SEXUALITY

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TOPICS COVERED

- Male Sexuality
  - Age-Associated Changes
  - Physiology, Evaluation and Treatment of Erectile Dysfunction
- Female Sexuality
  - Age-Associated Changes
  - Evaluation and Treatment of Female Sexual Dysfunction

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OBJECTIVES

Know and understand:

- Normal age-related changes in the sexual function of men and women
- Evaluation and treatment of erectile dysfunction in older men
- Evaluation and treatment of sexual dysfunction in older women

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SEXUALITY OF THE OLDER MAN

- Level of sexual activity, interest, and enjoyment in younger years determines sexual behavior with aging
- Decreased sexual activity is associated with:
  - Poor health
  - Social issues
  - Partner availability
  - Decreased libido
  - Erectile dysfunction (ED)
- ED is prevalent, but not part of healthy aging. Frequently caused by age-associated disease or its treatment.

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STAGES OF SEXUAL RESPONSE: AGE-RELATED CHANGES IN MEN

- Excitement: delayed erection; decreased tensing of scrotal sac; loss of testicular elevation
- Plateau: prolonged; decreased pre-ejaculatory secretion
- Orgasm: diminished duration and intensity; decreased quantity and force of seminal emission
- Resolution: rapid detumescence and testicular descent
- Refractory: prolonged period between erections

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ERECTILE DYSFUNCTION

- Inability to achieve or maintain an erection adequate for sexual intercourse
- Most common sexual problem of older men
  - By age 70 yr, 67% of men have ED

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CAUSES OF ED

- Vascular disease is most common cause
- Neurologic disease is second most common cause
- Other causes include:
  - Certain surgical procedures
  - Medications
  - Psychogenic problems
  - Endocrine abnormalities

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VASCULAR DISEASE AND ED

- Risk factors for vascular ED include:
  - Diabetes mellitus
  - Hypertension
  - Hyperlipidemia
  - Smoking
- ED predicts future major atherosclerotic vascular disease (eg, MI, stroke)

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HOW VASCULAR DISEASE CAN AFFECT ERECTILE FUNCTION

- Atherosclerosis:
  - Decreases intracavernosal blood flow and pressure needed to achieve a rigid erection
  - May cause ischemia of trabecular smooth muscle, resulting in fibrosis leading to failure of venous closure mechanisms
- Peyronie disease, arteriovenous fistula may cause venous leakage

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NEUROLOGIC DISEASE AND ED

- Disorders associated with ED are those that:
  - Impair the parasympathetic sacral spinal cord or the peripheral efferent autonomic fibers to the penis
  - Impair penile smooth muscle relaxation
  - Prevent the vasodilation necessary for erection
- Spinal cord injury: level and degree determine extent of erectile function
- Diseases that can cause autonomic dysfunction may result in ED (eg, DM, stroke, Parkinson disease)

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POST-OPERATIVE ED

Surgical procedures that disrupt the autonomic nerve supply to the penis:

- Radical prostatectomy
- Cystoprostatectomy
- Cystectomy
- Proctocolectomy

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MEDICATIONS ASSOCIATED WITH ED

Many are commonly used:

- Those with anticholinergic effects
- Antihypertensives
- Certain OTC medications

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DRUGS WITH ANTICHOLINERGIC EFFECTS AND ED

- Examples:
  - Antidepressants
  - Antipsychotics
  - Antihistamines
- May block parasympathetic-mediated penile artery vasodilation and trabecular smooth muscle relaxation

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ANTIHYPERTENSIVES AND ED

- Almost all are associated with ED
- β-Blockers, clonidine, thiazide diuretics have higher incidence rates
- One proposed mechanism: antihypertensives may lower BP below the critical threshold needed to maintain blood flow for penile erection

OTC MEDICATIONS AND ED

- Cimetidine
  - Acts as an antiandrogen and increases prolactin secretion
  - Associated with loss of libido as well as ED
- Ranitidine can increase prolactin secretion, although less commonly than cimetidine

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PSYCHOGENIC ED

- Prevalence decreases with age
- May occur via increased sympathetic stimuli to sacral spinal cord that inhibit parasympathetic dilator nerves
- Causes include:
  - Relationship conflicts
  - Performance anxiety
  - Childhood sexual abuse
  - Fear of sexually transmitted diseases
  - “Widower’s guilt”

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HORMONES IN ED

- Men with castrate levels of testosterone can attain erections in response to direct penile stimulation
- Overall testosterone appears to play a larger role in libido
- Men with ED and normal testosterone serum concentrations do not benefit from testosterone supplementation, may increase libido and vascular risk without improving erectile function

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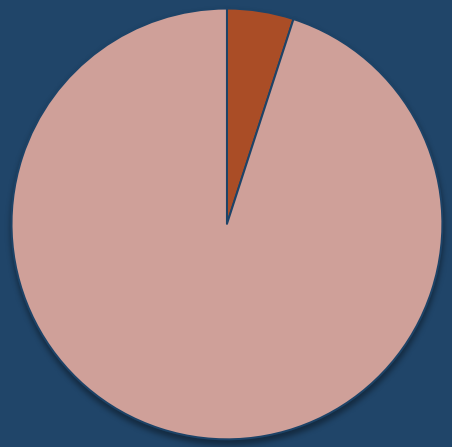
ENDOCRINE ABNORMALITIES

- Hyper- and hypothyroidism, hyperprolactinemia have been associated with ED
- Endocrine evaluation is of limited value with ED but intact libido



Fewer than 5% of ED cases are caused by endocrine abnormalities

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EVALUATION OF ED

- Determine the sexual, medical, and psychosocial history
- Clarify problem: inadequate erections, decrease in libido, or orgasmic failure?
- Determine onset and duration of ED
- Ask about presence or absence of sleep-associated erections
- Ask about associated decline in libido

TIMING OF ED ONSET

Sudden onset

- Psychogenic cause suggested by presence of sleep-associated erections or erections with masturbation or another partner
- Otherwise, ED is probably drug-related

Gradual onset

- With loss of libido, suggestive of hypogonadism
- With intact libido, suggests vascular, neurogenic, or other organic causes

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MEDICAL HISTORY AND ED

- Watch for risk factors
  - Vascular: Diabetes, hypertension, coronary artery disease, peripheral arterial disease, hyperlipidemia, smoking
  - Neurogenic: Diabetes, pelvic or spinal injury, surgery, radiation, Parkinson's disease, multiple sclerosis, alcoholism
- Review medications (include OTC medicines)

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PSYCHOSOCIAL HISTORY AND ED

Ask about:

- Relationship with the sexual partner
- Partner's health and attitude toward sex
- Economic or social stresses
- Living situation
- Alcohol use
- Affective disorders

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PHYSICAL EXAMINATION FOR ED

- Check peripheral pulses
- Look for signs of autonomic neuropathy
- Check bulbocavernosus reflex
- Palpate the penis for Peyronie plaques
- Check for testicular atrophy
- Look for loss of secondary sexual characteristics
- Check for gynecomastia

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LABORATORY EVALUATION FOR ED

- Urinalysis
- Labs targeting relevant comorbid conditions
- Consider serum testosterone in setting of other symptoms of androgen deficiency
- Men at risk of sexually transmitted infections (STIs) should be offered counselling and testing for STIs and HIV
  - USPSTF recommends universal screening for HIV for patients up to 65 and for patients >65 years only if at risk for infection
  - Older adults are less likely to use condoms, have a lack of knowledge about HIV/AIDS risk factors, and may have an increase in number of sexual partners

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DIAGNOSTIC TESTS FOR ED

- Trial of phosphodiesterase inhibitors (eg, sildenafil or vardenafil)
  - Initial dose should be low
- Poor response suggests:
  - Arteriogenic or venogenic cause
  - Inadequate dose of vasoactive agent
- Penile brachial pressure index to assess arteriogenic ED
- Nocturnal penile tumescence testing only used to confirm psychogenic ED

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TREATMENT OF ED

- Multiple effective therapeutic options are available (*see next slide*)
- Treatment should be individualized
- Choice should be based on:
  - Cause
  - Personal preference
  - Partner issues
  - Cost and practicality

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ED TREATMENT OPTIONS

- Phosphodiesterase-5 (PDE-5) inhibitor
- Vacuum tumescence device (external)
- Vasoactive drug (injected)
- Medicated Urethral System for Erection (MUSE) (intraurethral)
- Testosterone supplementation (injected or topical)
- Surgery
- For psychogenic ED, referral to mental health professional specializing in treatment of sexual disorders

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ORAL PDE-5 INHIBITORS

- Potentiate the penile response to sexual stimulation
- Improve the rigidity and duration of erection
- Effective for neurogenic conditions
- Taken 1 hr prior to sexual activity; last 4–36 hr
- No effect until sexual stimulation occurs

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ORAL PDE-5 INHIBITORS

	Sildenafil	Vardenafil	Tadalafil	Avanafil
Onset of action	60 min	45 min	45–60 min	30 min
Duration of action	4 hours	4 hours	24–36 hours	5 hours

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CAUTIONS WITH PDE-5 INHIBITORS

- Potential side effects:
  - Rhinitis
  - Headache
  - Flushing
  - Dyspepsia
  - Transient visual disturbance (sildenafil)
- Contraindicated for concomitant use with nitrate drugs, since the combination can produce profound and fatal hypotension
- Also contraindicated with α-blocker use
- Absorption is attenuated when sildenafil is ingested with a fatty meal, patients need to be educated about this issue

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VACUUM TUMESCENCE DEVICES

- External device to create negative pressure
- Constriction ring placed at base of penis
- Effective for neurogenic, venogenic, and psychogenic dysfunction
- Requires manual dexterity
- Can cause local pain, swelling, bruising, painful ejaculation
- Must remove constriction ring after 30 min

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INTRACAVERNOUS INJECTION OF VASOACTIVE DRUGS

- Should be reserved for patients in whom oral therapy with a phosphodiesterase inhibitor is not effective

- Alprostadil
  - Only agent that is FDA-approved
  - Erections last 40 to 60 minutes

- Phentolamine: used in combination with alprostadil or papaverine, or both

- Potential adverse events: bruising, hematoma, local pain, fibrosis, and priapism

MUSE

- Medicated Urethral System for Erection
- Small pellet of alprostadil placed in urethra
- Produces erection in 10 to 15 minutes
- Possible side effects:
  - Penile pain
  - Urethral burning
  - Throbbing sensation in perineum

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TESTOSTERONE SUPPLEMENTATION

- Increases libido and may improve ED in men with true hypogonadism, little value in eugonadal men
- Available as IM injection, buccal or transdermal patch, gel
- Possible side effects:
  - Polycythemia
  - Increased prostate size
  - Gynecomastia
  - Fluid retention

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CAUTIONS WITH TESTOSTERONE

- Before starting therapy, perform digital rectal exam to assess prostate size and measure baseline prostate-specific antigen (PSA)
- Check PSA and hematocrit every 3 months during first year, then every 12 months

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SURGICAL TREATMENTS FOR ED

- Implanted penile prosthesis
  - For neurogenic, arteriogenic, and venogenic erectile failure
  - May result in mechanical failure, infection, device erosion, fibrosis
- Penile revascularization surgery has had limited success

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FEMALE SEXUALITY AGE-ASSOCIATED CHANGES

- Factors involved in sexual response in older women:
  - Menopausal changes
  - Cultural expectations
  - Relationship problems
  - Previous sexual experiences
  - Chronic illnesses
  - Depression
- Although the frequency of intercourse decreases with aging, sexuality remains important for older women

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STAGES OF SEXUAL RESPONSE: AGE-RELATED CHANGES IN WOMEN

- Excitement: clitoris may require longer direct stimulation, decreased genital engorgement, reduced vaginal lubrication
- Plateau: decreased expansion and vasocongestion of vagina
- Orgasm: fewer and weaker contractions, occasionally spastic and painful uterine contractions
- Resolution: vasocongestion lost rapidly

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AGE-ASSOCIATED SEXUAL CHANGES IN WOMEN: MENOPAUSE

Menopause is associated with decreased sexual function

- Decreased sexual interest
- Decreased responsiveness
- Decreased coital frequency
- Increased urogenital symptoms, often not discussed with the physician

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DYSPAREUNIA IN OLDER WOMEN

- Due to organic or psychological factors, or a combination of the two
- Most common organic cause: atrophic vaginitis due to estrogen deficiency
- Other causes:
  - Inadequate lubrication
  - Localized vaginitis
  - Cystitis
  - Bartholin's cyst
  - Retroverted uterus
  - Marked uterine prolapse
  - Pelvic tumors
  - Excessive penile thrusting
  - Vaginismus

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LIBIDO IN WOMEN

- Thought to depend on testosterone, rather than estrogen
- Estrogen replacement:
  - Can improve vaginal lubrication and sense of well-being
  - Has little effect on libido
- Ovaries and adrenals are the main sources of androgens in women

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HYPOACTIVE SEXUAL DESIRE DISORDER

- Defined as decreased libido that causes personal distress
- Not due to a psychiatric or medical illness or a substance (eg, medication)
- Thought to be due to low testosterone
- Flibanserin has been FDA-approved to treat in premenopausal women
  - Use of alcohol is contraindicated with use, due to increased adverse effects of hypotension and syncope

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MEDICAL ILLNESS AND THE OLDER WOMAN'S SEXUALITY

- Studies on the effect of chronic illnesses and medications on women's sexuality are limited
- Women with diabetes mellitus report decreased libido and lubrication, and longer time to reach orgasm
- Rheumatic diseases decrease functional ability

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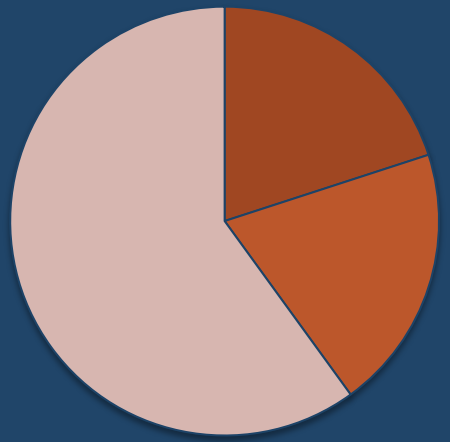
BREAST CANCER AND SEXUALITY

Possible causes of sexual dysfunction after mastectomy:

- Disruption of body image
- Family or marital problems
- Spousal reaction
- Adjuvant therapy
- Psychological impact of cancer diagnosis



20% to 40% of women experience sexual dysfunction after mastectomy

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MEDICATIONS THAT IMPAIR OLDER WOMEN'S SEXUAL FUNCTION

- Antidepressants (especially SSRIs)
- Antihypertensives
- Antipsychotics
- Antiestrogens
- Antiandrogens
- Anticholinergic drugs
- Narcotics
- Alcohol & illicit/recreational drugs

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PSYCHOSOCIAL FACTORS IN THE OLDER WOMAN'S SEXUALITY

- Important role in sexual dysfunction
- Many women marry older men, outlive their spouses, and spend later years alone
- ED common among older men
- Lack of privacy (eg, when couple lives with children or in a nursing home)

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EVALUATING FEMALE SEXUAL DYSFUNCTION (1 of 2)

- Provide comfortable atmosphere
- Frame careful questions
- Ask about any previous negative experience (eg, rape, child abuse, domestic violence)
- Ask about dyspareunia
- Ask about nature of current relationship and sexual communication with partner
- Check for lack of vaginal lubrication
- Review medications, including OTC

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EVALUATING FEMALE SEXUAL DYSFUNCTION (2 of 2)

- Perform pelvic examination, especially with dyspareunia
- Older women with risk factors for sexually transmitted infections (STIs), should be offered counselling and testing for HIV and other STIs
  - Postmenopausal atrophic changes in the vaginal mucosa may lead to microabrasions during intercourse
  - Older adults are less likely to use condoms, have a lack of knowledge about HIV/AIDS risk factors, and may have an increase in number of sexual partners
  - USPSTF recommends universal screening for HIV for patients up to 65 and for patients >65 years only if at risk for infection

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TREATING DECREASED DESIRE IN OLDER WOMEN

Cause	Therapy
Low testosterone after menopause	Testosterone (off-label) is not recommended by the Endocrine Society
Chronic illness	Treat underlying disease
Depression	Antidepressant, counseling
Relationship problems	Marital therapy
Medications	Review; adjust drug choices, dosing

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TESTOSTERONE FOR DECREASED LIBIDO IN WOMEN

- Decreased libido without identifiable cause may respond to testosterone
- Several placebo-controlled, randomized trials have shown that low-dose testosterone patch (300 mcg/d dosed twice weekly or daily, used off-label) improves sexual desire in women with natural or surgical menopause
- Androgenic side effects are uncommon
- No androgen preparation is FDA-approved in the US
- More data on long-term safety are needed

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SILDENAFIL CITRATE FOR WOMEN

- Studies have yielded conflicting results
- Not FDA-approved for women

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DECREASED LUBRICATION: TREATMENTS BY CAUSE

Postmenopausal atrophic vaginitis

- Regular intercourse
- Longer foreplay
- Low-dose topical estrogens
  - Topical cream, can be difficult to administer
  - The estradiol ring and tablet are better tolerated due to ease of use and comfort
- Water-soluble lubricants
- Oral selective estrogen-receptor modulator (SERM) ospemifene, long-term safety data are lacking

Side effects of drugs: Review medications, including OTC medicines, and adjust drug choices, dosing

DELAYED OR ABSENT ORGASM: TREATMENTS BY CAUSE

Neurologic disorders; diabetes

- Treat underlying illness

Psychological:

- Cognitive-behavioral therapy
- Masturbation
- Kegel exercises

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DYSPAREUNIA: TREATMENTS BY CAUSE

- Organic cause: Treat underlying physical condition
- Vaginal dryness, atrophy:
  - Regular intercourse
  - Longer foreplay
  - Lubricants
  - Low-dose topical estrogens
  - Oral estrogen-receptor modulator
- Vaginismus (involuntary vaginal contractions):
  - Psychotherapy
  - Cognitive-Behavioral Therapy

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SUMMARY

- Sexuality is associated with age-related changes in both men and women
- Taking a sexual health history is the most important step of the evaluation. Patients express preference for the clinician to initiate these discussions.
- Medications, including OTC, can contribute to sexual dysfunction and must be reviewed
- Older adults at risk for STIs should be counselled and tested
- Treatment options should be chosen using a patient-centered approach and shared-decision making

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CASE 1 (1 of 4)

- A 66-year-old woman has concerns about resuming sexual activity.
  - She was sexually active until 5 years ago, when her husband died.
  - She has labial and vaginal itching, and occasional burning on urination.

- History
  - COPD with emphysema (quit smoking 10 years ago)
    - Chest radiography (6 months ago): hyperinflation and bullae consistent with emphysema
  - Menopause began 19 years ago.
    - She took estrogen and progesterone, but stopped because of concern about health risks.

CASE 1 (2 of 4)

- Medications: fluticasone, ipratropium, formoterol; prednisone during COPD exacerbations

- Physical examination
  - Occasional wheezes on auscultation that clear with coughing
  - Labial excoriation from scratching
  - Friable vaginal mucosa
  - A juvenile speculum could be inserted into the introitus, but not an adult speculum.

CASE 1 (3 of 4)

Which one of the following is the most likely to interfere with resuming sexual activity?

A. Depression

B. COPD

C. Medication-related issues

D. Vaginal atrophy

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CASE 1 (4 of 4)

Which one of the following is the most likely to interfere with resuming sexual activity?

A. Depression

B. COPD

C. Medication-related issues

D. Vaginal atrophy

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CASE 2 (1 of 3)

- A 69-year-old man has difficulty initiating urination and painful erections associated with penile curvature.
  - Over the past 10 years his libido has diminished, he has had increasing fatigue, and he has lost muscle mass.
- History: hypertension (began treatment recently)
- Laboratory findings suggest secondary hypogonadism.
  - Total testosterone 235 ng/dL and 215 ng/dL on 2 separate mornings
  - Follicle-stimulating hormone 15 IU/L
  - Luteinizing hormone 7 IU/L

CASE 2 (2 of 3)

Which one of the following is most consistent with the diagnosis of secondary hypogonadism?

A. Penile curvature and pain

B. Fatigue, decreased libido, and loss of muscle mass

C. Hypertension

D. Prostatitis

CASE 2 (3 of 3)

Which one of the following is most consistent with the diagnosis of secondary hypogonadism?

A. Penile curvature and pain

B. Fatigue, decreased libido, and loss of muscle mass

C. Hypertension

D. Prostatitis

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