This chapter covers the evaluation and preparation of a client undergoing a suprapubic minilaparotomy procedure. It also includes the steps for inserting the uterine elevator, entering the abdomen, and delivering the tubes. (Occluding the tubes and closing the abdomen are described in Chapters 9 and 10.) The descriptions that follow include all of the major steps of the procedure, most of which are performed by the surgeon, with support from the surgical assistant.

The suprapubic procedure is appropriate for clients at any time in their menstrual cycle. This procedure is also appropriate for most postabortion clients and for clients who are 28 or more days postpartum (i.e., once the uterus is fully involuted). The suprapubic incision is made 2 to 3 cm above the symphysis pubis. The transverse incision is widely used and is the one described here.

**Evaluation of the Client**

Although the preoperative assessment has already been conducted, be sure to perform the following steps before surgery:

- Review the client’s medical history and physical exam results from the medical record.
- Verify the client’s informed decision and consent by asking if she still wants the procedure and why she wants it.
- Check the client’s vital signs.
- Confirm by history and by reexamination the absence of pregnancy, infection, or any other conditions that could require delaying the procedure.

**HINT:** If a client is being assessed for the first time, evaluation (including a pelvic exam) should be done before the client enters the
operating theater. If the surgeon finds a condition that warrants additional caution, this needs to be discussed with the client, as the surgery should be rescheduled to a later date, after the condition is addressed and rectified. In such situations, temporary contraceptive methods should be provided, if needed.

After the client has been evaluated and the decision has been made to proceed with surgery, prepare the client before she enters the operating theater, as follows:

• Verify that the client understands the most important steps of the procedure (e.g., what local anesthesia means, what she might feel at various times, and that she may be asked to “assist” during the procedure by taking a deep breath).

• Provide a surgical gown for the client and give her a private place in which to change. A client’s modesty should be preserved, so if a surgical gown is not likely to be available for the client, she should be told to bring a clean garment (as culturally appropriate), which will help her preserve some modesty and also will help keep her warm.

• Ask the client to empty her bladder.

PITFALL: A full bladder increases the risk of injury during abdominal entry; therefore, immediately before the procedure, the client’s bladder should be emptied. The safest, most effective way to ensure an empty bladder is to ask the client to urinate immediately before she enters the operating theater. Routine use of the Foley or Nelaton catheter should be discouraged, since it may raise the risk of infection (Liu et al., 1999). A catheter should be used only if, once the client is on the operating table, palpation or visualization suggests that the bladder is full.
**Positioning the Client**

Escort the client into the operating theater and help her onto the surgical table. Positioning the client for a suprapubic procedure should involve considerations of both client comfort and ease of access to the surgical area. Since access to the fallopian tubes is facilitated through the use of the uterine elevator, the most common positions used are the dorsal lithotomy position (Fig. 13a) and the dorsal supine position (Fig. 13b). (The inset to Fig. 13a shows a common alternative for leg support in the dorsal lithotomy position.)

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**FIGURE 13. Positioning the client for suprapubic minilaparotomy**

(a) Dorsal lithotomy position

(b) Dorsal supine position
ALTERNATIVE: Although most surgeons report that the dorsal lithotomy position allows for better control of the uterine elevator, some surgeons consider the dorsal supine position to be more comfortable for the client. In such a case, the client’s legs should be put into the frog-leg position when the uterine elevator is inserted (shown in the inset to Fig. 13b). Once the uterine elevator is inserted, the client’s legs should be put into the supine position.

The uterine elevator (Figure 2, top) helps the surgeon manipulate the uterus and gain easier access to the fallopian tubes, by bringing the uterine cornual portion of the tubes to the incision site so that each tube can be directly visualized and grasped. (This will produce less discomfort for the client than will blindly grasping the tubes.) Use of the uterine elevator also permits the incision to be small.

HINT: For trainees who have not previously performed minilaparotomy, the uterine elevator allows easier access to the fallopian tubes. Guided practice is needed for the trainee to gain the skills and confidence needed to use it.

The surgeon should insert the uterine elevator. If the surgeon has not performed a pelvic exam, he or she should do so before inserting the uterine elevator, as knowing the size, shape, and direction of the uterus will help decrease the chances of uterine perforation or of difficulty in manipulating the uterine elevator. The surgeon should insert the uterine elevator prior to preparing the client’s abdomen.

HINT: When performing a pelvic exam before the uterine elevator is inserted, the surgeon must take extra care to maintain the sterility of the gowns and the sleeves; at all times, the sterility of the intrauterine portion of the uterine elevator must be ensured.

The uterine elevator may be inserted in various ways, depending on the positioning of the client on the surgical table, the positioning of her legs, and the instruments used to open the vagina and gain access to the cervix. The use of any one of these variations
relates to the equipment and instruments available and to the surgeon's preference, which in turn relates to his or her training and the influence of regional medical culture.

The most widely used technique for inserting the uterine elevator is as follows: Position the client comfortably on the surgical table in the dorsal lithotomy position. Insert the Graves vaginal speculum into the vagina to expose the cervix. Use both screws to open the two blades of the Graves speculum, to ensure optimal visualization of the cervix and to help prevent the vaginal walls from coming into contact with the intrauterine portion of the uterine elevator (Fig. 14a).

NOTE: The dorsal lithotomy position provides more room for inserting the Graves speculum. When using the dorsal supine position, the surgeon may have to place the client's legs in the frog-leg position and insert the Graves speculum upside down.
Using a sterile forceps to hold an antiseptic-soaked cotton ball or gauze sponge, generously swab the cervix and vagina with antiseptic solution (such as iodoophor-based Betadine).

Without touching the vaginal walls, pass the uterine elevator through the vagina and into the cervix, up to the cervical guard (Fig. 14b). Be sure to maintain the sterility of the intrauterine portion of the elevator.

Remove the speculum, taking care to keep the uterine elevator in place with one hand so it does not slip out.

Place a sterile drape on top of the handle of the uterine elevator so it can be manipulated during abdominal surgery without becoming contaminated.

**ALTERNATIVE:** With the client in the dorsal lithotomy position, insert a Jackson vaginal retractor to help make the cervix visible. With an antiseptic-soaked cotton ball or gauze sponge, generously swab the cervix and vagina with antiseptic solution (such as iodoophor-based Betadine). Holding a cervical tenaculum horizontally, grasp the anterior lip of the cervix (Fig. 15a). (The cervical tenaculum will aid in the insertion of the uterine elevator by keeping the uterus stationary.) Ask the surgical assistant to hold the cervical tenaculum and insert the uterine elevator carefully, without touching the vaginal walls (Fig. 15b). Remove the tenaculum and remove carefully the Jackson vaginal retractor, leaving the uterine elevator in place (Fig. 15c).

Use an appropriate antiseptic solution to saturate a sterile swab (a cotton ball or gauze sponge) on a sterile sponge forceps.

Using the soaked swab on a sponge forceps, wipe the skin, first with strokes at the site of the planned incision line and then with circular motions around the incision line, moving progressively out to the periphery (Fig. 16, page 52). Make progressively larger concentric circles from the planned incision line outward, but do not bring the used swab back over a cleaned area.

Upon reaching the periphery of the prepared skin, discard the swab in a waste receptacle. Swabbing should be repeated at least twice. For **suprapubic procedures**, skin preparation should include the upper part of the pubis and thighs.
FIGURE 15. An alternative method for inserting the uterine elevator using a Jackson vaginal retractor

(a) Grasping the anterior lip of the cervix

(b) Inserting the uterine elevator without letting it touch the vaginal walls

(c) Removing the Jackson vaginal retractor, holding the uterine elevator in place
After allowing the antiseptic to dry, create a sterile field by placing sterile drape sheets (either four drapes or one fenestrated drape) around the immediate operative site. If four drapes are used, place the drapes above (to the head of the client), below (to the legs of the client), and on both sides of the operative area, and secure them in place with towel clips, as needed (Fig. 17). Once the sheets are in position, when placed at right angles they will form a sterile window.
At this moment, the client monitor should administer any additional pain medication (e.g., diazepam and meperidine), according to the regimen selected.

**Selecting the Incision Site**

Regardless of the infiltration technique used, before beginning infiltration the surgeon must select the appropriate incision site. This will ensure that the abdomen is opened in the most optimal area anatomically, one that will facilitate access to the tubes.

The best area for the suprapubic incision is 2 to 3 cm (or 1 in.) above the border of the pubis (Fig. 18). In this area, an anatomical fold at the union of the pubis and the abdominal wall is generally thinner, which facilitates the opening of the abdomen.

**ALTERNATIVE:** To select the incision site, lower the handle of the uterine elevator to raise the uterine fundus against the abdominal wall. The bulge appearing by sight or by palpation on the abdominal wall indicates the height of the fundus; the area to anesthetize (and thus where to make the incision) will be 1 to 2 cm below the height of the palpated fundus.

**FIGURE 18. The suprapubic minilaparotomy: Incision site**
PITFALL: The fundus may change position, depending on the force and direction of the pressure applied to the uterine elevator. For this reason, the uterus may seem higher than it actually is; the resulting higher-than-appropriate incision could in turn complicate access to the tubes. Further, the location of the fundus may not be obvious if the abdominal area is fatty.

Infiltrate the abdominal wall, following the local anesthesia infiltration technique selected (Chapter 5, pages 33 and 35). To open and enter the abdomen, the surgeon and the surgical assistant work together.

**The main responsibilities of the surgeon are to:**
- Incise and dissect the abdominal walls
- Access and identify the tubes
- Provide direction to the assistant on how to help

**The main responsibilities of the surgical assistant are to:**
- Expose the abdominal wall layers
- Hold the retractors parallel to the client’s abdomen once all layers are opened
- Move the retractors as needed, to maintain the incision opening
- Actively follow the surgery and help as needed

Before incising, check for effective anesthesia block in the selected incision site by pinching the skin with a dissecting forceps.

Pull the skin taut to make an incision approximately 2 to 3 cm long, centered, above the pubic symphysis. Using a scalpel blade, **open an incision only through the epidermis** 2 to 3 cm in length (to a maximum of 5 cm) (Fig. 19). The subcutaneous tissue should not be included in the opening of the incision, as it should be dissected bluntly later.

**HINT: The transverse incision is most commonly used because:**
- It heals more rapidly.
- It is associated with less pain during the healing process.
- Incidence of opening of the wound is lower.
- The scar that forms is less visible.

**NOTE:** A vertical incision is indicated when there is an existing midline scar.

Using a Kelly forceps or the small blade of the Richardson-Eastman retractor (always working in the midline), **bluntly dissect the subcutaneous fat.** Do so gently and precisely, to minimize tissue trauma and bleeding. Control bleeding in any vessels, as needed. Dissect subcutaneous tissue until the anterior rectus fascia is visualized and exposed.

**PITFALL:** Use of sharp dissection increases the risk for more bleeding. Thus, sharp dissection should be avoided.

**Incise the fascia** transversely, using a scalpel at the center of the incision; incise the full thickness of the fascia until the rectus muscle can be seen on both sides.

**FIGURE 19. Entering the abdomen: Opening the skin**
FIGURE 20. Entering the abdomen: Grasping the fascia

Note: While two Allis forceps are needed here, only one is shown in the figure, for clarity.

FIGURE 21. Entering the abdomen: Dissecting the fascia

Note: While two Allis forceps are needed here, only one is shown in the figure, for clarity.
sides of the midline. With the Allis forceps, grasp the fascia in the midline of the incision at the inferior and superior portion (Fig. 20). If necessary, free the underlying muscles from the fascia by bluntly dissecting it or by using a Mayo scissors (Fig. 21). Extend the fascial opening on both sides so that it is slightly larger than or about the same length as the skin incision. Have the surgical assistant place the retractors under the fascia and adjust them to expose the linea alba (the midline raphe of the rectus muscle) (Fig. 22). Retractors should be pulled horizontally to keep the incision open. At this time, one of the Allis forceps can be removed.

**NOTE:** If the incision is too low, you may first see the pyramidal muscle after opening the fascia. If so, you can separate the pyramidal muscle by dissecting it from the upper top where it adheres to the fascia (see Fig. 22, inset).

**FIGURE 22.** Entering the abdomen: Visualizing the muscle layers
FIGURE 23. Entering the abdomen: Opening the rectus muscles

(a) Separating the rectus muscles

(b) Opening the scissors to separate the muscles
Bluntly separate the rectus muscles vertically at the linea alba, entering through the linea alba with a closed scissors or a hemostat (Fig. 23a). Once through the linea alba, open the scissors to enlarge the opening (Fig. 23b). After the rectus muscles are separated, have the surgical assistant reposition the retractors further into the incision, to separate the rectus muscles even more and expose the preperitoneal fat (Fig. 23c).

Entry into the abdominal cavity is safer when the operating table is placed in the Trendelenburg position (with the head of the table tilted downward). This position shifts the bowels out of the operative site, thus minimizing the risk of injury. (The Trendelenburg position should be 20° or less, to avoid reducing the client’s lung volume and compromising her respiratory ability.) Ideally, to minimize the amount of time the client spends in this position, a member of the surgical team (usually the client monitor) should place the client in this position just before incising the peritoneum, and should return her to the horizontal position as soon as tubal occlusion is completed.
Bluntly dissect the preperitoneal fat as needed to expose the peritoneum.

PITFALL: In some clients, particularly in those who are obese, the preperitoneal fat is abundant. This can cause difficulties during the process of opening the peritoneum. It is advisable to dissect slowly, without making unnecessary cuts, and to identify the peritoneum before cutting.

HINT: You may want to use retractors for a blunt dissection of the preperitoneal fat. You may separate the peritoneum from the underlying bowels by pulling the retractors horizontally upwards. Additionally, make sure to stay in the midline as tissue is lifted and carefully dissected.

To incise the peritoneum, elevate the peritoneum by grasping it at two points with hemostats (Fig. 24). To prevent injury to underlying structures, avoid using toothed instruments. Once the peritoneum has been
HINTS FOR OPENING THE PERITONEUM SAFELY:

- To avoid grasping the bowels along with the peritoneum, ask the client to take a deep breath before you grasp the peritoneum. (This results in the bowels being moved out of the surgical area.) Before incising it, look at or feel a fold of the grasped tissue, to confirm that it is the translucent peritoneum and that abdominal contents are not adhering to it.

- If you are experiencing any difficulties, it may be preferable to incise superiorly (away from the pubic bone) to avoid the bladder. Take care to avoid the bowels or bladder whenever the peritoneum is incised. Stay directly under the incision at the midline.

elevated, to protect the underlying viscera and structures from injury, check that the bowels, bladder, or omentum have not been grasped inadvertently. Once that has been ascertained, make a small opening in the peritoneum with a scissors or hemostat (Fig. 25).
• Since the peritoneum has nerve endings, minimize pulling and tugging so as to prevent pain and vasovagal reactions (e.g., nausea, vomiting, and fainting).

Once the peritoneum is open and entry into the abdominal cavity is confirmed, the surgical assistant should gently reposition the retractors inside the abdomen to maximally expose pelvic structures. The best position for the retractors is in the same direction as the incision—transversely.

From this point until the completion of tubal occlusion, the surgical assistant must keep the incision open with retractors and must adjust the retractors according to the surgeon’s needs.

HINT: The surgical assistant must keep the retractors horizontal (i.e., parallel to the abdomen) and must simultaneously pull them up. This ensures better visibility of the abdominal cavity and minimizes the possibility of trauma to the interior abdominal wall.

Accessing and delivering the fallopian tubes requires manipulation of the uterus and the fallopian tubes. The uterine elevator is the key instrument for moving the uterus and consequently for positioning the fallopian tubes near the incision area, which allows the surgeon to access them. The process of manipulating the uterine elevator with one hand and accessing and delivering the tubes with the other requires coordination.

NOTE: Before performing the procedure, the surgeon should use pelvic teaching models to practice controlling and manipulating the uterine elevator.

HINT: It is good practice to make a habit of always accessing the tubes in the same order—for example, by always taking the right tube first and then the left, or vice versa. This helps prevent the accidental failure to occlude one tube.
If the table has not previously been placed in the **Trendelenburg position** (20° or less), the client monitor should do so now.

**Clear a path to see the uterus and tubes.** Visualization of the uterus and tubes may be obscured by the omentum or bowels. If this is the case, ask the client to take a deep breath **while you push the bowels gently out of the way with the baby Babcock forceps and manipulate the uterus** with the uterine elevator, as described in the following steps.

**Gently press the handle of the uterine elevator downward** (in the direction of the floor) with one hand (Fig. 26); this will **bring the uterine fundus upward** toward the incision site and closer to the abdominal wall (Fig. 27a, page 64).

**PITFALL:** Pushing the handle upward (in the direction of the client’s head) can push the uterus above the incision.

**PITFALL:** In certain situations, the client may be unable to assist the surgeon by taking a deep breath because she is nervous, scared, or in pain. In these cases, the surgeon **must remain calm, should not manipulate the uterus or any other abdominal structures, and should wait for the client to relax and try again.** If the client is
FIGURE 27. Viewing the fundus and anesthetizing the fallopian tubes

(a) Viewing the uterine fundus through the incision

(b) Dripping lidocaine over the tubes
still unable to do so, the table can be placed further in the Trendelenburg position. (As the angle increases, there is a risk that the client may glide; in these cases, the client should have shoulder supports.) If at this point the client remains unable to assist, provide sedation (or additional sedation).

Since the fallopian tubes have a peritoneal layer that contains nerve endings, clients often feel pain when their fallopian tubes are grasped. To prevent pain, spray 1 to 2 cc of 1% lidocaine without epinephrine on each fallopian tube through the incision, which the surgical assistant is holding open with retractors (Fig. 27b). Then wait 30 to 60 seconds for the anesthetic to take effect.

While directly viewing the uterine fundus, gently rotate the handle of the uterine elevator in the opposite direction of the tube being accessed, to position the tube at the incision site (Fig. 28). As a result of this maneuver, the tube should become visible and can then be grasped.

FIGURE 28. Accessing the tubes: Rotating the uterus to position the tube at the incision site
FIGURE 29. Using the tubal hook: Bringing the tube to the incision

(a) The tube cannot be visualized

(b) The tubal hook is inserted behind the fundus and is swept around one side of the uterus

**ALTERNATIVE:** If the tube still cannot be visualized (Fig. 29a), use the **tubal hook** to gently bring it to the incision site. With the hand that is not on the uterine elevator, gently slide the tubal hook behind the fundus and sweep the hook around one side of the uterus toward the anterior wall (Fig. 29b) and then pull the tubal hook horizontally and out through the incision (Fig. 29c). This maneuver should hook the tube and sweep it forward (Fig. 29d). The assistant will need to hold the uterine elevator for you to grasp the tube with the baby Babcock forceps (Fig. 29d, inset).
FIGURE 29. Using the tubal hook: Bringing the tube to the incision (cont’d.)

(c) The tubal hook is pulled horizontally and out through the incision

(d) The fallopian tube is brought to the incision
Once you visualize the tube, with your free hand use a baby Babcock forceps to grasp the tube atraumatically, all the while keeping the uterine elevator in place with the other hand (Fig. 30).

Release the uterine elevator, while continuing to hold the tube with the baby Babcock forceps (Fig. 31a). **Confirm the identity of the tube** by pulling it out further (Fig. 31b), following it to the fimbriated end (using the baby Babcock forceps with one hand and a delicate dissecting forceps with the other), and pulling the tube out gently until the fimbria can be seen (Fig. 31c, page 70).

**NOTE:** Neglecting this important step may lead to ligation of other structures (such as the round ligament) instead of the fallopian tube, which will result in failure of the procedure.

**PITFALL:** If the fimbria is not visible because of adhesions, to confirm the identity of the tube the surgeon must attempt to follow the tube as far as possible and observe carefully the anatomical relations of the appendages (e.g., the round ligament, the ovarian ligament, and the ovary). When a section of the tube is removed, the surgeon should identify the lumen, to be sure that the tube—not the round ligament—has been ligated.
FIGURE 31. Confirming the identity of the tube

(a) Holding the tube while releasing the uterine elevator

(b) Pulling the tube further out of the incision
At this point, you are ready to ligate the tube, as is described in Chapter 9. After the tube is ligated on one side, repeat the above steps (pages 62 to 70) on the other side to ligate the other tube.