Case 1

Day 1 8pm:

A 21-year-old woman presents to the emergency department complaining of abdominal pain. She has had the pain for 2-3 days, and came to the emergency department because it became unbearable and she felt as though she could pass out.

1. **What questions do have for her regarding her pain?**

Day 1 8:15pm:

She appears uncomfortable in the bed as you ask these questions and her hand is resting on her right side. She describes her pain as sharp and constant. She states the pain is now a 10/10, previously had been 6/10 for the past 2 days and got worse over the course of the evening. It is primarily in her right lower side, she points with her hand for you. It seems to travel or radiate to her lower back and bottom. She has taken some Tylenol with no relief, and moving seems to make the pain worse.

1. **Review a quick past medical history**

Day 1 8:15pm:

She has never been hospitalized before and tells you that she only has mild asthma. She has never had any surgeries. She has never been pregnant. She is not sure, but she thinks her last period was 3 months ago. She was told she had a pelvic infection when she was 16 but she was able to take antibiotics at home. She was recently in a relationship but isn't any longer. She was on the birth control pill, but stopped it about 3 months ago.

She takes no medications. She has no drug allergies. She does not drink except 2 drinks on the weekend, and smokes ½ ppd. She has no significant family history.

1. **Review a quick review of systems (what important question should you ask this 21 y old female?)**

Day 1 8:15pm:

The only other symptoms she describes are vaginal spotting today, and feeling like she was going to pass out.

1. **Do you want anything specific in her exam or vitals?**

Day 1 8:30pm

Vitals: Temp 37.2 (normal < 38.0) P 115 (normal <100) RR 28 BP 98/50 O2Sat: 99% on RA
Orthostatic vitals: lying as above; seated P 130, BP 90/50 (she feels lightheaded), the nurse omits standing vitals.

She continues to appear very uncomfortable.
Heart: Tachycardia, no murmurs
Chest: symmetric movement, clear to auscultation, no CVA tenderness
Abdomen: nondistended, +BS, tender to palpation throughout, maximally tender in RLQ with rebound and voluntary guarding.
Pelvic exam: SSE: normal external genitalia, normal vaginal mucosa, scant blood in the vault, cervix is without lesions. Cultures are taken of the cervix, and a wet prep is taken of the vaginal discharge. SVE: +cervical motion tenderness, right adnexal tenderness, slight fullness in cul de sac.

Review Images 1 and 2

1. **What is your differential diagnosis?**

2. **What tests do you want to order?**

3. **What do you want to do while you wait?**

Day 1 9:15pm

You place a peripheral IV and start infusing a bolus of Normal Saline (NS). A nurse places a second IV in the other antecubital fossa.

WBC: 11.0 thou/cmm ****NORMAL***
Hemoglobin: 9.9gm/dL
Hematocrit: 29.2 % ****ANEMIC***
Mean Corpuscular Volume: 86 cu mcrn
Platelets: 197 thou/cmm

EKG: sinus tachycardia
Type and screen: pending
Cervical cultures: pending

Urine analysis:
Color: yellow
Appearance: clear
PH: 5.0
Specific gravity: 1.027
Urine protein: negative
Urine glucose: negative
Urine ketones: small
Occult blood: negative
Nitrite: negative
Leukocyte esterase: negative
WBC: 0-1 per hpf
RBC: 3-5 per hpf
Epithelial cells: 0-1 per hpf
Bacteria: rare
Urine pregnancy test: +

1. **What additional test or tests do you want to order?**

Day 1 9:45pm

The ED Radiologist is currently reading a CT for a trauma occurring simultaneously in the ED, so you have to pull up the image and review it for yourself

Review the Ultrasound (Image 3) and Netters Plate 346 (Image 4)

1. **Name the parts of the fallopian tube (Plate 346 Netters)**
2. **Which part of the tube is most likely to be involved in an ectopic pregnancy?**
3. **What is the blood supply to the tube and ovary?**
4. **Identify the mesosalpinx and mesoovarium**
5. **Identify the cul de sac of Pouch of Douglas and correlate them w/ the sono findings (Image 2)**
6. **What is your diagnosis? What is the next step?**

Day 1 10:45pm

The patient is taken to the operating room after being consented for surgery for a suspected ectopic pregnancy. Her vitals have improved with 2 liters of NS, and you feel it is safe to proceed with a laparascopic approach

Review Image 5

A **salpingectomy** is performed and the ectopic pregnancy removed.

7. **What are her risk factors for ectopic pregnancy?**

8. **What medications does she need at the time of discharge?**

Case I Review

An ectopic pregnancy is defined as implantation of the blastocyst anywhere other than the uterine endometrium. The most common location is the fallopian tube (over 90%), with the major located in the ampulla.

Often, diagnosing and managing a patient with an ectopic pregnancy can be difficult. Knowledge of the risk factors can heighten the clinician's suspicion and may determine the direction of the investigation. Major risk factors include **PID**, use of IUD, previous abdominal or pelvic surgery, endometriosis, previous ectopic pregnancy and previous tubal sterilization.

Clinical presentation may include abnormal genital bleeding, pelvic pain and a palpable pelvic mass after a missed menstrual period. However, ectopic pregnancies often have an atypical presentation and can have extensive overlap with abdominopelvic disorders. The astute clinician should include in the differential ovarian cysts, which occur commonly in pregnancy, but usually do not cause pelvic pain.

Pelvic infections such as acute salpingitis, tubo-ovarian abscess or hydrosalpinx may occasionally be difficult to distinguish from ectopic pregnancy. Possible gastrointestinal etiologies include appendicitis, diverticulitis and mesenteric lymphadenitis, and ileitis. Urological causes such as renal calculi, pyelonephritis and hydronephrosis may be mistaken for an ectopic pregnancy.

Today's gold standard for diagnosis and management of a stable patient implement the combined use of β-hCG measurements and ultrasound. The identification of an intrauterine gestational sac on abdominal ultrasound and a serum concentration of β-hCG that exceeds 6500mIU/mL rules out ectopic pregnancy in 95% of cases. Used alone, these modalities can be inaccurate. False-positive intrauterine gestational sacs may be seen in as many as 20% of ectopic pregnancies. Also, the trend of serial β-hCGs can be useful. In a normal pregnancy, the β-hCG increases at a standard doubling rate about every 48-72 hours. With an ectopic pregnancy, serial β-hCG may actually decline, plateau, or exhibit erratic and unpredictable trends. With an unstable patient and a strong clinical suspicion, an exploratory laparoscopic procedure can usually facilitate diagnostic exclusion of certain entities and give an absolute diagnosis.

As with all illnesses, a careful history and thorough physical examination are paramount to making the correct diagnosis. Keeping the preceding principles in mind can decrease the frequency of misdiagnosis, prevent unnecessary surgical procedures and reduce morbidity and mortality.

Prior to discharging this patient, a discussion of her contraceptive planning is necessary. Smoking cessation should also be discussed.