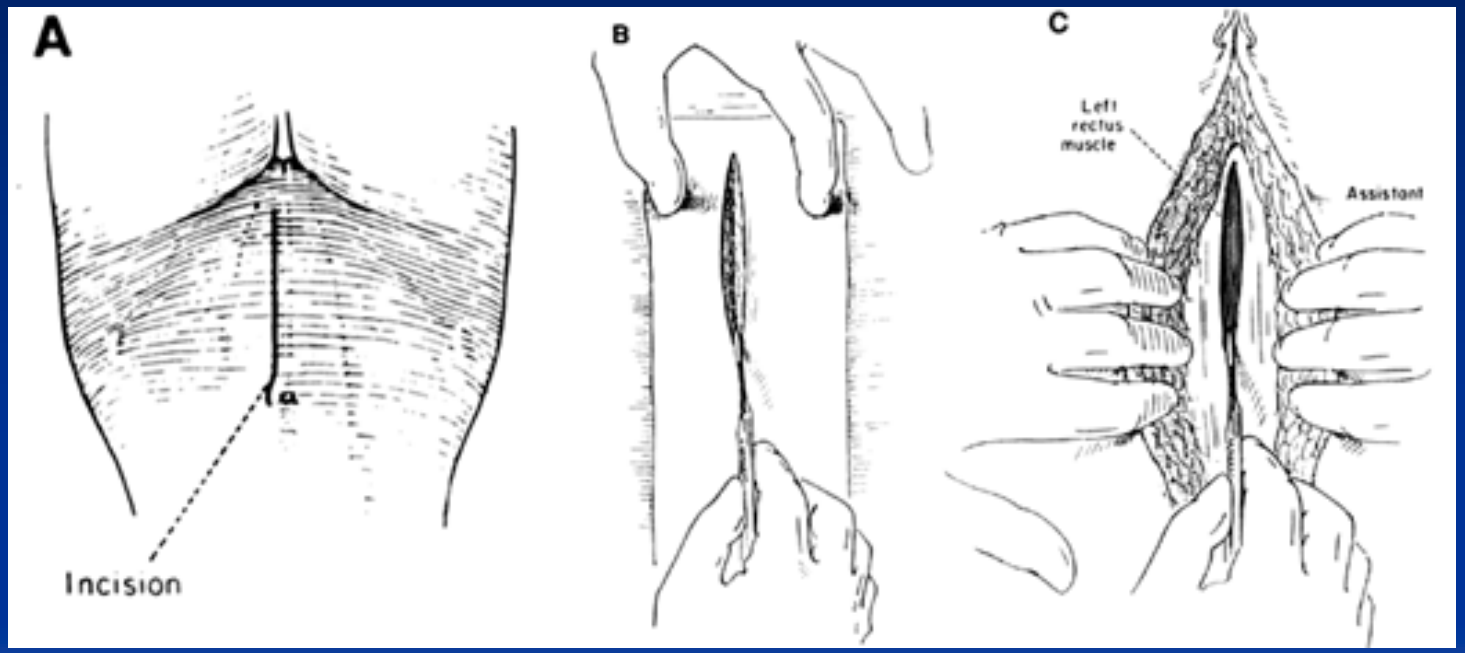
Source: E.R. Yeomans, B.L. Hoffman, L.C. Gilstrap III, F.G. Cunningham: Cunningham and Gilstrap's Operative Obstetrics, Third Edition: www.obgyn.mhmedical.com

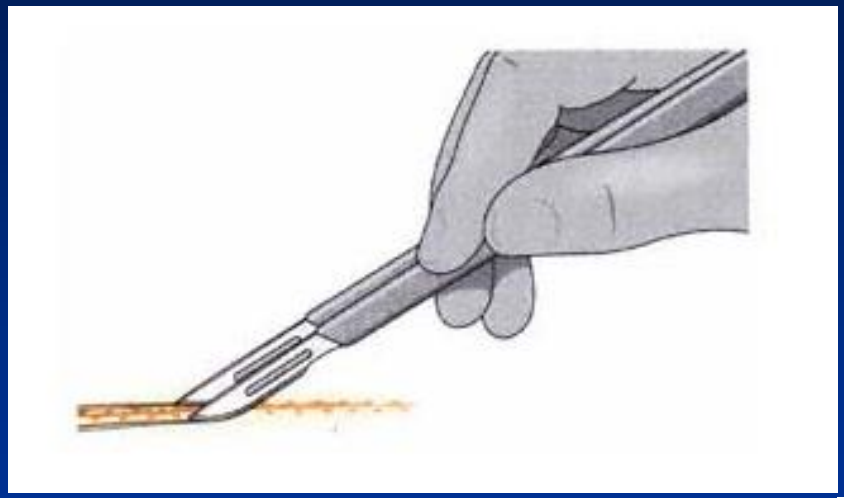
- Hơi thấp hơn đường Pfannenstiel
- Bóc tách lá trước bao cân cơ thẳng (+/-)
- **Cắt gân cơ thẳng và cơ tháp** (chừa lại 5mm)
- Kéo ngược gân cơ lên trên rồi mở phúc mạc theo chiều dọc
- Khi đóng bụng: khâu gân – cơ vào khớp mu hoặc đầu dưới bao cơ thẳng
- Bộc lộ tốt khoang Retzius

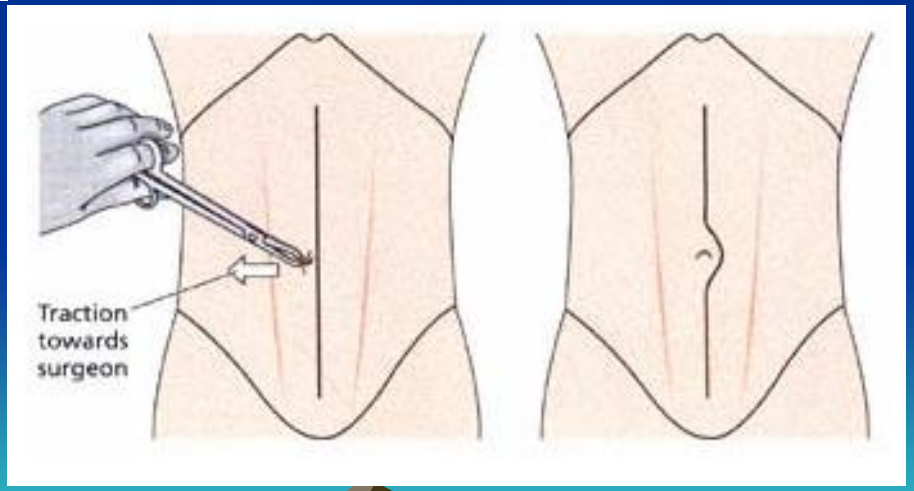
Đường dọc giữa



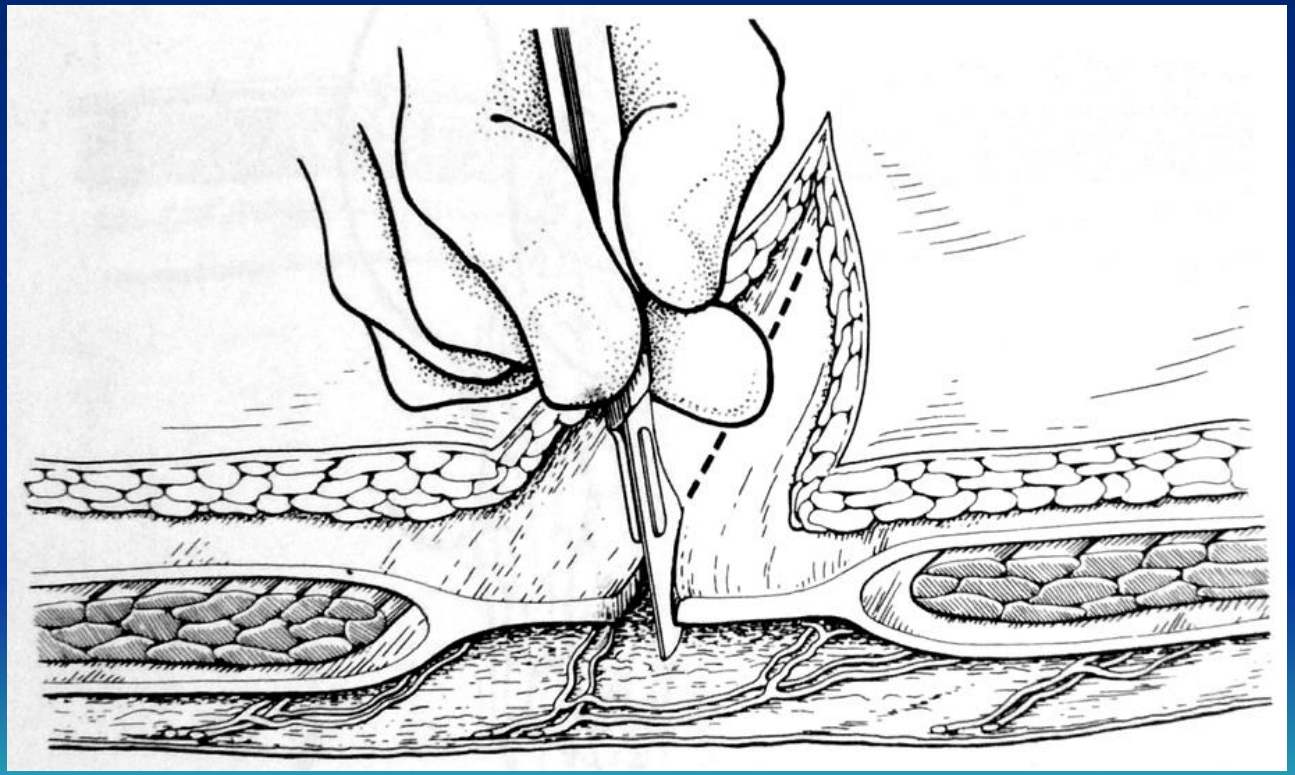
Bước 1. Rạch da và mỡ dưới da





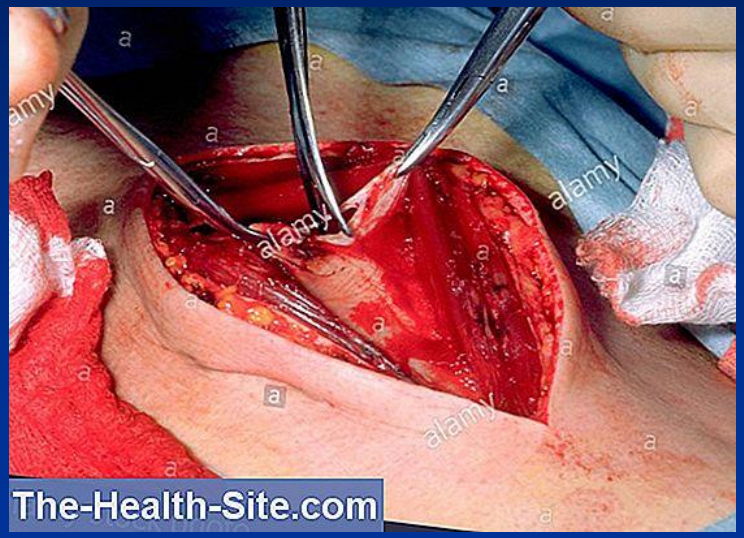

Traction
towards
surgeon

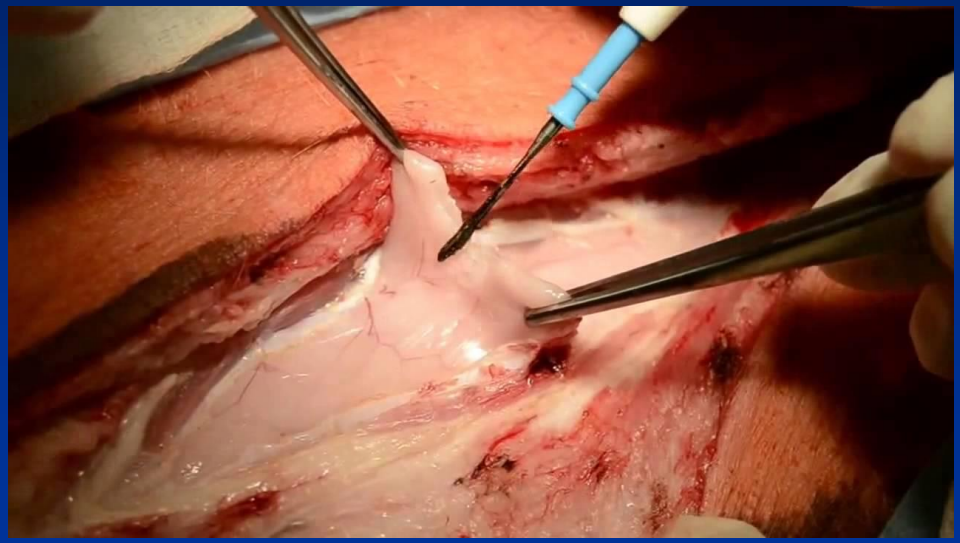
Bước 2. Rạch dọc hết chiều dài bao cơ thẳng bụng (hoặc một phần)

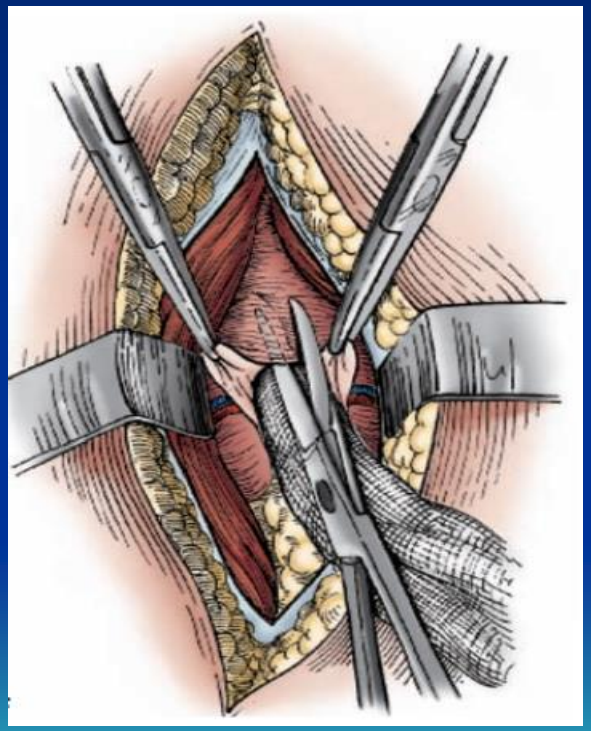


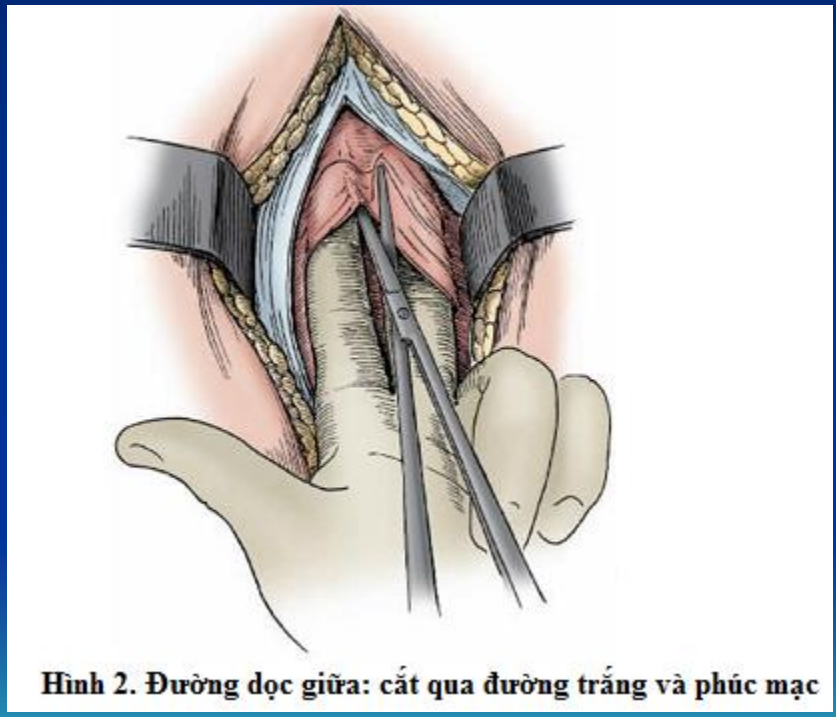
Bước 3.
Bóc tách lớp mỡ trước phúc mạc đến phúc mạc

Bước 4. Mở phúc mạc









Hình 2. Đường dọc giữa: cắt qua đường trắng và phúc mạc

Đóng bụng

- **Các bước:**
  - Chuẩn bị
  - Khâu phúc mạc
  - Khâu cân
  - Khâu lớp mỡ dưới da
  - Khâu da
  - Băng vết mổ

Bước 1. Chuẩn bị

- Đếm gạc
- Xếp ruột
- Kiểm tra vị trí đầu ống dẫn lưu
- Đầu cao - Trải mạc nối lớn
- Dùng gạc và banh malleable che chắn
- Kẹp nếp phúc mạc

Bước 2. Khâu phúc mạc

Cochrane Library

Cochrane Database of Systematic Reviews

Peritoneal closure versus no peritoneal closure for patients undergoing non-obstetric abdominal operations (Review)

Gurusamy KS, Cassar Delia E, Davidson BR

Authors' conclusions

There is no evidence for any short-term or long-term advantage in peritoneal closure for non-obstetric operations. performed on this topic, they should have an adequate period of follow-up and adequate measures should be taken results are not subject to bias.

Peritoneum — Surgical closure of the peritoneum does not impact incision strength or healing. There is overwhelming evidence from randomized trials that peritoneal closure is unnecessary because the peritoneum reepithelializes within 48 to 72 hours [32-34]. Furthermore, peritoneal closure results in more advanced adhesion formation at the time of a subsequent procedure [35].

Bước 3. Khâu cân

Mass <> Layered

DOI: http://dx.doi.org/10.18203/2349-2902.isj20180357

Original Research Article

Mass closure versus layered closure of midline laparotomy incisions: a prospective comparative study

Santoshkumar N. Deshmukh*, Audumbar N. Maske

Department of General Surgery, Dr. Vaishampayan Memorial Govt. Medical College, Solapur, Maharashtra, India

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Revised: 28 December 2017
Accepted: 11 January 2018

Conclusions: Mass closure technique is less time consuming, more cost effective and safe for closure of midline laparotomy incisions.

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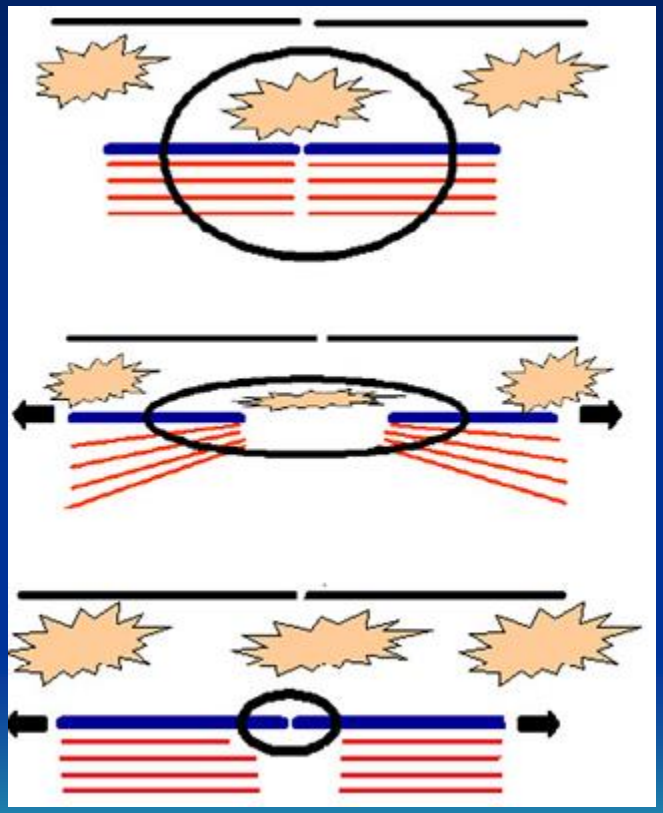
REVIEW

Abdominal wound closure: current perspectives

layer mass closure over layered closure.[18,54] There is little data directly comparing the mass closure technique to the single-layer closure of the aponeurosis.[47] However, the recently published European Hernia Society guidelines on the closure of abdominal wall incisions under their weakest level of evidence recommended single layer closure of the aponeurosis.[47]

Large <> Small



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tain and compress more soft tissue. Two recent randomized trials by Millbourn et al[36] and Deerenberg et al[38] comparing fascial closure using smaller bites (5–8 mm) to larger bites (10 mm) demonstrated decreased incisional hernias when smaller fascial bites were used.[36,39,40] The use of smaller needles was found to encourage surgeons to take smaller bites as the smaller needles make taking larger bites more difficult.[39,40] The use of smaller fascial bites to close prolonged each operation by an average of just 4 minutes; however, this was found to be cost-effective

Continuous <> Interrupted

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Abdominal wound closure: current perspectives

Several randomized trials and meta-analyses have examined continuous versus interrupted closures. Continuous closure is typically recommended over interrupted closure, since it is faster and less costly. Dehiscence, wound complication rates, and incisional hernia rates are similar between interrupted and continuous closures. There is a theo-

Monofilament <> Braided

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REVIEW

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Consequently, monofilament sutures are traditionally favored for abdominal closure.[18] Ultimately, the choice of optimal sutures depends on the outcome that is being evaluated, with less hernia formation associated with permanent suture but increased infectious wound complications compared with the absorbable suture.

Absorbable <> Nonabsorbable

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Meta-analyses by Diener et al[25] and Van't Riet et al[26] demonstrated no difference in incisional hernia incidence between slowly absorbable and nonabsorbable sutures; however, more wound pain and more suture sinuses occurred with the use of nonabsorbable sutures. Similar outcomes were observed with continuous and interrupted sutures, but continuous sutures took less time to insert. There is little

Abdominal Wall Closure in Elective Midline Laparotomy: The Current Recommendations

René H. Fortelny [1,2*]

[1] *Department of General, Viszeral and Oncologic Surgery, Wilhelminenspital, Vienna, Austria,* [2] *Medical Faculty, Sigmund Freud University Vienna, Vienna, Austria*

Results: In the systematic review for closure techniques a total of 23 RCTs and 9 RCTs for the use of prophylactic mesh were included. In elective midline closure the use of a slowly absorbable suture material for continuous closure using the small bites technique results in significantly less incisional hernias than a large bites technique (OR 0.41; 95% CI 0.19, 0.86). The use of prophylactic mesh versus the suture closure

Rapidly absorbable sutures included polyglactin 910 (Vicryl), and polyglycolic acid (Dexon). Slowly absorbable sutures included polydioxanone (PDS, MonoPlus) and polyglyconate + trimethylene carbonate (Maxon). Nonabsorbable sutures included polyamide (nylon), polypropylene (Prolene) and polyester (Ethibond) (table 2).

Common types of synthetic absorbable sutures and their in-vivo half-lives are listed below [4]:

- Polyglactin 910 (Vicryl) – Two weeks
- Polyglycolic acid (Dexon) – Two weeks
- Poliglecaprone (Monocryl) – Two weeks
- Polydioxanone (PDS) – Three weeks
- Polyglyconate (Maxon) – Six weeks

Tight is good?

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REVIEW

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higher tension.[4,43] Calculating and standardizing the amount of suture line tension remains a challenge clinically.[20] It is generally recommended that the tissue be reapproximated but not strangulated.[20] The tension of a midline closure is likely too high when the suture line is not visible due to being deeply embedded in the soft tissue.[20]

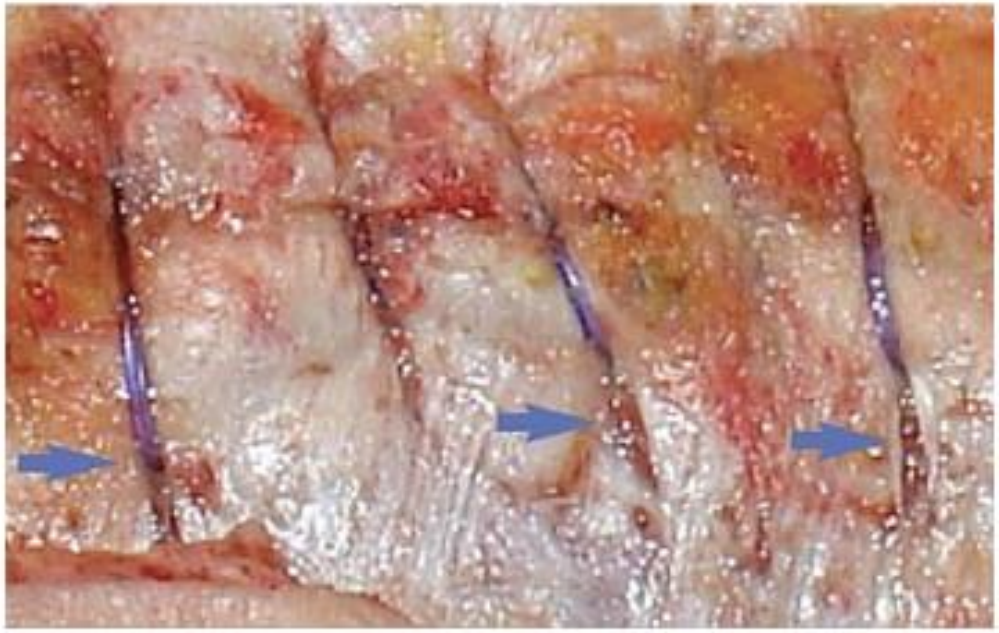

FIGURE 1 | "Button holes" due to high tension aftermidline closure by large bite technique using a loop suture (blue arrows).

How long is enough?

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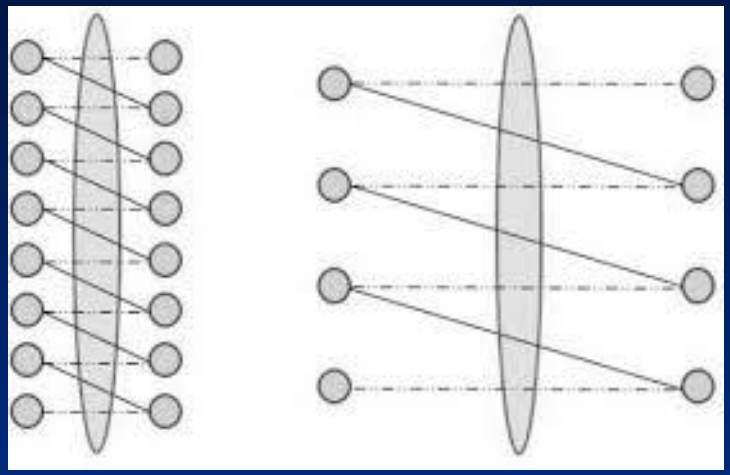
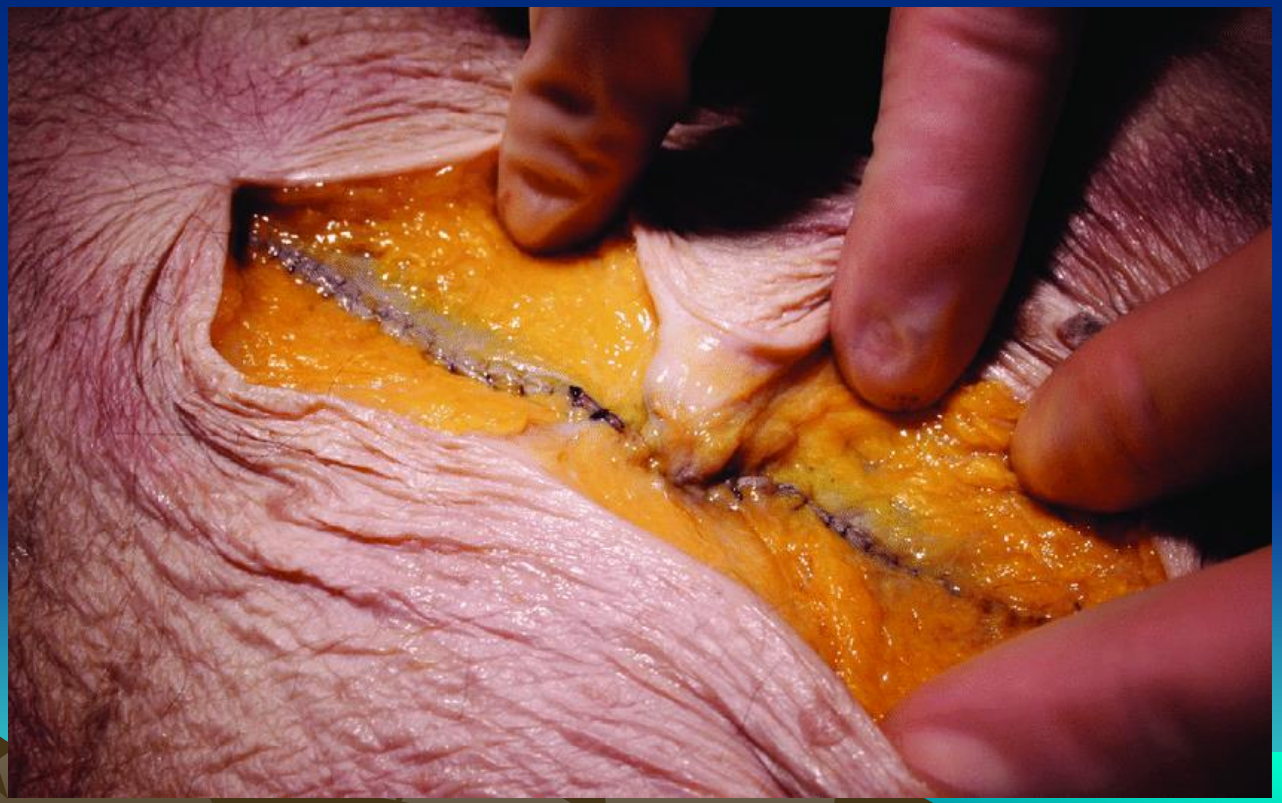
REVIEW

Abdominal wound closure: current perspectives

Suture-to-wound-length ratio and suture size

The amount of suture used also appears to be important in reducing hernia formation.[29] A suture-to-wound-length ratio of at least 4:1 is thought to be the minimum amount of suture needed to provide a strong closure and reduce hernia formation.[18,30] There are little randomized data to support this





Author: Jason S Mizell, MD, FACS
Section Editor: Michael Rosen, MD
Deputy Editor: Wenliang Chen, MD, PhD

Contributor Disclosures

All topics are updated as new evidence becomes available and our peer review process is complete.

Literature review current through: Sep 2019. | **This topic last updated:** Dec 19, 2018.

Regardless of whether interrupted or continuous closure is chosen, sutures should be placed approximately 10 mm from the fascial edge. Suture widths in excess of 10 mm may increase the magnitude of compressive forces on the tissue contained between the suture hole and fascial edge [45].

In Europe, a further reduction in suture width from 10 mm to 5 to 8 mm is advocated by the 2015 European Hernia Society guidelines on the closure of abdominal wall incisions [41], largely based upon the results of two randomized trials [42,46].

Bigger is better?

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The majority of surgeons and most studies use a number 1 or 0 sized suture for fascial closure. One study found no change in hernia formation when a 2-0 sized suture was used.[44] Millbourn et al[36] demonstrated a significantly lower rate of incisional hernia formation using 2-0 PDS taking small fascial bites.

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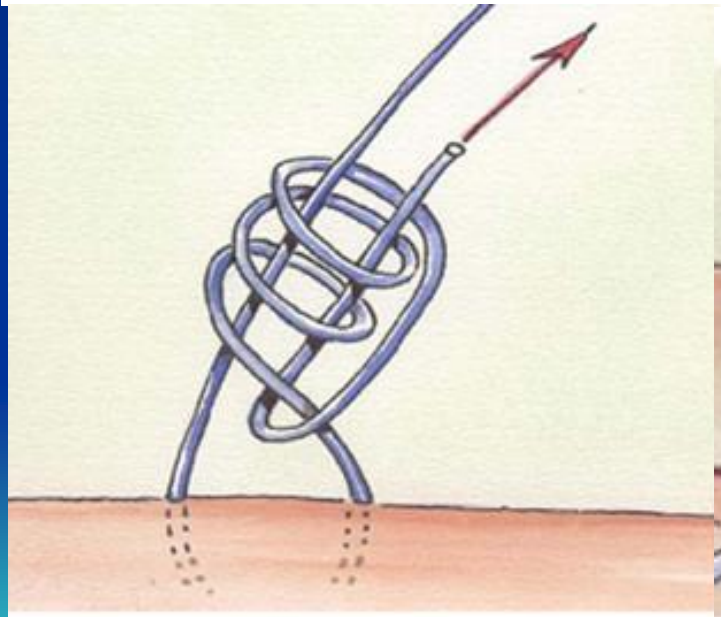
REVIEW

Abdominal wound closure: current perspectives

to slip than conventional knots. Additionally, self-locking knots reduce the suture strength by only 5%–10%, compared with a 40% reduction caused by traditional knots.[23]



Bước 4. Khâu mỡ dưới da

Cochrane Library

Cochrane Database of Systematic Reviews

Subcutaneous closure versus no subcutaneous closure after non-caesarean surgical procedures (Review)

Authors' conclusions

There is currently evidence of very low quality which is insufficient to support or refute subcutaneous closure after non-caesarean operations. The use of subcutaneous closure has the potential to affect patient outcomes and utilisation of healthcare resources. Further well-designed trials at low risk of bias are necessary.

REVIEW

Suture Closure of Subcutaneous Fat and Wound Disruption After Cesarean Delivery: A Meta-Analysis

David Chelmow, MD, Elisa J. Rodriguez, MD, and Marie M. Sabatini, MD

CONCLUSION: Suture closure of subcutaneous fat during cesarean delivery results in a 34% decrease in risk of wound disruption in women with fat thickness greater than 2 cm.
(Obstet Gynecol 2004;103:974–80.

RESEARCH ARTICLE

Suture Closure versus Non-Closure of Subcutaneous Fat and Cosmetic Outcome after Cesarean Section: A Randomized Controlled Trial

Heinrich Husslein[1,2]*, Martina Gutschi[1], Heinz Leipold[1], Christoph Herbst[1], Maximilian Franz[2], Christof Worda[1]

POSAS or VSS scores between groups. After two months significantly more women in the non-closure group described their scar as being retracted below the level of the skin (36% vs. 15%, p=0.02) whereas no difference was observed at six months. There were significantly more hematomas in the non-closure (25%) compared to the closure group (4%) (p=0.005). There was no difference in duration of surgery, SSI, seroma formation or wound disruption between groups.

Review Article

Review of Subcutaneous Wound Drainage in Reducing Surgical Site Infections after Laparotomy

B. Manzoor,[1] N. Heywood,[1] and A. Sharma[2]

[1]*Department of Surgery, University Hospital of South Manchester and The University of Manchester, MAHSC, Manchester, UK*
[2]*Wythenshawe Hospital, University Hospital of South Manchester, Southmoor Road, Manchester M23 9LT, UK*

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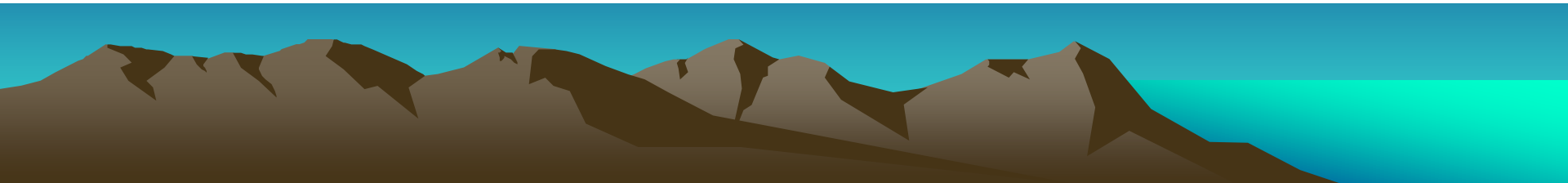
Received 10 June 2015; Accepted 9 November 2015

Purpose. Surgical site infections (SSIs) remain a significant problem after laparotomies. The aim of this review was to assess the evidence on the efficacy of subcutaneous wound drainage in reducing SSI. *Methods.* MEDLINE database was searched. Studies were identified and screened according to criteria to determine their eligibility for meta-analysis. Meta-analysis was performed using the Mantel-Haenszel method and a fixed effects model. *Results.* Eleven studies were included with two thousand eight hundred and sixty-four patients. One thousand four hundred and fifty patients were in the control group and one thousand four hundred and fourteen patients were in the drain group. Wound drainage in all patients shows no statistically significant benefit in reducing SSI incidence. Use of drainage in high risk patients, contaminated wound types, and obese patients appears beneficial. *Conclusion.* Using subcutaneous wound drainage after laparotomy in all patients is unnecessary as it does not reduce SSI risk. Similarly, there seems to be no benefit in using it in clean and clean contaminated wounds. However, there may be benefit in using drains in patients who are at high risk, including patients who are obese and/or have contaminated wound types. A well designed trial is needed which examines these factors.



Bước 5. Đóng da

Skin — Closure of the skin may be performed with subcuticular suture, stainless steel staples, subcuticular absorbable staples, surgical tape, or wound adhesive glue.

Bước 6. Băng vết mổ

- Không bôi povidine lên vết mổ sạch
- Lau sạch dung dịch sát khuẩn trên da
- Đắp gạc vô khuẩn
- Dán ít băng keo

7. Biến chứng

1. Nhiễm khuẩn vết mổ
2. Nhiễm khuẩn vết thương hoại tử

(hoại thư sinh hơi, viêm cân hoại tử)

3. Tụ huyết thanh và tụ máu
4. Áp xe chân chỉ
5. Bung vết mổ và thoát tạng
6. Thoát vị vết mổ

HẾT GỒI!!!