



# Left Ovarian Cystectomy

DEBRA TERRASI, CST

## INTRODUCTION

An ovarian cyst is a round, fluid-filled sac that contains a developing ovum. This cyst forms on the surface of the ovary and usually disappears shortly after the ovum is released during ovulation. If a mature ovum is not released, the ovarian cyst continues to grow larger than normal and becomes a functional ovarian cyst.<sup>1</sup>

Another type of an ovarian cyst is called a luteal cyst. A luteal cyst may form on the ovary after an ovum is released. When this occurs, the ovarian cyst reseals itself and swells with fluid. Most functional ovarian cysts go away without treatment. However, it is possible for a large ovarian cyst to twist, rupture or bleed and cause severe pain.<sup>1</sup>

An ovarian endometrioma or “chocolate cyst” may also form on the ovaries. This type of cyst contains endometrial tissue similar to the uterine lining. Endometriomas can range in size from 0.4-4 inches. A cyst can be removed surgically; however, surgery will not prevent formation of a new ovarian cyst unless the ovaries are removed.<sup>9</sup>

## GENERAL PATIENT INFORMATION

The patient is a single, 32-year-old female, who is five feet, two inches tall, and weighs 150 pounds. She is a smoker and drinks alcohol occasionally. The patient had complained of right lower abdominal pain at previous appointments with her gynecologist, who diagnosed the cause of pain as an ovarian cyst. The patient also noted that she had experienced severe back pain for about one year.

In this case, surgery was indicated, because the patient's ovarian cyst had not gone away on its own, and her back pain was not getting better. Surgical treatment also was indicated to confirm the diagnosis of an ovarian cyst and to rule out ovarian cancer. Ovarian cysts should be removed surgically in order to alleviate a patient's back pain and to relieve the pressure that cysts larger than three inches may cause on pelvic organs.

The patient currently takes the following medications: a daily hypolipidemic agent; a daily statin; a lidocaine patch for lower back pain; and a corticosteroid nasal spray for relief of nasal allergies.

| Vital Signs    |        |
|----------------|--------|
| Blood Pressure | 100/64 |
| Pulse          | 76     |
| Respirations   | 16     |
| Temperature    | 98°F   |

## MEDICAL AND SURGICAL HISTORY

This patient has no known allergies. Her medical history includes hypercholesterolemia, gastroesophageal reflux disease (GERD), sinusitis and a left-side hernia. The patient's cholesterol level was listed as high, but an exact measurement was not given.

The patient's surgical history includes a cholecystectomy—removal of the gallbladder due to the presence of gallstones. The patient did not list any other surgeries in the chart. However, before the skin prep was done, it was noted that there were incision scars beneath each breast and a long Pfannenstiel's incision scar approximately ten inches in length.

I asked the patient's sister about any other surgeries, and she said that the patient had had a breast reduction surgery performed. The sister did not know about any other surgeries. When the surgeon saw the scars, he thought that the patient had undergone a tummy tuck. There was also an incision scar from the cholecystectomy.

**Table 1 Preoperative and Postoperative Lab Values**

|                                | Normal Values                             | Preoperative Patient Values | Postoperative Patient Values Day 1 |
|--------------------------------|---|-----------------------------|------------------------------------|
| <b>Blood Count</b>             |   |                             |                                    |
| WBC                            | 5.0–10.0 k/mm <sup>3</sup>                | 9.1                         | 9.2                                |
| RBC                            | 3.5–5.0 M/mm <sup>3</sup>                 | 4.56                        | 3.80                               |
| HGB                            | 11.5–15.5 g/dl                            | 14.4                        | 11.6                               |
| HCT                            | 0.35–0.46                                 | 0.41                        | 0.35                               |
| MCV                            | 76–100 μm <sup>3</sup>                    | 90.6                        | 92.4                               |
| MCH                            | 26.0–34.0 pg                              | 31.5                        | 30.6                               |
| MCHC                           | 33.0–37.0 g/dl                            | 34.8                        | 33.1                               |
| RDW                            | 11.0–15.2%                                | 13.4                        | 13.5                               |
| PLTC                           | 130–400 x10 <sup>3</sup> /mm <sup>3</sup> | 363                         | 295                                |
| MPV                            | 6.6–10.8 fL                               | 7.6                         | 7.9                                |
| <b>Hematology Differential</b> |   |                             |                                    |
| Eosinophils (Eos)              | 1–3%                                      | 2.6                         | 1.7                                |
| Granulocytes                   | 56–95%                                    | 60.4                        | 70.6                               |
| Basophils (Baso)               | 0–2%                                      | 0.6                         | 0.4                                |
| Lymphocytes (Lymph)            | 25–40%                                    | 29                          | 22.3                               |
| Monocytes (Mono)               | 2–6%                                      | 7.4                         | 5                                  |

## PREOPERATIVE LAB WORK

Preoperative tests included a complete blood count with differential and platelet count, blood chemistry, routine urinalysis, chest X-ray and ECG. The preoperative tests were done six days prior to surgery. (See Table 1)

The patient's blood type is O positive, and the antibody screen test was negative. The

patient was given a pregnancy (HCG) test six days prior to and on the day of surgery. Both results were negative. Results of an ECG revealed a normal sinus rhythm. Results of a chest X-ray examination of the patient's heart and lungs were all normal.

**Table 1 (continued) Preoperative and Postoperative Lab Values**

|   | Normal Values            | Preoperative Patient Values |
|---|--------------------------|-----------------------------|
| <b>Blood Chemistry</b>                  |                          |                             |
| Sodium (Na)                             | 138–145 mEq/L            | 137                         |
| Potassium (K)                           | 3.7–5.2 mEq/L            | 4.1                         |
| Chloride (Cl)                           | 103–112 mEq/L            | 99                          |
| Carbon Dioxide (CO <sub>2</sub> )       | 23–33 mmol/L             | 26                          |
| Blood Urea Nitrogen (BUN)               | 8–21 mg/dl               | 10                          |
| Glucose (GLU)                           | 73–107 mg/dl             | 85                          |
| Creatinine (CREAT)                      | 0.4–1.0 mg/dl            | 0.6                         |
| Albumin (ALB)                           | 3.2–5.0 g/dl             | 4.4                         |
| Alkaline Phosphatase (ALKP)             | 35–104 U/L               | 90                          |
| Total Bilirubin                         | 0.0–1.0 mg/dl            | 0.1                         |
| Calcium                                 | 8.6–10.0 mg/dl           | 10.1                        |
| Total Protein                           | 5.9–8.4 g/dl             | 7.2                         |
| Serum Glutamic Oxaloacetic Transaminase | 0–31 U/L                 | 19                          |
| Serum Glutamate Pyruvate Transaminase   | 0–31 U/L                 | 18                          |
| <b>Urinalysis</b>                       |                          |                             |
| Color                                   | Light straw – dark amber | Yellow                      |
| Clarity                                 | Clear                    | Slightly cloudy             |
| Specific Gravity                        | 1.005–1.030              | 1.015                       |
| pH                                      | 4.5–8.0                  | 6                           |
| Leukocyte Esterase                      | Negative                 | Negative                    |
| Nitrite                                 | Negative                 | Negative                    |
| Protein                                 | 2–8 mg/dL                | Negative                    |
| Glucose                                 | Negative                 | Negative                    |
| Ketone                                  | Negative                 | Negative                    |
| Urobilinogen                            | 0.2–1.0 mg/dL            | Normal                      |
| Bilirubin                               | 0–1 mg/dL                | Negative                    |
| Blood                                   | Negative                 | Negative                    |

## **PREOPERATIVE CARE**

The patient was alert and anxious when I met her in the holding area before surgery. My instructor obtained permission from the patient and the doctor for me to follow up with her through her surgery and postoperative care. I asked the patient her name and what procedure she was having done while I checked her identification bracelet.

I then asked the patient if she had any prosthetics, contact lenses, allergies, jewelry or anything to eat or drink. When I asked about implants, the patient said that she had breast surgery without implants put in. She did not have any known allergies, contact lenses or anything to eat or drink after midnight. She had no jewelry on and had voided that morning. An intravenous line was placed in her left hand and attached to a solution of lactated Ringer's. She had no injections. In the holding area, her vital signs were: Blood Pressure 107/62, Pulse 74, Respirations 16, Temperature 96.8°F.

### **Preoperative medications**

1. Antibiotic
2. Lactated Ringer's (1,000 ml @ 100 ml/hr)
3. Antiemetic
4. Antacid

### **Intravenous agents**

1. Narcotic analgesic
2. Sedative
3. Nondepolarizing neuromuscular blocker
4. Anticholinergic
5. Cholinergic
6. Antiemetic
7. Anti-inflammatory
8. Intravenous anesthetic

### **Inhalation agents**

1. Oxygen
2. Nitrous oxide
3. Inhalation anesthetic

## **POSITIONING**

The patient was brought to the O.R. on a stretcher and was able to position herself onto the O.R. table from the stretcher. The patient was placed

in the supine position with both arms anatomically positioned and extended on padded arm boards to prevent nerve damage. A doughnut was used to support her head. She had slipper socks on her feet and padding on her heels.

A blood pressure cuff was placed around her upper right arm. The pulse oximeter was placed on her left index finger. Lactated Ringer's solution was given intravenously on the dorsal surface of her left hand. ECG leads were placed on her anterior chest wall. An electrosurgical grounding pad was placed on her anterior right thigh. Sequential compression stockings were placed on the patient's calves to maintain circulation in the legs and reduce the risk of blood clots. The safety strap was placed two inches above the patient's knees.

## **SURGICAL CONSIDERATIONS**

After anesthesia was administered, a Bair Hugger at medium setting was placed over her upper body and arms to maintain body temperature. Urinary catheterization was done by the circulator using sterile technique. Sterile gloves were worn to handle the sterile catheter. The circulator inserted a 16-Fr Foley catheter with a 5-ml balloon into the patient's urethral meatus after prepping and then advanced the catheter into the patient's bladder. The balloon of the Foley catheter was inflated with sterile water. The catheter was attached to a drainage bag, which was placed in view of the anesthesia provider.

A time out was done prior to incision to verify the correct patient, correct procedure and correct surgical site. The consent form was shown to the O.R. staff by the circulator to verify that it was signed and dated by the patient six days prior to surgery for an exploratory laparotomy and right salpingoophorectomy. The patient had no signed health care proxy, do not resuscitate form, or living will.

## **SURGICAL SKIN PREPARATION**

The circulator visually inspected the patient's skin and donned sterile gloves. She placed sterile towels along each side of the patient near the incision site to create a sterile boundary and pre-

vent pooling of fluids. The patient did not need to be shaved at the incision site. After cleaning the umbilicus with cotton-tipped applicators dipped in iodine solution, the circulator used two soapy, antiseptic sponges to mechanically and chemically cleanse the skin in a circular motion from the incision site to the periphery.

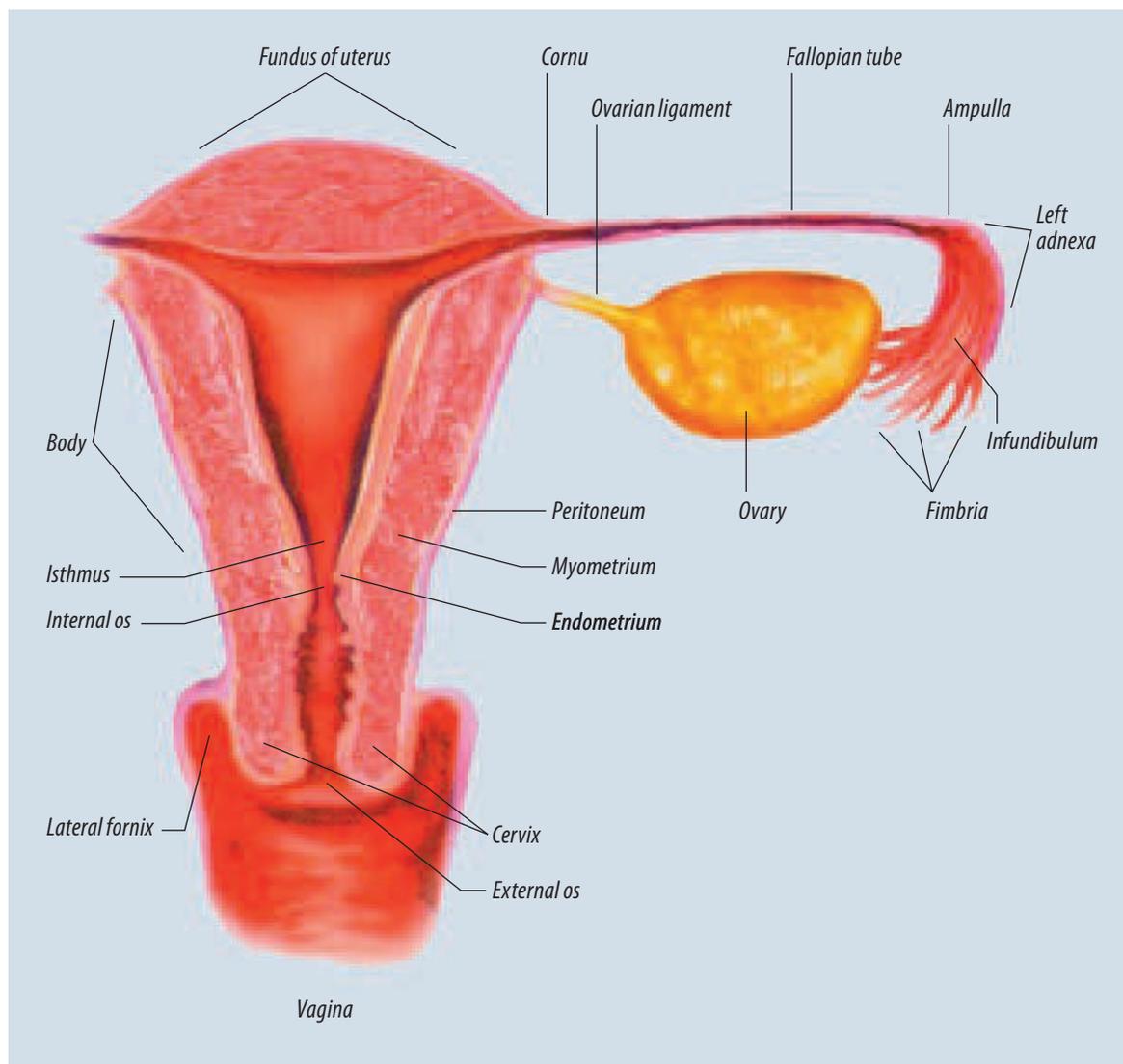
Each sponge was discarded in the trash after use, and a towel was used to blot the soap from the site. The area to be prepped extended from the patient's breast line to the upper third of the thighs, from bedside to bedside. The surgeon completed the skin prep by painting the area with iodine, using a circular motion from the incision site to the periphery. This solution was allowed to air dry.

### SURGICAL DRAPING

The surgeon placed a sterile drape (77" x 85") below the incision site to cover the patient's lower extremities and the O.R. table. Four blue sterile towels were placed to outline the surgical site. A laparotomy incision drape was placed over the four towels. The top of the lap drape by the patient's head was attached to the intravenous poles at either side of the bed with the assistance of the anesthesia provider.

### DETAILED DESCRIPTION OF THE PROCEDURE

A Pfannenstiel's incision, approximately eight inches in length, was made across the lower abdomen, over a previous scar with a #10 blade on a #3



**FIGURE 1:**  
Uterus and adnexa.

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knife handle. Bleeding was controlled with electrocautery. The incision, approximately half an inch above the symphysis pubis, was then continued downward through the subcutaneous fat to the fascia with the electrocautery unit (ESU).

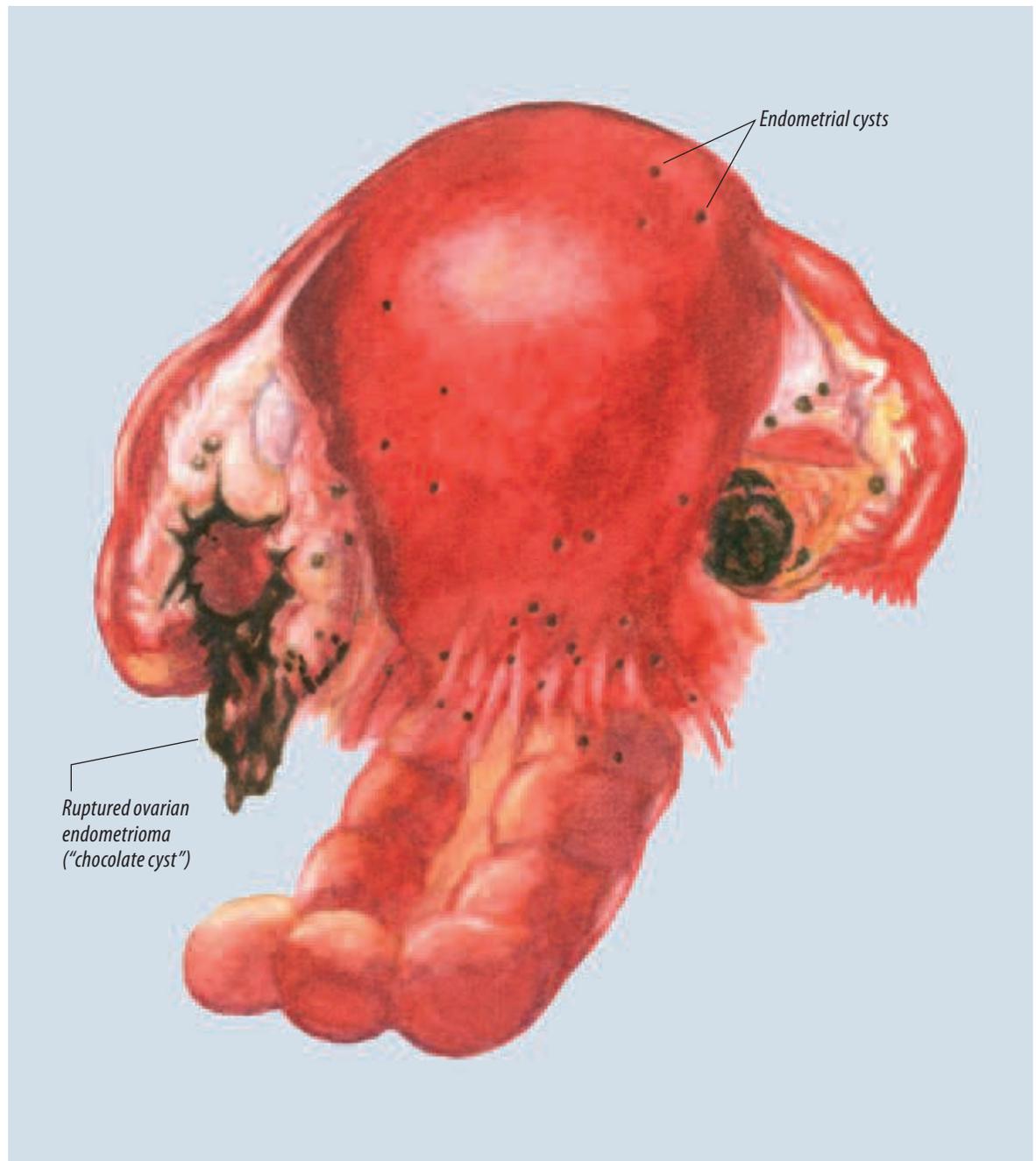
Using the ESU, the anterior fascia was incised in the midline, just lateral to the rectus muscle. The physician's assistant grasped the upper edge of the fascia with two Kocher clamps, while the surgeon used the ESU to dissect the rectus muscle

free from the fascia. The rectus muscles were freed from the fascia to the level of the umbilicus.

Next, the physician's assistant grasped the lower fascial edge with Kocher clamps, while the surgeon dissected the rectus muscles and the pyramidalis muscle from the fascia. The rectus muscle was separated along the midline, and the peritoneum was entered through a midline vertical incision with the ESU. Bleeding was controlled with ESU coagulation. Two medi-

**FIGURE 2:**

Uterus and adnexa with endometrial cysts and ruptured "chocolate cyst."



um Kelly retractors were held by the physician's assistant to retract the wound edges.

Upon entering the abdomen, the surgeon found a large, right ovarian mass that was bound down to the Douglas' cul-de-sac. The mass was freed bluntly by the surgeon, while the physician's assistant used the Somer uterine elevator to elevate the uterus. While removing it, the mass ruptured and was filled with brown, black, bloody material. The surgeon used lap pads and

Hegar needle holder. The second specimen was called a portion of a left ovarian cyst, was put on a Telfa pad, and then was put in a cup of sterile formalin. The specimen was given to the circulator to be sent to pathology. Hemostasis was achieved with ESU coagulation. The abdominal cavity was irrigated with body-temperature saline (0.9% NaCl) with an asepto syringe, and excess fluid was suctioned out. Counts were done before the peritoneum was closed.

The peritoneum was closed with a continuous 2-0 Vicryl®-CT 1 suture on a Mayo-Hegar needle holder. The fascia was closed with 0 Vicryl-CT 1 sutures on a Mayo-Hegar needle holder. All sutures were cut with a straight Mayo scissors. The skin edges were approximated using an Adson's forceps with teeth and closed with 35W skin staples.

The incision site was washed with a wet lap pad dipped in saline and dried. A dressing of plain 4-in. x 4-in. gauze was taped over the incision site. The counts were correct at the end of the case. There were no medications on the field.

*In this case, surgery was indicated, because the patient's ovarian cyst had not gone away on its own, and her back pain was not getting better. Surgical treatment also was indicated to confirm the diagnosis of an ovarian cyst and to rule out ovarian cancer.*

suction with a Poole tip and then changed to a Yankauer tip to remove the material from the abdominal cavity.

The surgeon removed the right fallopian tube and right ovary by placing two Kelly clamps across the utero-ovarian ligament, clamping with the Kelly, cutting with the Mayo scissors, and tying with a 1-Chromic-CT1 on a Mayo-Hegar needle holder. The suture was cut with a straight Mayo scissors. Hemostasis was achieved with coagulation provided by the ESU. The surgeon called this first specimen a portion of a right ovarian endometrioma. The specimen was placed on a Telfa® pad and put in a cup of sterile formalin. It was then given to the circulator to be sent to pathology.

On the left side of the patient, the surgeon found a cyst on the left ovary. The surgeon removed the cyst by making a wedge resection along the base of the cyst between the wall and the normal ovarian tissue. The defect in the ovary was sewn with 2-0 Vicryl-CT 1 on a Mayo-

|                       |                           |
|-----------------------|---------------------------|
| Estimated blood loss: | 200 cc                    |
| Input:                | Lactated Ringer's 2000 cc |
| Output:               | 100 cc urine (clear)      |

#### DAY 1

#### POSTOPERATIVE PATHOLOGY REPORT

A. Portion of right ovary with endometriotic cyst and fibrovascular adhesions, and an unremarkable fallopian tube—The specimen was received in formalin and consists of a previously opened cystic structure measuring 0.5 x 6 x 1.5 cm. The outer surface is pink purple, smooth to convoluted. On further opening, the cyst wall is filled with brown, black hemorrhagic material and is smooth on sectioning. Multiple smaller cysts filled with clear serous fluid are identified. The cyst wall ranges in size from 0.2–1 cm in thickness. Also received in same container is a segment of fallopian tube with fimbriated and membranous tissue attached. The fallopian tube is tortuous and measures 4 cm in length.

B. Portion of left ovarian cyst—Theca luetin cyst. The specimen was received in formalin and consists of a pale pink, irregularly shaped soft tissue measuring 1.5 x 0.8 x 0.3 cm.

#### POSTANESTHESIA CARE UNIT (PACU)

After the procedure, the patient was extubated and transferred to the stretcher. She was drowsy when she left the O.R. The intravenous line containing lactated Ringer's solution, the Foley catheter and the sequential stockings were still in place. Upon arrival in PACU, the patient was connected to monitors to check vital signs and measure oxygen saturation levels. The patient woke up briefly and saw me. She was shivering and said that she was in pain. She then went back to sleep after pain medication was administered.

The physician's orders included an intravenous antibiotic every eight hours, an intramuscular antihistamine every three hours, and 1,000 cc of dextrose 5% in lactated Ringer's solution given intravenously every six hours.

The patient was evaluated by PACU personnel on a score sheet. (See Table 2)

I visited my patient at 7 pm the day of her surgery. When I arrived, she was sleeping and had an intravenous line in her left hand delivering

a dextrose 5% in lactated Ringer's solution. Her Foley catheter was still in, and the sequential stockings were around her calves, but not hooked up. When the patient woke up and recognized me, I asked how she was feeling. She said that her throat was sore and that she had been given pain medication. The patient said that she had not seen or talked to the doctor yet. The patient did not stay awake for very long.

#### DAY 1

##### POSTOPERATIVE CARE

A complete blood count with differential was ordered and administered. (See Table 1) The patient's Day 1 postoperative medications included ibuprofen and two narcotic analgesics. Vital signs were normal. The patient was assisted out of bed to the bathroom and then ambulated in the hallway. The patient had evidence of bowel sounds, but no flatulence and no bowel movement.

I visited my patient at noon. When I arrived, she was sitting up in a chair and smiled when she saw me. The patient was alert and told me that she had seen the doctor. She stated that her abdomen was sore and that she didn't have any bleeding on her dressing. The intravenous line deliv-

Table 2

|             | Admission | 15 Minutes | Discharge |
|-------------|-----------|------------|-----------|
| Activity    | 2         | 2          | 2         |
| Respiration | 2         | 2          | 2         |
| Circulation | 2         | 2          | 2         |
| Conscious   | 1         | 2          | 2         |
| Color       | 2         | 2          | 2         |
| Total       | 9         | 10         | 10        |

Score of 8 or above for discharge

#### Key

##### Activity:

- 2 can move all extremities
- 1 can move 2 extremities
- 0 moves no extremities

##### Consciousness:

- 2 fully awake and alert
- 1 may be aroused upon calling name
- 0 not responding

##### Color:

- 2 normal skin color
- 1 alteration in color; pale, dusky, jaundice
- 0 cyanotic

##### Circulation:

- 2 +/- 20 from preop blood pressure value
- 1 +/- 50 from preop blood pressure value
- 0 more than +/- 50 from preop value

##### Respiration:

- 2 can cough and breathe deeply
- 1 limited respiratory effort
- 0 no spontaneous effort

ering 5% dextrose in lactated Ringer's solution was still in place with an intravenous piggyback (IVPB) of Ancef®. The patient's Foley catheter and the sequential stockings had been removed. We discussed the pain she had experienced prior to surgery, and she stated that she hoped that she could still have children in the future.

## DAY 2

### POSTOPERATIVE CARE

Vital signs were normal. The patient was given an anti-gas medication, a stool softener, and a saline laxative. The patient was awake and alert. She ambulated in the hallway. Diet was advanced to regular. Incision was clear and intact. Vital signs were stable, and patient was afebrile. The patient had evidence of bowel sounds with flatulence. The patient had a bowel movement.

I saw the patient briefly. She was lying in bed and told me she was going home the next day. A solution of 5% dextrose in lactated Ringer's was still infusing in her left hand. She stated that she was feeling better and wanted to go home.

## DAY 3

### POSTOPERATIVE CARE

The patient's vital signs were normal. The patient was prescribed two narcotic analgesics to be taken as needed for pain and was given the following discharge instructions: Nothing is to be put in the vagina for six weeks. Maintain regular diet, and try to increase fluids. Return to emergency room if fever, pain, or vaginal bleeding occurs. A follow-up appointment was made for eight days post-surgery for staple removal.

### PROGNOSIS

The surgery was successful, and the patient should make a full recovery. Her pathology report indicated no cancer. The removal of the ovarian cyst should alleviate the patient's abdominal and back pain. She should be able to return to work without pain in a few weeks, when her incision heals. The removal of the ovary and fallopian tube will prevent the formation of any new cysts on the patient's right side. On the left side, there is always a possibility

that a new cyst may form, because the ovary and fallopian tube are still functioning. With one ovary, the patient should be able to have children in the future.

### ABOUT THE AUTHOR

Debra Terrasi, CST, graduated from the surgical technology program at Nassau Community College in Garden City, New York, in May. She began working at Mercy Medical Center in Rockville Centre, New York, in August. After a previous career in dental hygiene, Debra decided to change professions after raising her three children.

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