Vaginal bleeding in premenopausal women is a common patient presentation in emergency departments. When assessing postmenopausal women, an emergency physician’s typical patterns of thought regarding gynecologic conditions must be expanded. Postmenopausal bleeding is most commonly defined as vaginal bleeding after a period of no menses for at least 1 year. The physiology of normal menses is contingent on ovulatory cycles, which are marked by endometrial proliferation and secretion and, then, in the absence of pregnancy, a predictable menstrual period after estrogen and progesterone withdrawal. The transition to menopause is often marked by sporadic anovulatory cycles, during which unopposed estrogen stimulates the endometrium and the absence of progesterone results in unpredictable endometrial sloughing and vaginal bleeding. Any bleeding after 1 or more years of no bleeding is
considered abnormal, so further evaluation is required. The more common malignant and benign causes of vaginal bleeding in postmenopausal patients and the evaluation of these patients are reviewed in this article.

**Malignant Causes of Vaginal Bleeding**

**Endometrial cancer**

Endometrial cancer is the most common gynecologic malignancy, with a lifetime incidence of 2.6% among women in the United States. Common risk factors include older age, white race, obesity, early menarche, late menopause, nulliparity, infertility, polycystic ovarian syndrome, diabetes, hypertension, hypothyroidism, estrogen therapy without progesterone, tamoxifen use, and hereditary nonpolyposis colorectal cancer (HNPCC). Cigarette smoking and extensive oral contraceptive therapy are protective.

Ninety percent of cases of endometrial cancer are diagnosed in postmenopausal women with vaginal discharge or bleeding. Therefore, this diagnosis should always be considered in this scenario in emergency departments. Not all postmenopausal bleeding indicates cancer, but the likelihood of cancer increases with age.

Endometrial cancer is classified as type I or type II based on histology. Type I (endometrioid) is most common, associated with estrogen excess, and carries a better prognosis than type II. Type II endometrial cancer is responsible for approximately 10% of endometrial cancers and includes serous cancer, clear cell carcinoma, and carcinosarcoma.

The precursor lesion of type I endometrial cancer, endometrial hyperplasia, can also cause vaginal bleeding and is graded as follows:

- Simple hyperplasia—1% risk of future cancer
- Complex hyperplasia—3% risk of future cancer
- Simple hyperplasia with cellular atypia—8% risk of future cancer
- Complex hyperplasia with atypia—29% risk of future cancer

Therapy for most women with endometrial cancer includes hysterectomy, bilateral salpingo-oophorectomy, retroperitoneal lymph node assessment, and pelvic washings. Radiation therapy is controversial for patients with stage I disease, because it does not improve the survival rate, but it is advocated for women with metastatic disease, in combination with chemotherapy. Five-year survival rates for endometrial cancer vary from 91% for cancer limited to the endometrium to 20% for distant metastatic disease. Acceptable therapy for patients with hyperplasia without atypia is progesterone therapy. This treatment can also be offered to women who have atypical hyperplasia or grade 1 endometrial cancer and who desire future fertility, as long as close follow-up (evaluation every 3 months) is ensured.

**Ovarian cancer**

Ovarian cancer has a lifetime incidence of 1.4% for women in the United States and is the leading cause of gynecologic cancer deaths. Risk factors for ovarian cancer include family history, hereditary breast and ovarian cancer syndrome (BRCA gene mutation), HNPCC, older age (although it can be diagnosed in women of any age), endometriosis, early menarche, late menopause, older age at childbirth, low parity, and a high-fat diet. Multiparity, breastfeeding for greater than or equal to 18 months, oral contraceptive use, and early menopause are protective.

The presentation can include vaginal bleeding, but, more commonly, a woman presents with nonspecific symptoms, such as abdominal and pelvic pain, bloating, fullness, dysuria, and early satiety. Most ovarian cancers are epithelial cell in origin and affect older women, whereas the less common stromal cell tumors (5% of
cancers) and germ cell tumors (5% of cancers) often affect children and premenopausal women. Prognosis depends on both histology and stage, and standard treatment involves total abdominal hysterectomy, bilateral salpingo-oophorectomy, para-aortic and pelvic lymph node removal, and omentectomy followed by chemotherapy. Survival at 5 years ranges from less than 10% with distant metastatic disease to 99% for cancer limited to one ovary with low malignant potential.

**Cervical cancer**

Cervical cancer is the third most common gynecologic cancer in the United States. Risk factors include human papillomavirus exposure, early coitarche, smoking, sexually transmitted diseases, immunosuppression, and multiple sexual partners.

The presentation can include postcoital bleeding and vaginal discharge or spotting and the diagnosis can be made via colposcopy and cervical biopsy. Most commonly found at biopsy is squamous cell carcinoma (80%), followed by adenocarcinoma (15%). Unlike endometrial and ovarian cancer, cervical cancer is staged clinically, not surgically. Treatment depends on the stage but often combines surgical therapy with radiation and cisplatin-based chemotherapy. The presence or absence of lymph node metastasis is the most important predictor of survival in early stage cancers; thus, simple hysterectomy alone is appropriate for the earliest microinvasive carcinomas (stage 1a1 [ie, only microscopically visible, 3 mm or less in stromal depth, and 7 mm or less in extension]).

**Vaginal cancer**

Vaginal cancers are most often metastatic cancers from primary sources, such as the cervix, endometrium, and ovaries. Primary vaginal cancer occurs rarely, accounting for 1% to 2% of gynecologic malignancies, and is associated with risk factors of older age, persistent human papillomavirus infection, vaginal trauma (such as childbirth or hysterectomy), multiple sexual partners, cervical and other gynecologic malignancies, late menarche, early menopause, and smoking.

The presentation is most commonly painless bleeding, with more advanced disease resulting in pelvic pain and possible fistulae. Staging is largely clinical, except for the most advanced disease, and therapy can be either primarily surgical or radiation based and contingent on disease stage, patient age and comorbidities, and the cancer’s proximity to other pelvic organs.

**Vulvar cancer**

Vulvar cancer most typically presents with vulvar pruritus and pain, not vaginal bleeding, and thus is not addressed further.

**Benign Causes of Vaginal Bleeding**

The statement, “all post-menopausal vaginal bleeding is cancer until proved otherwise,” reminds clinicians that a high index of suspicion for cancer is necessary. Most instances of postmenopausal bleeding, however, have benign causes and include but are not limited to the following:

- Atrophic endometrium
- Cervicitis
- Cervical polyps
- Endometrial polyps
- HRT
- Endometriosis (perimenopausal women)
- Leiomyomas (perimenopausal women)
Anovulation or oligo-ovulation (perimenopausal women)
- Vaginal atrophy and friability

**Evaluation**

**Patient history**
The history should include a risk factor assessment for each type of cancer; for example, an obese, diabetic, nulliparous woman with postmenopausal bleeding has multiple red flags for endometrial cancer. Nonspecific persistent complaints of abdominal pain, bloating, early satiety, and gastrointestinal disturbances merit evaluation for ovarian cancer. Special consideration should be paid to family history, because patients may be at increased risk for BRCA gene mutations or HNPCC syndrome. Perimenopausal women in particular can present a confusing picture, because occasional anovulatory cycles and irregular bleeding can occur for several years before menopause. A patient’s social history needs to be addressed as well; a new sexual partner and postcoital bleeding may signify cervicitis from a sexually transmitted disease.

**Physical examination**
As with any emergency department patient, it is essential to first evaluate the ABCs (airway, breathing and circulation). Special attention should be directed toward hypotension and tachycardia. The general physical examination might reveal indications of advanced cancer, such as unexplained weight loss, decreased breath sounds from a malignant pleural effusion, ascites, or adenopathy.

The gynecologic examination should include a speculum examination to evaluate the cervix for grossly visible lesions and to inspect the vaginal walls for growths suggestive of vaginal cancer (often located in the upper third of the vagina at the posterior wall). The urethra should also be examined to confirm that the bleeding is gynecologic in origin. A bimanual examination performed after patients have voided followed by a rectovaginal examination may improve detection of ovarian or uterine masses. Suggestive findings include fixed masses, ovaries that are palpable 3 to 5 years after menopause, bilateral masses, and nodularity in the cul-de-sac. Unfortunately, the accuracy of the pelvic examination in detecting a mass is limited, particularly in obese women.

**Laboratory testing**
Laboratory testing should include a complete blood count, a comprehensive metabolic panel, and pregnancy testing in perimenopausal or recently menopausal women. Consideration should be given to testing for sexually transmitted diseases in patients at risk for them or with cervicitis. On follow-up from an emergency department visit, patients should be evaluated with a Papanicolaou smear, if deemed appropriate, by a primary care provider. When ovarian cancer is considered a potential cause of vaginal bleeding, a cancer antigen (CA) 125 level should be drawn. The test is most useful in postmenopausal women, because levels can be elevated with common premenopausal conditions, such as uterine leiomyomata, endometriosis, and pelvic inflammatory disease. Higher levels correlate with more advanced disease, and half of women with early epithelial ovarian cancer have a normal CA 125 level.

**Imaging**
Transvaginal ultrasound is the imaging modality of choice for pelvic structures. Accurate assessment of the endometrium is best obtained immediately after menses in premenopausal patients, when endometrial sloughing has just occurred. In postmenopausal patients on no hormone therapy, an ultrasound scan can be obtained at any time; however, to best evaluate the endometrium, women receiving sequential (but not
continuous) HRT should be evaluated immediately after the bleeding from proges-
terone withdrawal ceases.\textsuperscript{1} Stable, reliable patients can be referred to a primary
care provider or gynecologist for this ultrasound assessment if the technology is not
available in an emergency department.

Endometrial thickness is best measured in the long-axis transvaginal view of the
uterus. In postmenopausal patients with atrophic endometrium, it appears as a thin
pencil line.\textsuperscript{1,15} Endometrial thickness of 4 mm or less measured anterior to posterior
in this view is considered normal and highly predictive that no endometrial cancer is
present (negative predictive values, 99\%--100\%).\textsuperscript{17} Thus, endometrial sampling is
unnecessary and patients can be reassured that their bleeding is not cancerous.

Ovarian evaluation by transvaginal ultrasound supplemented by transabdominal
ultrasound for extending masses is the imaging modality of choice for a suspected
ovarian mass. Worrisome features on ultrasound include complex masses with cystic
and solid components, septated cysts, thick cyst walls, and free fluid in the pelvis.\textsuperscript{7}
Simple cysts up to 10 cm in diameter have a low chance of malignancy and thus
can be followed without intervention in both premenopausal and postmenopausal
women.\textsuperscript{16} Contrast-enhanced MRI can be used to further evaluate an ovarian mass,
but in postmenopausal patients all masses not classified as simple cysts require
surgical evaluation.\textsuperscript{16}

\textbf{Endometrial biopsy}

Endometrial sampling by a patient’s primary care provider or gynecologist is indicated
in postmenopausal women with vaginal bleeding and an endometrial thickness
greater than 4 mm on ultrasound. Also, women in whom the endometrial stripe cannot
be visualized adequately on ultrasound due to obesity, previous uterine surgery, leiomyomata,
or axial uterine orientation require an alternate method of evaluation.\textsuperscript{15,17}
According to the American College of Obstetricians and Gynecologists, it is accept-
able to initiate evaluation of postmenopausal vaginal bleeding with endometrial biopsy
without ultrasound.\textsuperscript{15}

Endometrial sampling is done by dilation and curettage, vacuum aspirator, or
suction piston biopsy (ie, endometrial Pipelle, Cooper Surgical, Inc, Trumball, CT,
USA). The shortcomings of this procedure include limited ability to sample the uterine
cavity, thus introducing the potential to miss focal lesions, such as polyps, endometrial
hyperplasia, and cancer.\textsuperscript{1}

Postmenopausal women with thickened endometrium on ultrasound with no vaginal
bleeding do not require endometrial sampling. This finding is common in this demo-
graphic group (10\%--17\% of these women).\textsuperscript{15,17}

\textbf{MANAGEMENT OF MENOPAUSAL SYMPTOMS}

Menopause is infrequently a focus of emergency physicians’ training. Emergency
physicians are called, however, to diagnose and treat menopausal women on HRT
on a regular basis. Menopause is defined as the cessation of menstrual periods for
1 year and occurs at the average age of 51 years.\textsuperscript{18} Preceding menopause is often
a perimenopausal transition marked by hormonal fluctuations and irregular menses.
Although menopause is a normal physiologic process, not a pathologic process, asso-
ciated symptoms, such as hot flashes, vaginal dryness, poor sleep, and painful inter-
course, are irritating to many women.

The discomfort from hot flashes, characterized by intense flushing and sweating
lasting for several minutes and potentially occurring multiple times a day, affects 75\%
of women.\textsuperscript{19} Although the exact cause of hot flashes is not known, it is hypothesized
that estrogen withdrawal stimulates the release of norepinephrine and serotonin, which
in turn alter the body’s thermoregulatory mechanism in the hypothalamus, predisposing a woman to more intense fluctuations of body temperature. As most women move away from the years immediately surrounding menopause, estrogen levels stabilize and hot flashes abate.

The roles of HRT, including compounded bioidentical hormones, and alternative nonhormonal and herbal remedies for the treatment of menopausal symptoms are discussed.

**Hormone Replacement Therapy**

The Women’s Health Initiative (WHI) study had perimenopausal and menopausal women flocking to physicians for advice on HRT. Beginning in 1993, this study encompassed randomized controlled trials at 40 clinical sites that assessed combined estrogen and progesterone HRT (EPT) in approximately 16,000 menopausal women between the ages of 50 and 79 (mean age, 63) who had an intact uterus. The hormone used was Prempro, a combination tablet of 0.625 mg of conjugated equine estrogen (CEE) and 2.5 mg of medroxyprogesterone acetate. Primary endpoints of coronary heart disease (CHD), invasive breast cancer, stroke, venous thromboembolism (VTE), endometrial cancer, colorectal cancer, and hip fracture were assessed. The combined estrogen and progesterone arm of the study was terminated prematurely after 5 years of follow-up secondary to a documented increased risk of breast cancer, CHD, stroke, and VTE in the group receiving EPT. The risks of colorectal cancer and hip fracture were decreased in this group.

The estrogen-only arm of the WHI enrolled approximately 11,000 women with a history of hysterectomy, who were randomized to receive either placebo or 0.625 mg of CEE (Premarin). Endpoints were the same as for the EPT arm. This study was also terminated prematurely after revealing an increased risk of stroke and VTE in the CEE group. No increased risk of CHD or breast cancer was noted, and a decrease in hip fractures was again seen.

Endpoints from both arms of the WHI study give physicians pause when considering prescribing HRT for menopausal symptoms. Recent guidelines, however, released by the North American Menopause Society (NAMS) suggest that individual risk may be less than suggested by the WHI study when considering a woman’s age and the timing of HRT. Also, limitations to the WHI study include older mean age of 63 and the use of only oral estrogen or EPT.

The NAMS 2012 guidelines address the endpoints studied by the WHI as well as several other quality-of-life indicators. The findings and recommendations are summarized here and in Table 1:

<table>
<thead>
<tr>
<th>Medical Condition</th>
<th>Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHD</td>
<td>Decreased in younger women (&lt;59 y)</td>
</tr>
<tr>
<td></td>
<td>Increased when &gt;10 years since menopause</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>Increased when EPT used 3–5 y</td>
</tr>
<tr>
<td></td>
<td>Neutral with estrogen alone</td>
</tr>
<tr>
<td>Stroke</td>
<td>Increased in women above 59 y of age</td>
</tr>
<tr>
<td>VTE</td>
<td>Increased during therapy for all women</td>
</tr>
<tr>
<td>Endometrial cancer</td>
<td>Increased with estrogen alone if patient has a uterus</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>Decreased with EPT</td>
</tr>
<tr>
<td>Bone fracture</td>
<td>Decreased with estrogen and EPT</td>
</tr>
</tbody>
</table>
• CHD
  o Evidence supports the use of HRT, especially estrogen alone, as appropriate in symptomatic younger women when initiated near the time of menopause; HRT reduces CHD risk in these women.
  o CHD risk increases in women who initiate HRT more than 10 years after menopause.
  o HRT is not indicated for the prevention or treatment of CHD in any woman.

• Breast cancer
  o Breast cancer diagnosis is increased when EPT is used for more than 3 to 5 years but not with the use of estrogen alone.
  o A later start of EPT (more remote from the time of menopause) is associated with a lower but still increased risk of breast cancer.

• Stroke
  o Ischemic stroke risk is increased with either estrogen alone or EPT; however, this risk does not translate to women between the ages of 50 and 59 at the initiation of HRT.

• VTE
  o VTE risk is approximately doubled with either estrogen alone or EPT; however, this risk persists only for the duration of therapy.

• Endometrial cancer
  o Unopposed estrogen (without progesterone) in women with a uterus increases endometrial cancer risk; risk is increased with increasing duration of therapy.
  o EPT is recommended instead of estrogen alone for menopausal symptoms in women with a uterus.

• Colorectal cancer
  o EPT decreases the risk of colorectal cancer.

• Fracture
  o HRT decreases all fracture risk but is not approved for the treatment of osteoporosis.
  o Prevention of osteoporosis is an indicated use for HRT, and HRT is recommended in particular patients with premature menopause for bone loss prevention.

The role of progesterone
The NAMS guidelines recommend that all women with a uterus who are taking systemic estrogen therapy should take progesterone therapy as well to decrease the risk of endometrial cancer.\(^{24}\) This includes oral and transdermal estrogen use but not local intermittent vaginal estrogen therapy.\(^{24}\) Women without a uterus do not require progesterone therapy.

Although not recommended as primary therapy by the NAMS, progesterone therapy alone has shown benefit for relief of menopausal symptoms in several studies. Both oral megestrol acetate and oral and intramuscular medroxyprogesterone acetate have been beneficial in the reduction of hot flashes compared with placebo.\(^{19}\) The side effects of progesterone therapy alone include vaginal bleeding, headache, breast tenderness, nausea, and VTE.

Available formulations for HRT
Current estrogen and EPT options include oral pills; transdermal patches, gels, and creams; vaginal creams, rings, and tablets; and intrauterine delivery systems.\(^{22,24}\) Systemic HRT should involve reassessment yearly for possible tapering/discontinuation of medication as menopausal symptoms abate.
Special considerations

- Premature menopause
  - Premature menopause is diagnosed when it occurs at or before age 40
  - Risks of HRT are less in these young women who are ≤ age 50.
  - Guidelines support HRT in these women until at least the average age of menopause.24
- Breast cancer survivors
  - Current standard of care is to avoid HRT in these patients.19,24

Bioidentical hormones

Bioidentical hormones are plant-derived hormones that are created by a compounding pharmacy under a physician’s direction. They come in various forms, including oral and injectable agents, are not regulated by the US Food and Drug Administration, and have not been subjected to rigorous testing. In general, compounded bioidentical hormones are not recommended for the treatment of menopausal symptoms.24,25

Nonhormonal Therapies

Nonhormonal therapies for menopausal symptoms include antidepressants and gabapentin, herbal remedies, and lifestyle modifications. A potential mechanism of action for selective serotonin reuptake inhibitors and norepinephrine serotonin reuptake inhibitors in the treatment of hot flashes is an alteration in the set point of the hypothalamic thermoregulatory zone.19

Benefit has been shown from therapy with venlafaxine (Effexor), desvenlafaxine (Pristiq), paroxetine (Paxil), fluoxetine (Prozac), and citalopram (Celexa).19,20,22 None of these medications, however, carries an indication for the treatment of menopausal symptoms. In general, their benefits (lessening hot flashes by approximately 1 per day) are more modest than those of HRT (lessening hot flashes by 2 or 3 a day).20 Typical side effects to these medications include drowsiness, nausea, and headache. In addition, there is some concern that certain antidepressants (paroxetine and fluoxetine) can decrease the active metabolite of tamoxifen, endoxifen, which is used in the treatment and prevention of breast cancer. Thus, in patients receiving tamoxifen, menopausal therapy with venlafaxine or citalopram is preferred.19

Gabapentin (Neurontin) carries an indication for the treatment of seizures and neuropathic pain. Evidence supports its use for the treatment of hot flashes at a dose of 900 mg daily, with typical side effects of dizziness, dry mouth, and fatigue.19,20,22 A few studies also show benefit with the use of pregabalin (Lyrica).

Herbal Remedies

Phytoestrogens are plant-derived molecules with estrogenic activity and include products such as isoflavones, lignins, and coumestans.26 Phytoestrogens are botanic supplements and thus do not undergo the same standardization and testing as do classic pharmaceuticals. Commonly tried remedies for menopausal symptoms are reviewed.

- Soy is an isoflavone with estrogen and antiestrogen properties, found in high concentrations in Asian diets.
  - Some evidence exists for the reduction of hot flashes with soy supplementation, but reports are conflicting.19,20,26
  - Soy is not recommended for women with a contraindication to estrogen.26
- Black cohosh, derived from the plant Cimicifuga racemosa, has been studied as a remedy for hot flashes since the 1980s.
More recent trials do not support its effectiveness over placebo. Flaxseed contains high concentrations of phytoestrogens and may have some benefit in the treatment of hot flashes. St. John’s Wort has shown benefit in the treatment of depression.

Bioidentical hormones and herbal remedies may carry the same risks as traditional HRT (eg, increased risk of deep vein thrombosis), so emergency physicians should inquire about their use. Rarely should emergency physicians start a patient on HRT or other medication for menopausal symptoms. Instead, they can assure patients that various hormonal and nonhormonal therapies are available for symptom relief and prompt patients to follow-up with a primary care provider or gynecologist.

PELVIC ORGAN PROLAPSE
Definition and Epidemiology

POP refers to the descent of one or more pelvic structures into the vagina. The type of POP is based on anatomic location:

- Anterior (bladder or urethral involvement)
- Posterior (rectal involvement)
- Apical (uterine cervix involvement)

POP is a common problem, but it is often unrecognized by practitioners because patients do not volunteer information and practitioners do not ask the proper questions. Despite possible underdiagnosis, millions of women in the United States are probably affected by this problem, with a predicted 50% increase in prevalence by 2050. POP can negatively affect patients’ quality of life and subsequently contribute to poor psychosocial functioning, leading to anxiety and depression. Body image studies reveal that POP contributes to:

- Loss of feelings of femininity
- Loss of feelings of general attractiveness
- Changes in or avoidance of intimacy practices
- Activity modification

Etiology

POP occurs because of weakening of the pelvic floor musculature, which can happen in response to the following:

- Vaginal childbirth: increasing parity increases risk (cesarean section is associated with POP as well)
- Increases in intra-abdominal pressure
  - Obesity
  - Straining with chronic constipation
  - Chronic cough (chronic obstructive pulmonary disease)
- Aging/menopause
- Genetic predisposition
- Connective tissue abnormalities

Pathophysiology

POP occurs with the loss of pelvic floor striated muscle support and of connective attachments of the vaginal wall to striated muscles and structures of the pelvis.
The levator ani consists of striated muscle in 3 regions covered by connective tissue that encompasses the superior and inferior fascia of each muscle:

- Iliococcygeal portion—a flat horizontal shelf from one pelvic sidewall to the other
- Pubococcygeus muscle—extends from each pubic bone to the coccyx; attaches to walls of the pelvic organs that traverse it as well as the perineal body
  - Important for suspending the vaginal wall in the pelvis
- Puborectalis—sling around and behind the rectum

In a nonprolapsed state, the muscles have a resting contractile tone that elevates the pelvic floor and prevents prolapse of the pelvic organs by compressing the vagina, urethra, and rectum toward the pubic bone and narrowing the genital hiatus. A recent small study introduced a novel parameter to evaluate POP, which showed that decreased levator ani subtended volume measured with 3-D MRI reconstruction images positively correlated with advancing POP stages defined by the POP questionnaire (POP-Q).

**Evaluation**

**History**
A main consideration with POP is that if women are not symptomatic, treatment may not be necessary. Often, a practitioner visualizes some degree of prolapse on a pelvic examination, but the patient is asymptomatic. The key piece of history to gather is if a patient feels a bulge in the vagina. If so, other important information should be gathered relating to secondary symptoms—pressure in the vagina, difficulty voiding or stooling, or reports of having to use fingers in the vagina or on the perineum to assist with voiding or stooling.

**Physical examination**
When examining a patient who reports prolapse, look for a bulge at the vaginal introitus during the Valsalva maneuver. Sometimes it is necessary to have the patient stand and perform the Valsalva maneuver if she describes a bulge that is not visualized in the supine position. If a bulge is present, proceed to systematic evaluation with a speculum:

- Use both blades to examine the cervix and assess for apical prolapse.
- Use the fixed blade only to look at the anterior and posterior vagina individually.
- With examination of each segment, ask the patient to perform a Valsalva maneuver.

**Staging**
Two systems are commonly used to stage POP:

- **Baden-Walker system**
  - Grade 0: normal position for each respective site
  - Grade 1: descent halfway to the hymen
  - Grade 2: descent to the hymen
  - Grade 3: descent halfway past the hymen
  - Grade 4: maximum possible descent for each site

- **POP-Q**
  - Stage 0: no prolapse—anterior and posterior points are all –3 cm and cervix and posterior fornix is between total vaginal length and –2 cm
  - Stage I: the criteria for stage 0 are not met, and the total distal prolapse is more than 1 cm above the level of the hymen
Stage II: the most distal prolapse is between 1 cm above and 1 cm below the hymen

Stage III: the most distal prolapse is more than 1 cm below the hymen but no further than 2 cm less than total vaginal length

Stage IV: represents complete procidentia or vault eversion; the most distal prolapse protrudes to at least 2 cm within the total vaginal length

**Treatment Options**

**Nonsurgical**

The first, and cheapest, nonsurgical option is pelvic floor muscle strengthening with Kegel exercises. They are easy to teach and to perform. A practitioner can determine if a patient is isolating the correct muscles either by digital examination or with perineometry. Biofeedback also can be used to teach patients how to isolate the correct muscles. In addition, Kegel cones can be used as an exercise aid. Several studies have demonstrated positive effects of Kegel exercises, both in anatomic and symptomatic measures, especially in patients with mild to moderate prolapse.

The other most commonly known option for nonsurgical treatment of POP is the pessary. Pessaries were once considered only for poor surgical candidates and pregnant women, but they should be considered a treatment option before surgery. They can be fitted by a gynecologist or primary care provider. When proper pessary and size are selected, patients are satisfied with the comfort and the improvement in symptoms. A pessary fits properly when it sits just inside the vaginal introitus and does not fall out with the Valsalva maneuver, urination, or defecation.

**Surgical**

Surgery remains an option for women in whom nonsurgical treatment was not successful and as a primary option for some. There are open abdominal and laparoscopic approaches as well as options to remove or preserve the uterus. For apical prolapse, options are abdominal sacral colpopexy or transvaginal suspension with the sacrospinous ligament, the uterosacral ligament, or the iliococcygeus fascia/muscle. To avoid hysterectomy, options include uterosacral or sacrospinous ligament fixation by the vaginal approach or sacral hysteropexy by the abdominal approach.

If prolapse is severe and a patient no longer desires vaginal function for either intercourse or childbearing or if the operative risk is too great, colpoclesis (suturing the vaginal opening shut) remains an option.

When anterior or posterior vaginal prolapse is the primary problem, colporrhaphy is used. In these procedures, surgical mesh can be used to augment the procedure. In recent years, much media attention has been directed to the safety of mesh devices. In a joint committee opinion, issued in December 2011, the American College of Obstetricians and Gynecologists and the American Urogynecologic Society outlined the following points:

- Anterior mesh may improve support of the anterior compartment compared with native structures.
- Insufficient data are available for posterior or apical compartments; therefore, it is important to weight risk/benefit for each patient.
- The most common adverse postoperative events are erosion, exposure, extrusion, pelvic pain, groin pain, and dyspareunia.
- Informed consent must be clearly documented with each patient.
SUMMARY

Vaginal bleeding in postmenopausal women is the most common presenting symptom of endometrial cancer. Thus, although vaginal bleeding is often benign, it always merits diagnostic evaluation. Emergency physicians should stabilize patients and perform a complete blood cell count, pregnancy test, speculum examination to evaluate for cervicitis and urogenital lesions, and bimanual examination. Further evaluation with transvaginal ultrasound or endometrial biopsy is necessary but can be accomplished on an outpatient basis in stable, reliable patients. If an endometrial stripe of 4 mm or less is observed with ultrasound imaging performed in an emergency department, a patient does not need further evaluation of her endometrium.

Adnexal masses in postmenopausal patients can be evaluated initially by ultrasound and CA 125 level; however, all suspected masses confirmed on ultrasound, with the exception of simple cysts, require surgical consultation and evaluation.

Menopause is a physiologic process marked by the cessation of ovarian function and menstrual periods. HRT, especially when initiated close to the start of menopause and continued at the lowest possible dose for the shortest duration possible, has less risk than believed previously.

POP affects millions of women in the United States and contributes to poor body image and difficulty with urinary, gastrointestinal, and sexual function. Treatment options include Kegel exercises, pessaries, and surgery.

REFERENCES