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Early Complication of Surgical Incisions(Wound complications)

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MD

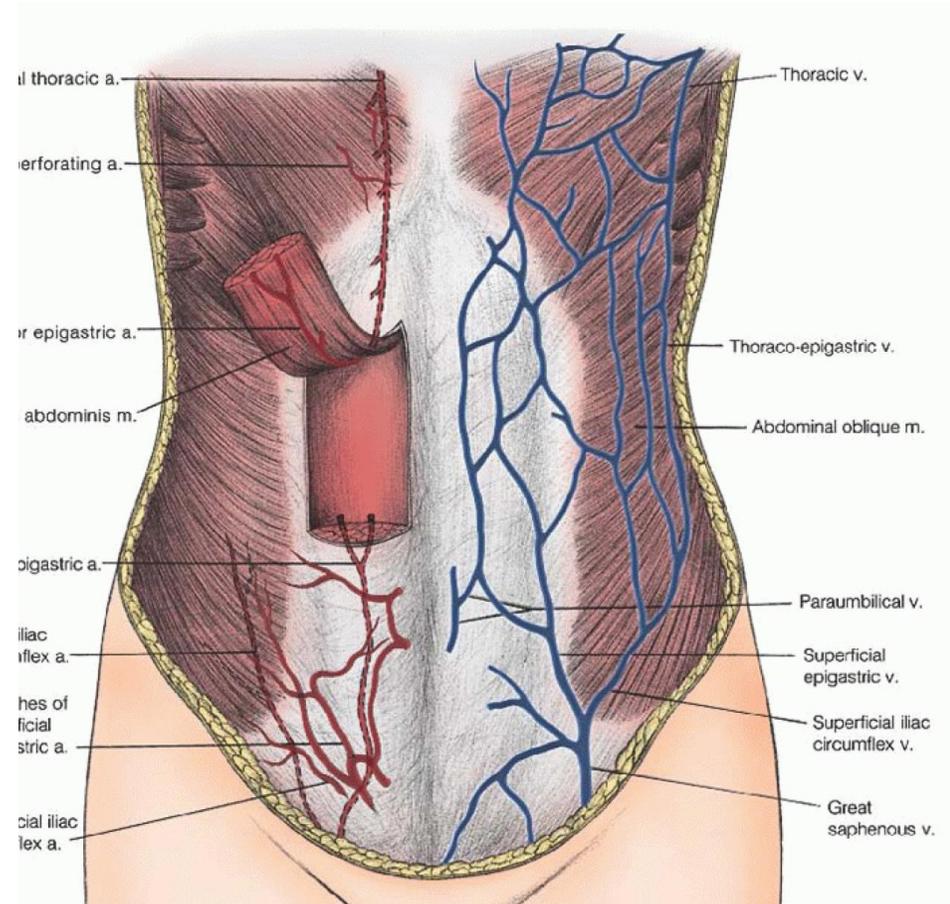
Ob&Gyn

Fellowship of Advanced Laparoscopy(Endometriosis)

Avicenna Endometriosis Clinic

1400.6.29

Arterial and venous circulation of abdominal wall



wound complications

- wound infection(Surgical Site Infection =SSI)
- wound dehiscence and evisceration
- hernia formation
- wound pain

Wound classification

TABLE 14.1 Wound Classification

CLASS	CATEGORY	DEFINITION	WOUND INFECTION RATE (%)
I	Clean	Wounds are made under ideal operating room conditions. The procedures are usually elective, and no entry is made into the oropharyngeal cavity or lumen of the respiratory, alimentary, or genitourinary tract. Inflammation is not encountered, and no break in technique occurs. The wounds are always primarily closed and seldom drained. Almost 75% of all operations are included in this group.	1-5
II	Clean-contaminated	Wounds occur from entry into the oropharyngeal cavity, respiratory, alimentary, or genitourinary tract without significant spillage. Clean wounds are included in this category when there is a minor break in surgical technique. These procedures include about 16% of all operations.	3-11
III	Contaminated	This category includes open, fresh, and traumatic wounds, operations with a major break in sterile technique, and incisions encountering acute, nonpurulent inflammation, such as in cholecystitis or cystitis.	4-17
IV	Dirty	Old (>4 h) traumatic wounds, perforated viscera, or operations involving clinically evident infections are included in this category. Wounds containing foreign bodies or devitalized tissue are also considered dirty.	5-27

surgical site infection(SSI)

8% to 10%

risk factors:

surgeon experience

the indication for the procedure

the comorbid condition of the patient

SURGICAL SITE INFECTION (SSI)
refers to an **INFECTION THAT OCCURS AFTER SURGERY** in parts where surgery took place.

Infection occurs either

within **30 days** from surgery if there is no implant or within **90 days** if there is an implant

CLASSIFICATIONS:

Superficial Incisional SSI
involves only the skin or subcutaneous tissue (innermost layer of skin) of the incision

Deep Incisional SSI
involves the fascia (connective tissue) and/or muscular layer

Organ/Space SSI
involves any part of the body, excluding the skin incision, fascia, or muscle layers

SKIN
SUBCUTANEOUS TISSUE
DEEP SOFT TISSUE (FASCIA & MUSCLE)
ORGAN/SPACE

Comorbid condition of the patient

Prolonged preoperative hospital stay

Diabetes

tobacco usage

steroid use

obesity (body mass index [BMI] ≥ 30 kg/m²)

extremes of ages

poor nutritional status

perioperative transfusion of blood products



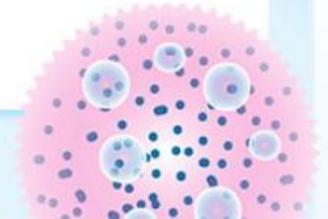
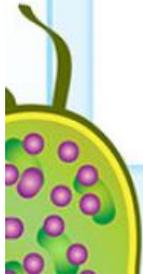
SIGNS OF INFECTION



- More redness, pain, swelling, or bleeding on the wound site
- Wound is larger or deeper, or looks dried out or dark
- Secretion coming from/or around the wound increases or becomes thick, tan, green, or yellow, or smells bad (may indicate presence of pus)
- Fever with 38°C temperature or higher



If one or more signs are present, **CALL A DOCTOR**



Reduce the Risk of Infection through a Range of Precautions
Before, During, and After Surgery

BEFORE SURGERY



ENSURE patients bathe or shower before the procedure



Shave hair only when necessary



Doctors/Surgeons should use surgical scrub technique: hand wash or alcohol-based hand rub



Administration of **Surgical Antibiotic Prophylaxis (SAP)** as recommended



Use of Chlorhexidine alcohol-based antiseptic solutions to prepare skin

DURING SURGERY



Keep the operating room/theater door **CLOSED**



LIMIT THE NUMBER OF PEOPLE inside the operating room



ENSURE all surgical equipment are sterile and maintain asepsis (absence of microorganisms) throughout surgery

AFTER SURGERY



Check wound(s) for infection and **USE STANDARD DRESSINGS** on primary wound(s)



DISCONTINUE ANTIBIOTICS to prevent infection - it is unnecessary & contributes to the spread of antibiotic resistance

SURGICAL ANTIBIOTIC PROPHYLAXIS (SAP)

Is the administration of systemic antibiotics prior to surgery to prevent SSI.

Administration of One (1) Dose of SAP

- One dose given **within sixty (60) minutes** prior to surgical incision is sufficient under most circumstances



STOP SAP within **24 Hours** for Most Surgeries

STOP SAP within **48 Hours** for Cardiac, Vascular, Orthognathic Surgeries

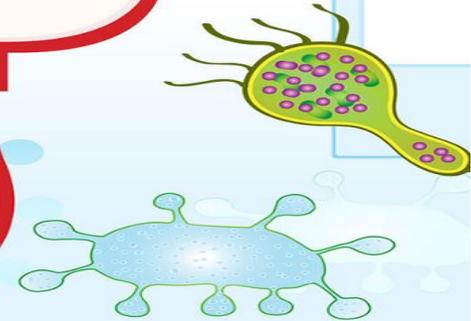
Additional course of antibiotics may be given (in addition to appropriate SAP) only if infection is determined or confirmed

Consequences of Prolonging SAP

- Increased adverse events
- Increased drug resistance
- Increased cost
- Poor outcome

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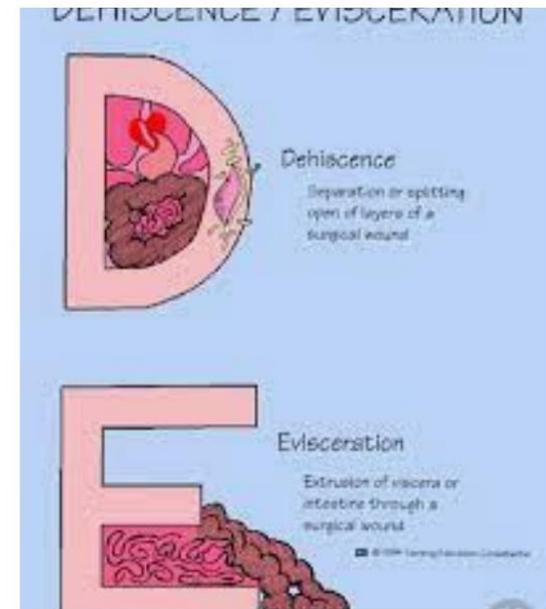


DELAYED PRIMARY CLOSURE AND SECONDARY CLOSURE

- high-risk group of patients:
- obesity, cancer, possible contamination procedures, infection, and bowel content contamination 23.3%. 2.1% when delayed closure
- Ruptured appendicitis
- ruptured tubo ovarian abscess
- extensive bowel injury
- diverticulitis with contamination
- obesity, cancer

wound dehiscence

- separation of all layers of the abdominal incision
- **Incomplete or partial dehiscence** (superficial dehiscence,
 - separation of the skin and all tissue layers posterior to the skin, sometimes including the fascia
- **complete dehiscence *evisceration*** (also a burst abdomen)
 - if the disruption includes the peritoneum, intestine protrude through the wound
- 0.3% and 3% of all cases of pelvic surgery.



Evisceration

Evisceration 5 to 14 after operation, with a mean of about 8 days

Serosanguineous pink discharge from an apparently intact wound several days before evisceration(23% to 84% of cases)

probing with a cotton-tipped swab to assess the integrity of the fascial closure

- dangerous postoperative complications
- 0.4% to 3.5%
- The mortality rate:35% (other complications, such as sepsis,



Evisceration of the intestine following ...

predisposing factors for complete wound disruption or evisceration

- metabolic factors
- malnutrition
- poorly controlled diabetes
- corticosteroid use
- older age
- prior abdominal or pelvic surgery
- type and location of the incision
- the type of suture used

Mechanical factors

- A. Obesity
- B. intra-abdominal distention (including rapid postoperative reaccumulation of ascites)
- C. infection
- D. retching, and coughing
- E. any process that can impair wound healing:
- F. radiotherapy or chemotherapy

complete dehiscence or eviscerations

treatment

- closed as soon as they are recognized
- when a delay of several hours:
 - the bowel can be replaced by using sterile gloves
 - gently packing it in place with lap pads soaked in saline
 - securing it with an abdominal binder
- Broad spectrum antibiotics
- blood counts and serum electrolyte
- Closing an evisceration in the operating room under general anesthesia
 - the extent of the dehiscence may be determined
 - remove of Necrotic tissue clots and suture material
- aerobic and anaerobic cultures

-continue (wound edges are not ragged)

- inspection of bowel and omentum
- Cleaning with several liters of warm normal saline
- If the fascial margins can be located and are not ragged
- **continuous, mass closure technique with a slowly absorbable monofilament suture**
- The subcutaneous tissue and skin are packed open for later delayed closure or NWPT placement.

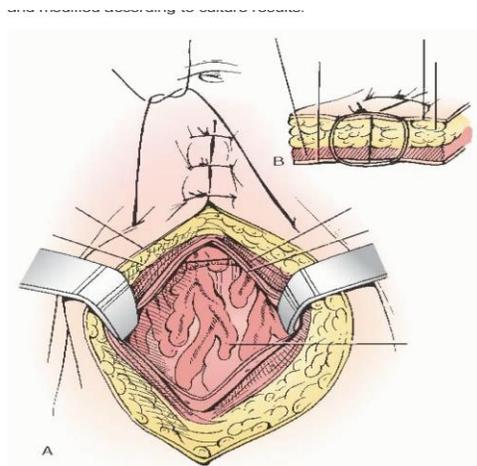
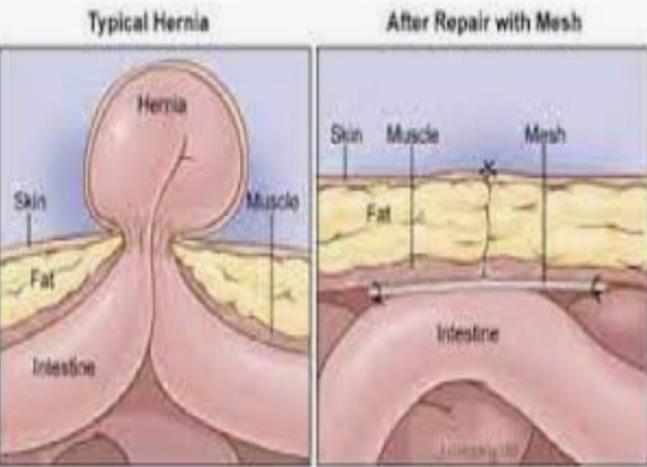


FIGURE 14.23 A: Secondary closure of an evisceration with retention sutures (usually No. 1 polypropylene sutures—rubber dams can be included) and

-continue(wound edges are ragged)

- patient's condition is poor
- through-and-through retention suture of No. 2 nylon or polypropylene
- The sutures are placed at least 2.5 to 3 cm from the skin edges
- passed through all layers

- all sutures are held up before the first one is tied
- left in place for 3 weeks.
- nasogastric tube
- broad-spectrum antibiotics



Incisional hernia

Ventral hernias occur after low midline incisions :
0.5% to 1% of all gynecologic operations

10% after a wound infection

reclosure after dehiscence 25%

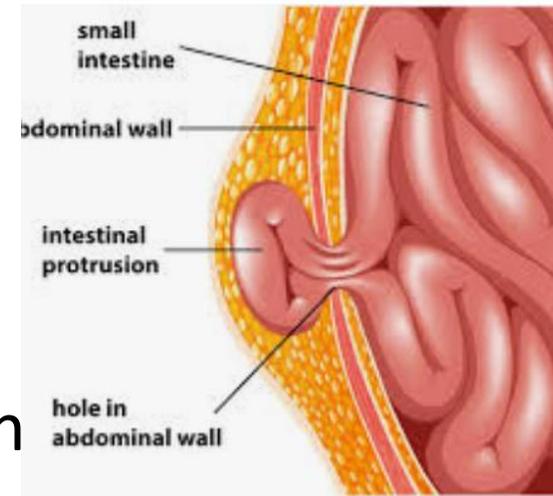
frequent complication after midline incisions (lower abdominal incisions (anatomic deficit of the posterior fascial sheath beneath the rectus in the area inferior to the semicircular line)

peritoneum remains intact, and the fascial margins and adjacent muscles separate, leaving a defect beneath the subcutaneous tissue into which the bowel and omentum may herniate



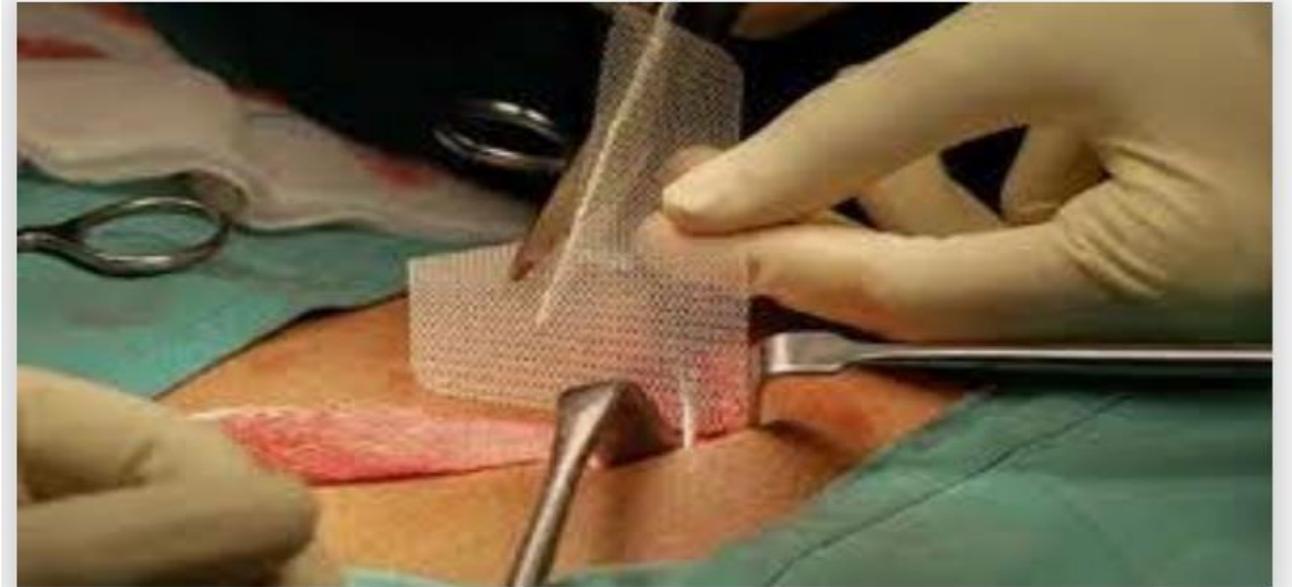
Signs and symptoms

- incarceration, obstruction, and infarction
- lower abdominal discomfort
- large ventral hernias, the abdominal wall is distended to varying degrees
- bowel peristalsis beneath the skin and report that the bulge becomes smaller when they are in a recumbent position
- **Repair of the hernia is preferably done on an elective basis**



reduce the rate of hernia formation

- The surgeon can control several variables
- **reducing SSIs**
- **choosing an appropriate suture for closure**
 - monofilament and slowly absorbable
 - continuous suture technique
- **proper suturing technique**
 - Close the wound in one layer
 - Avoid high tension on the suture
 - Place the stitches in the fascia only, 5 to 8 mm from the wound edge and at close intervals 4 to 5 mm apart.
 - The SL-to-WL ratio should be 4 or greater
- **Advances in the technique of hernia repair as well as the materials (synthetic and biologic meshes)**





THAKS FOR YOUR ATTENTION

