Abdominal Incisions Simulation
Pfannenstiel Simulation for Mannequin

Materials

- Bedpan
- Glue gun
- Hot glue sticks
- Adhesive spray
- Grommet kit (for two or four grommets)
- Bungee cord
- Birthing mannequin
- One 20” x 20” chamois
- One 1” foam chair pad
- Two 20”x 20” sheets of white suede cloth
- Two 5”x 20” maroon headliner
- One 20”x 20” 4-gauge clear vinyl
- Layers for laparotomy:
  - Peritoneum layer: 4-gauge clear vinyl
  - Rectus muscles: maroon headliner
  - Fascial layer: white suede cloth
  - Subcutaneous fat layer: foam chair pad
  - Skin: chamois

Fig. 1. Box in a mannequin.
1. Lay chamois on a flat surface, spray with adhesive spray, and then center the first foam chair pad on the chamois (Fig. 9). Set aside.

2. Place two 20” x 20” pieces of white suede cloth on the work surface. Mark midline of each with a pencil the length of the fabric and align pieces together (Fig. 10). Fold left side and spray bottom layer with spray adhesive (Fig. 11). Unfold top, press and smooth layers together. Repeat steps for right side.
3. Place a strip of hot glue on the midline of the suede “fascia” in a scribble fashion (Fig. 12). Quickly spray entire midline surface with spray adhesive. Place two 5”x 20” pieces of maroon headliner (maroon side down) onto the glue bead (Fig. 13).

4. Spray adhesive onto surface of the chair pad and place newly completed “rectus and fascia” piece on top, rectus side up (Fig. 14). Press and smooth layers together (Fig. 15).
5. Spray adhesive across the entire piece (Fig. 16). Place 20" x 20" piece of 4-gauge clear vinyl on top and press smooth (Fig. 17).
6. You can attach two grommets per model (red arrows) or you may place four grommets if desired (blue arrows)(Fig. 18). Place entire model onto a firm surface. Place anvil (silver ring) from grommet kit under model (Fig. 19). Be sure that the lipped side faces upward.

7. Hammer the setter (long silver piece) onto the anvil through the fabric model to create a hole (Fig. 20). Disconnect assembly and be sure a hole is left behind (Fig. 21).
8. Drop one washer (toothed brass colored ring) through the hole, and turn edge of model over to expose chamois side and align eyelet (smooth edged brass ring). Place the anvil (silver ring) over the edge of the grommet (Fig. 23) and return edge to chamois side down. Place the setter through the hole of the washer and pound the end of the setter several times to attach the grommet snugly (Fig. 24).
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Fig. 19. Model placed on mannequin.

9. Attach the desired abdomen with bungee cords onto the model (Fig. 25).
Simulator

1. Position the fetal mannequin in a bedpan similar to the box simulation but instead of a box, use a bedpan. The bedpan then goes into the abdomen of the birthing simulator. The birthing simulator is positioned on an exam table, operating room table, or a regular table.

2. An equipment table can be set up using a whole laparotomy tray or the educator can modify the equipment table to include a scalpel, retractors, Mayo or Metzenbaum scissors, tissue forceps, suture, or stapler.

3. Learner is on the right side of the birthing simulator and the assistant is on the left side of the birthing simulator.

4. The learner takes the scalpel and makes a Pfannenstiel incision through the chamois (skin) and foam chair pad (subcutaneous fat). The learner continues using the scalpel to open the entire incision down to the level of the white suede cloth (fascial layer).

5. At this point, it is important for the learner to identify the white suede cloth as the fascial layer.

6. The learner then incises the white suede cloth (fascial layer) in the midline.

7. Using a retractor, the assistant retracts the lateral aspect of the incision. The learner uses either Metzenbaum scissors or Mayo scissors, and tissue forceps with teeth to extend the fascial layer laterally. The learner and assistant exchange instruments to perform the same steps on their respective side.

8. At this point, the learner should be able to identify the maroon headliner as the rectus muscle and separate it in the midline bluntly and/or sharply with Metzenbaum or Mayo scissors.

9. The learner then identifies the clear vinyl as the peritoneal layer and grasps it with tissue forceps and enters it sharply with Metzenbaum scissors and/or bluntly. The peritoneal incision is then extended superiorly and inferiorly with Metzenbaum scissors.

10. The learner should then be able to recognize the thin layers of felt or cloth as the layers of the uterus.

The following steps should be taken to close the laparotomy incision:

11. The learner uses a 2-0 absorbable, coated suture and can reapproximate the maroon headliner (rectus muscle).

12. The learner then uses a 0, 1-0, or 2-0 absorbable, coated suture to reapproximate the white suede cloth layer (fascial layer) in a running manner.

13. The learner can then practice using 2-0 or 3-0 plain suture to reapproximate the foam chair pad (subcutaneous fat layer).

14. The learner then uses the stapler to close the incision that was made on the chamois (skin) while the assistant reapproximates the edges using Adson forceps.
The resident conducts a time-out before beginning a laparotomy. The resident then begins the laparotomy and carries it out with the proper steps and technique. The resident identifies the layers of the abdomen in the incision and then completes the closure of the laparotomy. During the process, the resident is calling for and utilizing the correct instruments and surgical technique.