Early Pregnancy Hemorrhage

Topic- based Uworld Questions

Block 1, 2, 7, 8

A 37-year-old woman, gravida 2 para 1, at 8 weeks gestation comes to the office for a follow-up visit. Earlier in the pregnancy, the patient had nausea and breast tenderness that resolved several days ago. She has no other concerns. At her initial prenatal visit a week ago, ultrasound revealed an intrauterine gestational sac with a yolk sac but no fetal pole. β-hCG level at that visit was 27,325 IU/L. She is taking a prenatal vitamin and does not use tobacco, alcohol, or illicit drugs. Current blood pressure is 140/80 mm Hg and pulse is 68/min. BMI is 23 kg/m^2. Pelvic examination reveals a closed cervix and no vaginal discharge or bleeding. Bimanual examination reveals a normal-sized, retroverted uterus with no cervical motion or adnexal tenderness. A transvaginal ultrasound is repeated and is unchanged from the prior visit. β-hCG level is now 25,659 IU/L. Which of the following is the most likely diagnosis?

- A. Ectopic pregnancy
- B. Hydatidiform mole
- C. Incomplete abortion
- D. Missed abortion
- E. Normal pregnancy
- F. Threatened abortion

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- A. Ectopic pregnancy (3%)
- B. Hydatidiform mole (40%)
- C. Incomplete abortion (5%)
- ✓ D. Missed abortion (38%)
- E. Normal pregnancy (8%)
- F. Threatened abortion (4%)

Omitted
Correct answer
D

38%
Answered correctly

01 sec
Time Spent

02/22/2020
Last Updated

Explanation

Abortion types

Missed

- No vaginal bleeding
- Closed cervical os
- No fetal cardiac activity or empty sac

Threatened

- Vaginal bleeding
- Closed cervical os
- Fetal cardiac activity

Inevitable

- Vaginal bleeding
- Dilated cervical os
- Products of conception may be seen or felt at or above cervical os

Incomplete

- Vaginal bleeding
- Dilated cervical os
- Some products of conception expelled & some remain

Complete

- Vaginal bleeding
- Closed cervical os
- Products of conception completely expelled

This patient has a **missed abortion**, an intrauterine pregnancy demise at <20 weeks gestation prior to expulsion of products of conception. Patients may be **asymptomatic** or have **decreased pregnancy symptoms** (eg, nausea, breast tenderness). Physical examination reveals a closed cervix. Risk factors for a spontaneous abortion include advanced maternal age due to its associated increased risk of fetal chromosomal abnormalities.

Ultrasound findings in a missed abortion include an **embryo without cardiac activity** or an **empty gestational sac** without a fetal pole (eg, no embryo). Some early pregnancies can present without a fetal pole. Viability is determined with repeat ultrasounds and serial β-hCG levels. Repeat ultrasounds of a viable pregnancy reveal continued embryonic development. Serial β-hCG levels normally increase until the end of the first trimester; **decreasing β-hCG levels** indicate a demise and exclude a normal pregnancy **(Choice E)**.

This patient has a **missed abortion**, an intrauterine pregnancy demise at <20 weeks gestation prior to expulsion of products of conception. Patients may be **asymptomatic** or have **decreased pregnancy symptoms** (eg, nausea, breast tenderness). Physical examination reveals a closed cervix. Risk factors for a spontaneous abortion include advanced maternal age due to its associated increased risk of fetal chromosomal abnormalities.

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(Choice A) An ectopic pregnancy is excluded in this patient by the ultrasound finding of an intrauterine gestational sac that contains a yolk sac (eg, early intrauterine pregnancy).

(Choice B) A hydatidiform mole is an abnormal gestation that presents with heavy bleeding, a "snowstorm" appearance on ultrasound, and a markedly elevated β-hCG level (>100,000 IU/L). This patient's decreasing β-hCG level makes a hydatidiform mole unlikely.

(Choice C) An incomplete abortion presents with pain, bleeding, a dilated cervix, and passage of some products of conception.

(Choice F) Threatened abortions present with bleeding and a closed cervix; ultrasound reveals an intrauterine gestation with a normal heartbeat. At 8 weeks gestation, threatened abortions would have increasing β-hCG levels.

Educational objective:
A missed abortion is a pregnancy loss at <20 weeks gestation prior to expulsion of products of conception. Patients with missed abortions are typically asymptomatic but can present with loss of pregnancy symptoms or light vaginal bleeding. Findings include a closed cervix, decreasing β-hCG levels, and an ultrasound revealing a nonviable (eg, no fetal heartbeat) intrauterine pregnancy.

References

- Contemporary management of early pregnancy failure.
- Assessment and management of bleeding in the first trimester of pregnancy.

A 29-year-old woman with ulcerative colitis is brought to the emergency department after a syncopal episode while getting out of bed. Yesterday she developed right-sided abdominal pain which has spread across the lower abdomen over the past few hours. She also noticed a blood stain on her underwear after the syncopal episode. The patient was diagnosed with ulcerative colitis 3 years ago and is in remission with oral mesalamine therapy. She takes no other medications and has no allergies. Her last menstrual period was 8 weeks ago. The patient uses condoms intermittently for contraception. Her temperature is 37 C (98 F), blood pressure is 90/60 mm Hg, and pulse is 125/min. She has diffuse lower abdominal pain with rebound tenderness and voluntary guarding. Pelvic examination shows cervical motion tenderness and right-sided adnexal tenderness; no masses are palpated. Which of the following is the most likely diagnosis for this patient?

- A. Appendicitis
- B. Colonic perforation
- C. Ovarian torsion
- D. Pelvic inflammatory disease
- E. Ruptured ectopic pregnancy
- F. Ruptured ovarian cyst
- G. Tubo-ovarian abscess

Submit

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- A. Appendicitis (0%)
- B. Colonic perforation (1%)
- C. Ovarian torsion (1%)
- D. Pelvic inflammatory disease (7%)
- ✓ E. Ruptured ectopic pregnancy (84%)
- F. Ruptured ovarian cyst (2%)
- G. Tubo-ovarian abscess (1%)

Omitted
Correct answer
E

84%
Answered correctly

01 sec
Time Spent

05/31/2020
Last Updated

Explanation

Ectopic pregnancy	
Risk factors	• Previous ectopic pregnancy • Previous pelvic/tubal surgery • Pelvic inflammatory disease
Clinical features	• Abdominal pain, amenorrhea, vaginal bleeding • Hypovolemic shock in ruptured ectopic pregnancy • Cervical motion, adnexal &/or abdominal tenderness • ± Palpable adnexal mass
Diagnosis	• Positive hCG • Transvaginal ultrasound revealing adnexal mass, empty uterus
Management	• Stable: Methotrexate • Unstable: Surgery

The diagnosis of an ectopic pregnancy should be suspected in a patient with a **missed menstrual period (amenorrhea)**, abdominal pain and/or **vaginal bleeding**. Vaginal bleeding is typically intermittent and can range from scant staining of undergarments to hemorrhage. This patient's syncope, hypotension, tachycardia is concerning for intra-abdominal bleeding from a ruptured ectopic pregnancy. Blood in the abdomen and pelvis produces irritation of the nearby structures and can result in **diffuse abdominal pain**, cervical motion tenderness, shoulder pain (referred pain from the diaphragm), and urge to defecate (due to blood in the posterior cul-de-sac).

Risk factors include a history of ectopic pregnancy, tubal pathology/surgery, and **pelvic inflammatory disease**. Diagnosis is confirmed by a positive pregnancy test and a **transvaginal ultrasound** that shows an empty uterus and an adnexal mass. Hemodynamically unstable patients require urgent surgical evaluation.

(Choice A) The pain in appendicitis typically begins in the periumbilical region and progresses to focal, severe pain in the right lower quadrant of

Risk factors include a history of ectopic pregnancy, tubal pathology/surgery, and **pelvic inflammatory disease**. Diagnosis is confirmed by a positive pregnancy test and a **transvaginal ultrasound** that shows an empty uterus and an adnexal mass. Hemodynamically unstable patients require urgent surgical evaluation.

(Choice A) The pain in appendicitis typically begins in the periumbilical region and progresses to focal, severe pain in the right lower quadrant of the abdomen. Although a perforated appendix can cause diffuse abdominal pain, the absence of fever and presence of amenorrhea make this diagnosis less likely.

(Choice B) Colonic perforation is a complication of ulcerative colitis resulting from toxic megacolon. Symptoms include abdominal distension/rigidity and high fever, which are not present in this patient in remission.

(Choice C) Patients with ovarian torsion typically have a palpable adnexal mass and acute nausea and vomiting. However, ovarian torsion typically presents with sudden, unilateral pelvic pain, rather than diffuse abdominal pain. In addition, the missed menstrual period in this patient is a red flag for pregnancy.

(Choices D and G) Pelvic inflammatory disease (PID) typically presents with fever, foul-smelling cervico-vaginal discharge, lower abdominal pain, and cervical motion tenderness. Tubo-ovarian abscess (TOA) is a severe form of PID that classically has the same acute symptoms; these conditions are less likely given the lack of fever and absence of discharge.

(Choice F) A ruptured ovarian cyst can present with acute abdominal pain. However, due to this patient's secondary amenorrhea, a ruptured ectopic pregnancy is more likely.

Educational objective:
Ruptured ectopic pregnancy typically presents with amenorrhea, diffuse abdominal pain, and hemodynamic instability. Management involves urgent surgical evaluation.

References

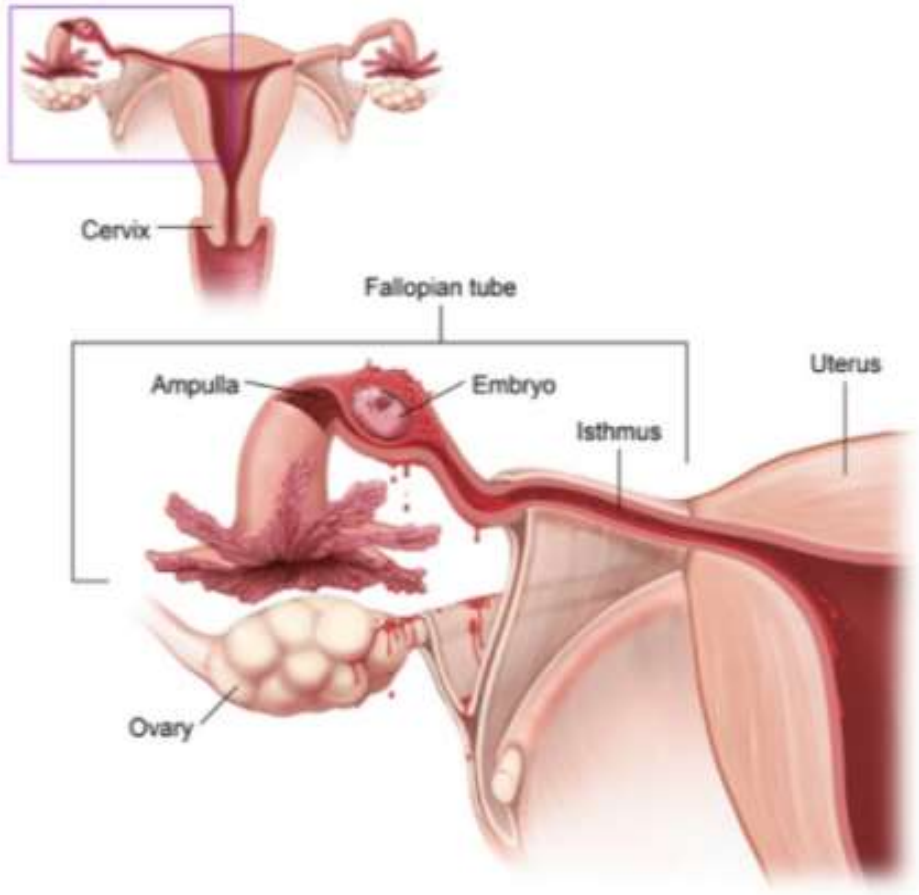
- Indicators of potential for rupture for ectopics seen in the emergency department.
- Risk factors for rupture in tubal ectopic pregnancy: definition of the clinical findings.

Clinical features

- Cervical motion, adnexal &/or abdominal tenderness

Exhibit Display

Ectopic pregnancy with ruptured fallopian tube



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(Choices D and G) Pelvic inflammatory disease (PID) typically presents with fever, foul-smelling cervico-vaginal discharge, lower abdominal pain,

A 40-year-old woman comes to the emergency department due to nausea, vomiting, and dizziness. The patient has been unable to tolerate any oral intake over the last 2 days. She has had no fevers, chills, diarrhea, or constipation. She reports no sick contacts. The patient has a history of migraines for which she takes daily preventive treatment, but she has been unable to take her medications for the past several days due to nausea. Her last menstrual period was approximately 8 weeks ago, and she has a history of irregular menses. Temperature is 36.7 C (98 F), blood pressure is 90/60 mm Hg, and pulse is 112/min. BMI is 32 kg/m^2. Physical examination shows dry mucous membranes, decreased skin turgor, and prolonged capillary refill. The abdomen is soft and nontender. Pelvic examination shows a 12-week-size uterus and bilateral adnexal masses. Pelvic ultrasound shows a uterus filled with multiple small cysts but no embryo. The ovaries are 10 cm bilaterally with a multilocular cystic appearance. Urine pregnancy test is positive. Which of the following is the most likely mechanism of this patient's adnexal pathology?

A. Excessive intra-ovarian androgen conversion
B. Extrauterine implantation of a developing blastocyst
C. Failure of follicular rupture during ovulation
D. Ovarian hyperstimulation from abnormal trophoblastic proliferation
E. Somatic differentiation of primordial germ cells

Submit

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- A. Excessive intra-ovarian androgen conversion (4%)
- B. Extrauterine implantation of a developing blastocyst (2%)
- C. Failure of follicular rupture during ovulation (10%)
- ✓ D. Ovarian hyperstimulation from abnormal trophoblastic proliferation (79%)
- E. Somatic differentiation of primordial germ cells (3%)

Omitted
Correct answer
D

79%
Answered correctly

12 secs
Time Spent

04/06/2020
Last Updated

Explanation

Theca lutein cysts

Theca lutein cysts	
Presentation	• Multilocular • Bilateral • 10-15 cm ovaries
Pathogenesis	• Ovarian hyperstimulation due to: ◦ Gestational trophoblastic disease ◦ Multifetal gestation ◦ Infertility treatment
Clinical course	• Resolve with decreasing β-hCG levels

This patient presents with hyperemesis gravidarum, an enlarged uterus (12-week size at 8 weeks gestation), and **bilaterally enlarged ovaries**, a presentation concerning for a complete **hydatidiform mole**, a type of gestational trophoblastic disease. A complete hydatidiform mole results from abnormal fertilization of an empty ovum by either 2 sperm or by 1 that subsequently duplicates its genome. The resultant gestation is composed of proliferative trophoblastic tissue that secretes high levels of β-hCG. The markedly **elevated β-hCG** level causes hyperstimulation of the ovaries and formation of **theca lutein cysts**, which are large, **bilateral**, **multilocular** ovarian cysts. Theca lutein cysts are expectantly managed as they resolve after treatment of the hydatidiform mole by suction curettage or hysterectomy when the β-hCG level decreases.

(Choice A) Polycystic ovarian syndrome is associated with excessive intra-ovarian androgen conversion and presents with anovulatory oligomenorrhea, hyperandrogenism (eg, hirsutism), and multiple small ovarian cysts.

(Choice B) An ectopic pregnancy is a pregnancy (eg, blastocyst) that implants outside of the uterus, typically in the fallopian tube. Ectopic pregnancies typically present as a unilateral adnexal mass.

(Choice C) A simple cyst occurs when a follicle fails to rupture during ovulation. Simple cysts are unilateral and unilocular on ultrasound.

(Choice E) A benign cystic teratoma (eg, dermoid cyst) is a tumor composed of differentiated germ cells. Teratomas can be bilateral but have both solid and cystic components. Teratomas are usually asymptomatic and are not associated with an hydatidiform mole.

Educational objective:

This patient presents with hyperemesis gravidarum, an enlarged uterus (12-week size at 8 weeks gestation), and **bilaterally enlarged ovaries**, a presentation concerning for a complete **hydatidiform mole**, a type of gestational trophoblastic disease. A complete hydatidiform mole results from abnormal fertilization of an empty ovum by either 2 sperm or by 1 that subsequently duplicates its genome. The resultant gestation is composed of proliferative trophoblastic tissue that secretes high levels of β-hCG. The markedly **elevated β-hCG** level causes hyperstimulation of the ovaries and formation of **theca lutein cysts**, which are large, **bilateral**, **multilocular** ovarian cysts. Theca lutein cysts are expectantly managed as they resolve after treatment of the hydatidiform mole by suction curettage or hysterectomy when the β-hCG level decreases.

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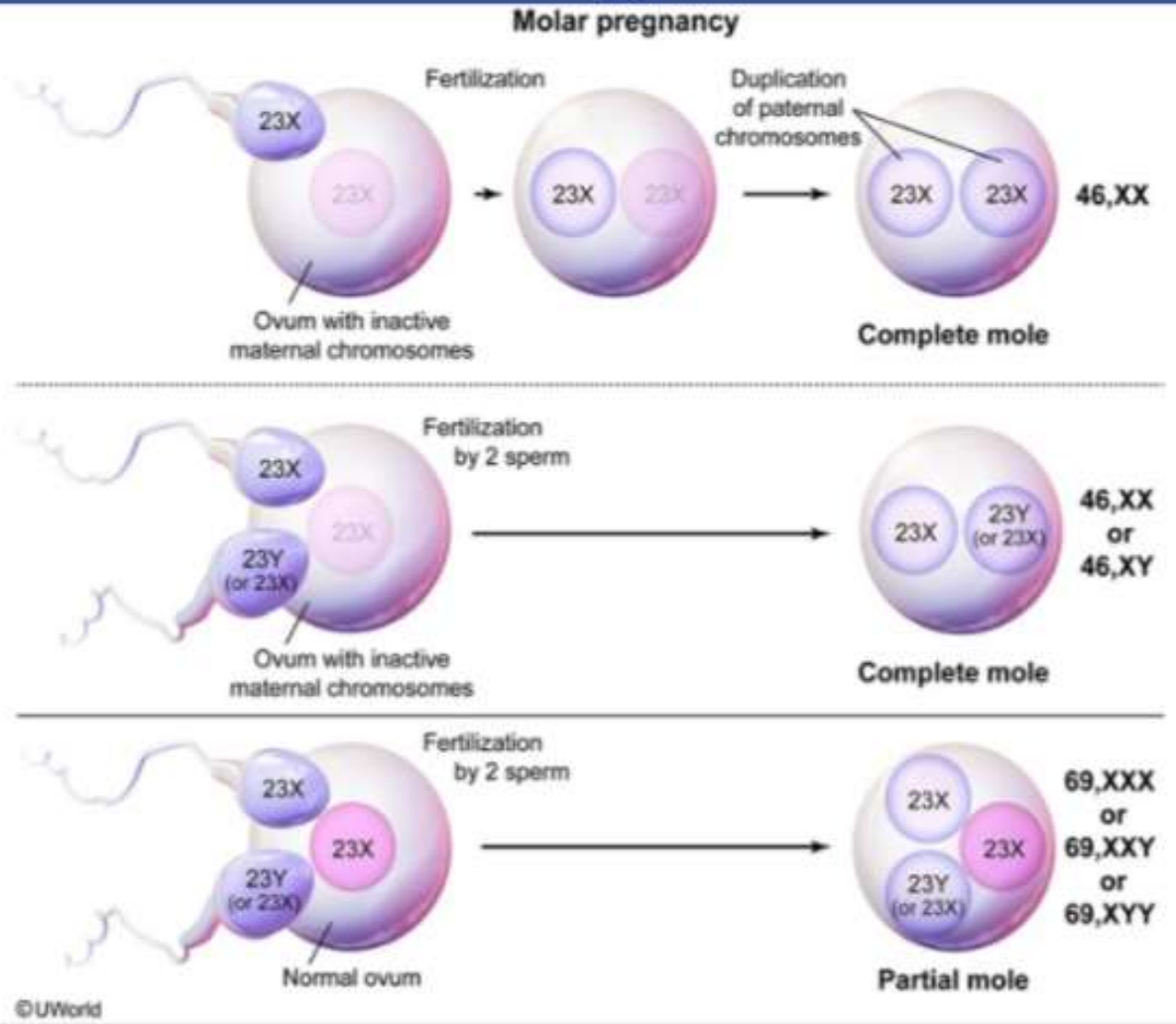
Educational objective:
Hydatidiform mole, a type of gestational trophoblastic disease, can present with theca lutein cysts, bilateral multiloculated ovarian cysts that are associated with ovarian hyperstimulation from markedly elevated β-hCG levels. The theca lutein cysts resolve after treatment of the hydatidiform mole when the β-hCG level decreases.

References

- Gestational trophoblastic disease.

Obstetrics & Gynecology	Pregnancy, Childbirth & Puerperium	Gestational trophoblastic disease
Subject	System	Topic

Exhibit Display



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A 23-year-old female comes to the office with a 3-day history of intermittent lower abdominal pain and vaginal spotting. The pain was initially mild but has gotten worse. Her last menstrual period was 6 weeks ago. She takes no medications and has no allergies. The patient is a graduate student and occasionally drinks alcohol. She does not use tobacco or illicit drugs. Her temperature is 36.7 C (98 F), blood pressure is 110/70 mm Hg, pulse is 80/min, and respirations are 18/min. Physical examination shows right adnexal tenderness and a closed cervix. Urine pregnancy test is positive. Transabdominal ultrasound does not reveal an intrauterine gestation. Which of the following is the most appropriate next step in management of this patient?

A. Culdocentesis
B. Dilation and curettage
C. Endocervical nucleic acid amplification test
D. Laparoscopy
E. Laparotomy
F. Transvaginal ultrasound

Submit

A 23-year-old female comes to the office with a 3-day history of intermittent lower abdominal pain and vaginal spotting. The pain was initially mild but has gotten worse. Her last menstrual period was 6 weeks ago. She takes no medications and has no allergies. The patient is a graduate student and occasionally drinks alcohol. She does not use tobacco or illicit drugs. Her temperature is 36.7 C (98 F), blood pressure is 110/70 mm Hg, pulse is 80/min, and respirations are 18/min. Physical examination shows right adnexal tenderness and a closed cervix. Urine pregnancy test is positive. Transabdominal ultrasound does not reveal an intrauterine gestation. Which of the following is the most appropriate next step in management of this patient?

- A. Culdocentesis (0%)
- B. Dilation and curettage (1%)
- C. Endocervical nucleic acid amplification test (0%)
- D. Laparoscopy (16%)
- E. Laparotomy (6%)
- ✓ F. Transvaginal ultrasound (74%)

Omitted
Correct answer
F

74%
Answered correctly

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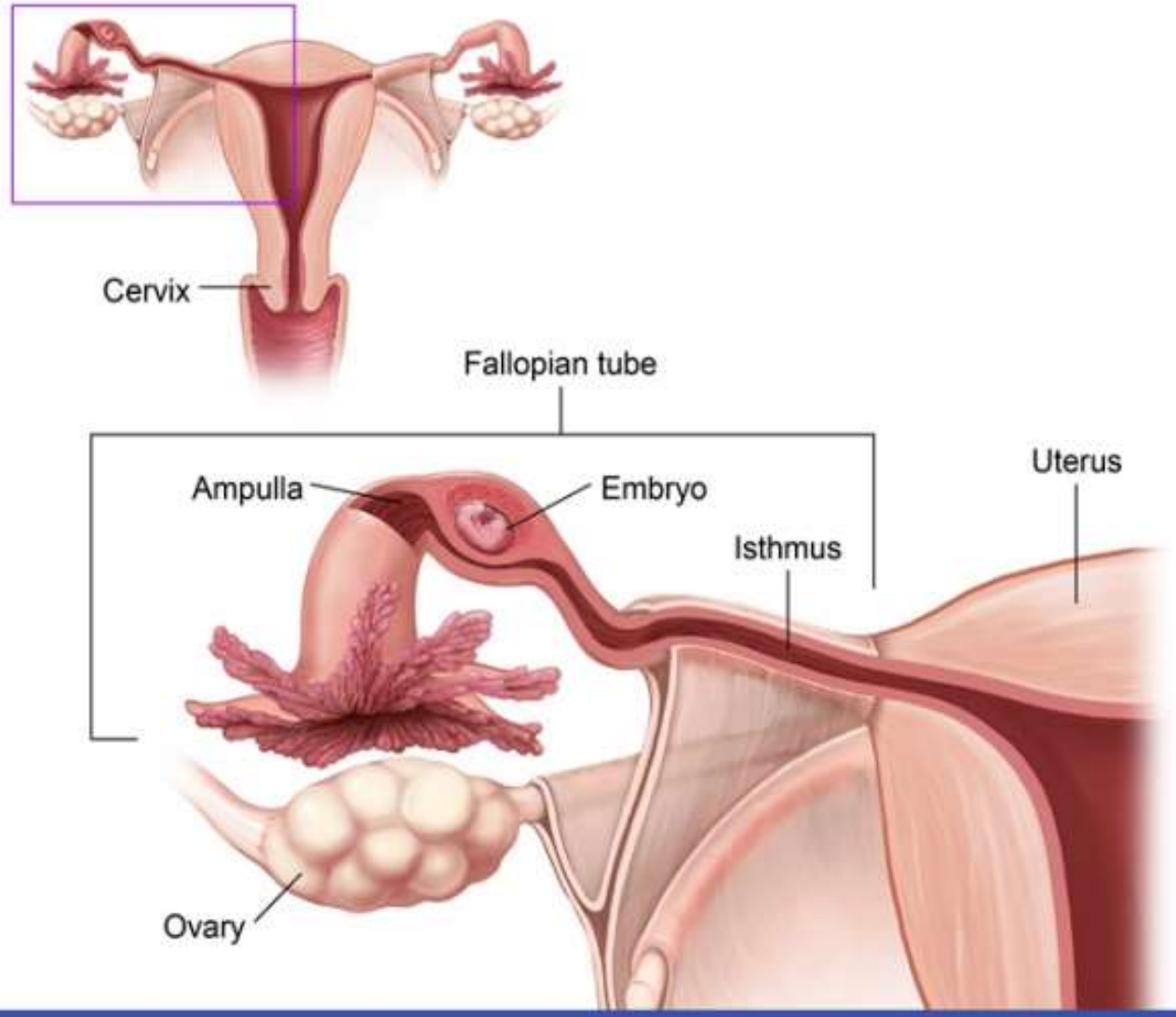
Time Spent

03/19/2020
Last Updated

Explanation

Ectopic pregnancy

Ectopic pregnancy



This patient's presentation of vaginal bleeding/spotting, lower abdominal pain, and adnexal tenderness is suspicious for an unruptured **ectopic pregnancy**. The majority of ectopic pregnancies occur in the **fallopian tube**. Most ectopic pregnancies are related to prior infection with chlamydia and/or gonorrhea causing tubal damage, and these infections are often asymptomatic (subclinical pelvic inflammatory disease). Other risk factors include prior tubal surgery, prior ectopic pregnancy, and in vitro fertilization.

The diagnosis of ectopic pregnancy is made by a pregnancy test combined with **transvaginal ultrasound** (TVUS). Ectopic pregnancy is virtually ruled out if TVUS shows an intrauterine gestational sac in the setting of a positive β-hCG test. Conversely, ectopic pregnancy is confirmed if the gestational sac is seen at an ectopic site. TVUS is also useful in evaluating for rupture of the tube or other structures, which presents as free fluid (blood) in the pelvic cul-de-sac and/or abdomen. Transabdominal ultrasound cannot reliably visualize a gestational sac in early pregnancy.

(Choice A) Culdocentesis involves needle insertion into the posterior vaginal wall to see if there is blood in the peritoneal fluid from the cul-de-sac (pouch of Douglas), which would suggest a ruptured ectopic pregnancy. This is rarely performed today due to ease of ultrasound.

(Choice B) Dilation and curettage (D&C) is surgical evacuation of the uterus for abortion (incomplete or missed). If the diagnosis of ectopic pregnancy is unclear, D&C may confirm the presence or absence of chorionic tissue. D&C may also be performed if vaginal ultrasound and blood work are inconclusive.

(Choice C) Endocervical nucleic acid amplification tests are indicated in cases of suspected genital tract infection (eg, cervicitis, pelvic inflammatory disease). This patient has no cervical motion tenderness or discharge to suggest an active genital infection.

(Choices D and E) Laparoscopy is the gold standard treatment for a ruptured ectopic pregnancy which presents with the additional symptoms of diffuse abdominal pain and eventually hemodynamic instability. Laparotomy may be considered for patients with acute bleeding.

Educational objective:
The triad of vaginal bleeding, lower abdominal pain, and adnexal tenderness is suspicious for an ectopic pregnancy. Diagnosis is made by a positive pregnancy test and a transvaginal ultrasound showing a gestational sac at an ectopic site, most commonly the fallopian tube.

References

- ACOG Practice Bulletin No. 94: medical management of ectopic pregnancy.
- Diagnosis and management of ectopic pregnancy.

A 32-year-old woman comes to the emergency department with abdominal pain and nausea that began 2 days earlier but has become increasingly severe over the last 3 hours. The patient has passed several blood clots vaginally for the last hour. She has a history of irregular menstrual cycles and is not sure of the date of her last period. She was diagnosed with a "heart-shaped uterus" 2 years ago. BMI is 28 kg/m^2. Her blood pressure is 90/55 mm Hg and pulse is 120/min. Abdominal examination shows guarding with decreased bowel sounds. Speculum examination shows moderate vaginal bleeding with clots. A urine pregnancy test is positive. Transvaginal ultrasound shows a gestational sac at the upper left uterine cornu and free fluid in the posterior cul-de-sac. Which of the following is the most appropriate next step in management of this patient?

- A. Dilation and curettage
- B. Methotrexate administration
- C. Misoprostol administration
- D. MRI of the pelvis
- E. Serum β-hCG level
- F. Surgical exploration

Submit

A 32-year-old woman comes to the emergency department with abdominal pain and nausea that began 2 days earlier but has become increasingly severe over the last 3 hours. The patient has passed several blood clots vaginally for the last hour. She has a history of irregular menstrual cycles and is not sure of the date of her last period. She was diagnosed with a "heart-shaped uterus" 2 years ago. BMI is 28 kg/m^2. Her blood pressure is 90/55 mm Hg and pulse is 120/min. Abdominal examination shows guarding with decreased bowel sounds. Speculum examination shows moderate vaginal bleeding with clots. A urine pregnancy test is positive. Transvaginal ultrasound shows a gestational sac at the upper left uterine cornu and free fluid in the posterior cul-de-sac. Which of the following is the most appropriate next step in management of this patient?

- A. Dilation and curettage (21%)
- B. Methotrexate administration (5%)
- C. Misoprostol administration (3%)
- D. MRI of the pelvis (0%)
- E. Serum β-hCG level (12%)
- ✓ F. Surgical exploration (55%)

Omitted
Correct answer
F

55%
Answered correctly

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Time Spent

06/28/2020
Last Updated

Explanation

Ectopic pregnancy	
Risk factors	• Previous ectopic pregnancy • Previous pelvic/tubal surgery • Pelvic inflammatory disease
Clinical features	• Abdominal pain, amenorrhea, vaginal bleeding • Hypovolemic shock in ruptured ectopic pregnancy • Cervical motion, adnexal &/or abdominal tenderness • ± Palpable adnexal mass
Diagnosis	• Positive hCG • Transvaginal ultrasound revealing adnexal mass, empty uterus
Management	• Stable: Methotrexate • Unstable: Surgery

This patient has an **acute abdomen** (eg, guarding with decreased bowel sounds) likely due to **hemoperitoneum** from a **ruptured ectopic pregnancy** in the left uterine cornu. This rarer type of ectopic pregnancy is known as a cornual or interstitial ectopic pregnancy. A gestational sac normally implants in the upper fundal region; implantation in the outer quadrants (cornual areas) is abnormal.

Common risk factors for ectopic pregnancy are shown in the table; specific risks for a cornual ectopic pregnancy include uterine anomalies (eg, bicornuate "heart-shaped" uterus) and in vitro fertilization. Due to the abundant blood supply in the cornual region from both uterine and ovarian vessels, rupture in this area may result in life-threatening hemorrhage. Intraabdominal bleeding causes peritoneal inflammation and findings of diffuse abdominal pain.

Transvaginal ultrasound is the first-line imaging for confirming the location of the gestational sac. In addition, the presence of fluid in the posterior cul-de-sac in the setting of an ectopic pregnancy suggests blood in the pelvis. **Emergency surgical exploration** is required in a patient with hemoperitoneum and **unstable vital signs** (eg, hypotension, tachycardia).

(Choice A) Dilation and curettage is performed to remove uterine contents for spontaneous or incomplete abortion. Spontaneous abortion does

Transvaginal ultrasound is the first-line imaging for confirming the location of the gestational sac. In addition, the presence of fluid in the posterior cul-de-sac in the setting of an ectopic pregnancy suggests blood in the pelvis. **Emergency surgical exploration** is required in a patient with hemoperitoneum and **unstable vital signs** (eg, hypotension, tachycardia).

(Choice A) Dilation and curettage is performed to remove uterine contents for spontaneous or incomplete abortion. Spontaneous abortion does not present with an acute abdomen.

(Choice B) Methotrexate is used to treat a stable ectopic pregnancy. Ruptured ectopic pregnancy is a contraindication to its use.

(Choice C) Misoprostol is used to treat an incomplete or missed abortion. It causes cervical dilation and myometrial contraction to expel intrauterine contents. This patient does not have an intrauterine pregnancy, in which the gestational sac is located centrally within the endometrial cavity.

(Choice D) MRI of the pelvis may be used to diagnose uterine anomalies when transvaginal ultrasound is inconclusive. MRI is contraindicated in a hemodynamically unstable patient who requires immediate surgery.

(Choice E) Serum β-hCG levels should be ordered if a gestational sac is not identified on ultrasound. Measuring the β-hCG level is unnecessary in this patient as a well-defined gestational sac is identified in the cornual region of the uterus.

Educational objective:
A hemodynamically unstable patient with hemoperitoneum due to ruptured ectopic pregnancy requires emergency surgical exploration. Diagnosis of a cornual ectopic pregnancy is made by ultrasound showing a gestational sac at the upper outer corner of the uterine fundus.

References

- Cornual pregnancy: management and subsequent fertility.
- Cornual, interstitial, and angular pregnancies: clarifying the terms and a review of the literature.

Obstetrics & Gynecology	Pregnancy, Childbirth & Puerperium	Ectopic pregnancy
Subject	System	Topic