

Evaluation and Management of Amenorrhea: Review Questions

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QUESTIONS

Choose the single best answer for each question.

- In a nonpregnant woman, galactorrhea with amenorrhea (GA syndrome) is a pathologic condition that may be caused by a serious organic disease. Which one of the following causes of GA syndrome is the most serious?**
 - Frequent breast manipulation
 - Medications such as phenothiazines, reserpine, opiates, or amphetamines
 - Primary hypothyroidism
 - Adrenal tumor
 - Pituitary tumor
- Which one of the following methods for treatment of prolactin-secreting pituitary tumors is the most efficient and acceptable to patients?**
 - Bromocriptine tablets administered orally
 - Bromocriptine suppositories administered vaginally
 - Cabergoline tablets administered orally
 - Transsphenoidal resection of the tumor
 - Irradiation
- A 24-year-old, married, nulligravida female runner presents to her gynecologist because of cessation of menses for 2 years. She says that she has been running regularly for more than 3 years, and for the past year she has been running 55 miles per week. She has been using an intrauterine device (IUD) for 3 years. Physical and gynecologic examinations are normal, and no hirsutism or galactorrhea is noted. She is 5 ft 4 in tall and weighs 116 lb. She has no withdrawal bleeding after treatment with medroxyprogesterone acetate, and her serum follicle-stimulating hormone (FSH) and luteinizing hormone (LH) levels are low. Which of the following statements is correct?**
 - The patient has premature ovarian failure.
 - The patient has polycystic ovary disease (PCOD).
 - The patient has hypothalamic amenorrhea.
 - The patient has intrauterine synechiae secondary to IUD use.
 - Magnetic resonance imaging (MRI) of the pituitary gland is essential for the final diagnosis.
- Which of the following patients is most likely to develop Sheehan's syndrome?**
 - A patient with polycystic ovaries who has irregular menstrual periods and bleeds heavily with clots when she has a menstrual flow
 - A patient who has hyperthyroidism
 - A patient with congenital adrenal hyperplasia
 - A patient with severe postpartum hemorrhage
 - A patient who had two uterine curettages in 1 week because of menometrorrhagia
- A 16-year-old girl presents with her mother to the gynecologist because her menstrual periods have not started. History reveals that the patient's mother and older sister started their menstrual periods at age 13 years. Physical examination reveals normal breast size and normal pubic and axillary hair. The patient is 5 ft 3 in tall and weighs 120 lb. What is the most probable diagnosis?**
 - Hypothalamic dysfunction
 - Pituitary dysfunction
 - Testicular feminization syndrome
 - Imperforate hymen
 - Rokitansky-Küster-Hauser syndrome (vaginal and uterine agenesis)

(turn page for answers)

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EXPLANATION OF ANSWERS

- 1. (E) Pituitary tumor.** Adrenal tumors do not secrete prolactin and are not a cause of hyperprolactinemia associated with galactorrhea. Frequent breast manipulation; phenothiazines, reserpine, opiates, and amphetamines; primary hypothyroidism; and pituitary tumors are all associated with hyperprolactinemia. Of these possible causes of GA syndrome, pituitary tumor is the most serious. Galactorrhea caused by breast manipulation or medications is usually resolved with discontinuation of the manipulation or medication. Galactorrhea caused by primary hypothyroidism is treated with thyroid hormones, which usually brings the serum levels of prolactin to normal levels and consequently resolves galactorrhea. The pituitary tumor, if not treated promptly and adequately, may enlarge and create pressure on the adjacent organs causing headaches, vision disturbances, and a decrease in pituitary hormone secretion.
- 2. (C) Cabergoline tablets administered orally.** Prolactin-secreting pituitary tumors are treated successfully with dopamine agonists such as bromocriptine and cabergoline. Many hyperprolactinemic patients do not tolerate oral bromocriptine because of its side effects such as nausea, vomiting, syncope, and headaches, and because two to three doses are required daily. In addition, some women are resistant to bromocriptine. Vaginal administration of bromocriptine often does not alleviate the side effects. For women who cannot tolerate bromocriptine or are resistant to treatment, cabergoline may be used. Because cabergoline has a relatively long half-life and is more potent than bromocriptine on a weight basis, it is administered in smaller doses (0.5 mg tablet) only once or twice per week. Cabergoline is usually tolerated because it has minimal side effects. Cabergoline treatment may be used for years to achieve the required shrinkage of the tumor. Transsphenoidal resection of pituitary adenomas is rarely indicated because of the efficient medical therapy that is available. Irradiation has no place in treating these adenomas.
- 3. (C) The patient has hypothalamic amenorrhea.** The patient's history is highly suggestive of hypothalamic dysfunction as the cause of her secondary amenorrhea. Women who exercise vigorously or experience high levels of emotional stress may develop inadequate hypothalamic function. The only tests needed to confirm the diagnosis of hypothalamic amenorrhea are serum FSH and LH. In patients with hypothalamic amenorrhea, the levels of FSH and LH are very low. The patient does not have premature ovarian failure because her serum gonadotropin levels were low-normal. In premature ovarian failure, these hormones are abnormally high. The patient does not have PCOD because she did not have withdrawal bleeding after treatment with medroxyprogesterone acetate. Intrauterine synechiae usually develops after postpartum or postabortion curettage, and this patient has never been pregnant. MRI of the pituitary gland is not necessary because serum prolactin levels in patients with hypothalamic amenorrhea are usually top-normal and never elevated.
- 4. (D) A patient with severe postpartum hemorrhage.** Pituitary insufficiency secondary to ischemia and infarction, which appear as late sequelae to obstetric hemorrhage, is known as Sheehan's syndrome. The volume of the anterior pituitary increases during pregnancy by approximately one third, resulting in an upward convexity of the superior surface on radiography. The hypertrophied pituitary gland of pregnant women is very susceptible to a compromised blood supply through the low pressure sinusoidal system that accompanies postpartum hemorrhage. Classically, patients with Sheehan's syndrome present with rapid breast involution and failure to lactate, resume menses, or regrow shaved pubic or axillary hair. Bleeding that is not related to obstetrics does not cause pituitary ischemia and infarction.
- 5. (E) Rokitansky-Küster-Hauser syndrome (vaginal and uterine agenesis).** The fact that this patient has normally developed secondary sex characteristics proves that the hypothalamic-pituitary-ovarian function is normal. Patients with testicular feminization syndrome do not have pubic or axillary hair. In this syndrome, testicles produce testosterone but the target cells in the hair follicles are believed to lack androgen receptors. Patients with an imperforate hymen usually complain of cyclic lower abdominal pain that worsens progressively because of uterine and vaginal distention with accumulated obstructed menstrual flow. The remaining diagnosis is genital tract anomaly, the most common of which is vaginal agenesis. Patients with congenital absence of the vagina usually lack a uterus as well and are likely to seek medical advice for primary amenorrhea at puberty or later, as this patient did. The development of secondary sex characteristics, ovaries, and sex chromosome complement is normal in patients with Rokitansky-Küster-Hauser syndrome.