

# Ovarian cancer

## Listen for the disease

By Karen Blewitt, BSN, RN, AOCN

MARY BURR, 51, VISITS her healthcare provider with complaints of abdominal bloating, urinary frequency, and feelings of pressure in her lower abdomen for the past several weeks. Ms. Burr says that despite her efforts to diet and work out, her waistline is getting larger.

Physical examination reveals a right adnexal (pelvic) mass. Her healthcare provider immediately sends her for an abdominal/pelvic ultrasound, which reveals a 4 cm x 6 cm complex right adnexal mass. Blood test results reveal an elevated CA-125 tumor marker of 154 U/mL (normal, 0 to 35 U/mL).<sup>1</sup> Suspecting ovarian cancer, her healthcare provider refers her to a gynecologic oncologist for further evaluation.

“Ovarian cancer—how could that be?” she asks the nurse. “I’m active and healthy, and my Pap tests are always normal. This can’t be right.”

Although fictional, Ms. Burr represents a typical patient with ovarian cancer. When the disease is first diagnosed, many women have experienced only vague, nonspecific symptoms. They may mistakenly assume that a Pap test would have detected ovarian cancer. Overwhelming disbelief and fear are universal. Because early signs and symptoms are often subtle, ovarian cancer is sometimes called “the silent cancer” or “the disease that whispers.”

This article discusses how ovarian cancer is diagnosed and treated, and what you can do to educate and support your patient.



that whispers

## Highly lethal

The most lethal gynecologic malignancy, ovarian cancer affects women of all races and ethnic groups. In 2010, an estimated 21,880 women will be diagnosed with ovarian cancer in the United States, and about 13,850 will die. Although the disease can strike at various stages of life, it's unusual in women younger than age 40. Most women are diagnosed after menopause, and half are over age 60.<sup>2</sup>

Most ovarian cancers are spontaneous or random events, but 5% to 10% are familial.<sup>3</sup> The most important risk factor for ovarian cancer is a family history of a first-degree relative (mother, daughter, or sister) with the disease. In most families affected with a breast and ovarian cancer syndrome or site-specific ovarian cancer, the genetic link is an inherited mutation of the *BRCA1* gene, although a defect in the *BRCA2* gene is also responsible for some familial breast and ovarian cancers.<sup>4,5</sup> Other factors that may increase the risk of ovarian cancer include

- increased age
- early menarche
- late menopause
- obesity (BMI of 30 or more)
- personal history of breast cancer
- family history of breast or colorectal cancer
- prolonged postmenopausal estrogen therapy.<sup>2</sup>

Women with ovarian cancer typically report signs and symptoms, such as abdominal bloating and urinary frequency, that are a change from nor-

mal for them. (See *Early warning signs of ovarian cancer*.) Several recent studies show that even early-stage ovarian cancer can produce these signs and symptoms.<sup>6</sup> However, all too often a woman's complaint of abdominal bloating or recent changes in bowel or urinary habits is presumed to be related to more common conditions, such as irritable bowel syndrome, gastroesophageal reflux disease, or menopause.

The 5-year survival for early (Stage I) ovarian cancer is nearly 90%, but survival for later stages of the disease (Stages III-IV) is less than 50%. Only about 20% of ovarian cancers are diagnosed early.<sup>2,7</sup> This delay in diagnosis can frustrate patients and undermine their psychological well-being and willingness to engage in certain treatments.

Currently over two thirds of patients have late-stage cancer with metastatic disease at the time of diagnosis. Despite our best efforts and improvements in aggressive surgical techniques and chemotherapy regimens, the 10-year survival rate for all stages of ovarian cancer combined is 38%.<sup>8</sup>

No routine screening test for ovarian cancer is available, so educating women about risk factors and early warning signs and symptoms is essential. Urge them to seek medical attention if symptoms persist for more than several weeks.

High-risk patients may be referred for transvaginal sonography or a blood test for CA-125, a glycoprotein antigen often elevated in women with ovarian and endometrial cancers.<sup>2</sup> Women who have a strong family history or who've been diagnosed with breast cancer before age 50 or ovarian cancer before age 60 should be referred for genetic counseling.<sup>9</sup> Those with a genetic mutation or other risk factors are often counseled regarding the benefits of prophylactic mastectomy or oophorectomy.

## Confirming the diagnosis

Most women are shocked when they learn they may have ovarian cancer.

Education should begin immediately with a simple explanation of what to expect during a physical exam. Don't neglect to reassure and support them with a warm smile or a gentle touch.

Evaluation of a pelvic mass typically begins with pelvic and rectovaginal exams, when the healthcare provider palpates for any suspicious ovarian or pelvic masses.

A transvaginal/pelvic ultrasound may be performed to determine whether a mass is simple or complex, solid, cystic, or hemorrhagic. (A simple cyst is fluid-filled; a complex cyst appears to contain some solid components, septations, loculations, or blood.) Additional testing may include a computed tomography (CT) scan of the abdomen and pelvis with contrast, magnetic resonance imaging (MRI), and a blood test for CA-125.

These tests help the healthcare provider evaluate the extent of cancer, including what surrounding organs may be involved, but ovarian cancer is diagnosed and staged surgically.

## Taking a deeper look

During surgery, the surgeon will debulk the tumor (remove as much of the tumor as possible) to relieve symptoms and prevent complications such as bleeding or bowel obstruction. Because this type of surgery requires special skill and training, a woman with a suspected gynecologic cancer should be referred to a gynecologic oncologist. Women treated by a gynecologic oncology specialist are more likely to have the appropriate surgery and be more accurately staged than when cared for by a general obstetrician/gynecologist or a general surgeon. This can have a profound impact on treatment options offered to patients and their chance for survival.

Surgical exploration is the most common first-line treatment for a patient suspected of ovarian cancer. Options include an exploratory laparotomy, total abdominal hysterectomy and removal of both ovaries

### Early warning signs of ovarian cancer

- abdominal bloating, increased abdominal girth
- pelvic or abdominal pain
- trouble eating or early satiety
- frequent or urgent urination
- fatigue
- indigestion
- back pain
- dyspareunia
- constipation
- menstrual changes

and fallopian tubes (bilateral salpingo-oophorectomy), dissection of the pelvic and para-aortic lymph nodes for staging, and tumor debulking. Cytoreductive surgery (debulking) may include bowel resection, appendectomy, and omentectomy (removal of the omentum, the layer of fatty tissue that covers the abdominal contents area like an apron). If the patient has ascites, the fluid is removed and examined by the pathologist for malignant cells.

After surgery, note whether tumors were *optimally debulked*. This means that the surgeon removed all visible tumors with less than 1 cm (less than 1/2 inch) tumor left behind. Women who are *suboptimally debulked* have a less favorable outcome and may not be considered for certain treatment protocols. For example, some Gynecologic Oncology Group (GOG) clinical trials exclude women who are suboptimally debulked. Intraperitoneal (IP) chemotherapy trials and current protocols are for women with Stage IIIC ovarian cancer and have less than 1 cm residual tumor after initial debulking surgery.<sup>10,11</sup>

Ovarian cancer is staged both by the extent of disease found at the time of surgery and by histology. The TNM (tumor, nodes, metastasis) system describes the extent of disease according to tumor size, nodal involvement, and metastasis to distant sites. The Federation of International Gynecology & Obstetrics (FIGO) staging classification is used to stage ovarian cancer. See *Staging ovarian cancer* for details.

### High grade means poor prognosis

Ovarian cancers are also classified by grade, indicating the tumor's malignancy potential. The higher the grade, the more likely the cancer will metastasize.

- grade 1: well differentiated; looks similar to normal ovarian tissue
- grade 2: not as well differentiated
- grade 3: poorly differentiated.

Histologic categorization is determined by the cell type in which the

## Staging ovarian cancer<sup>2</sup>

### Stage I—Growth limited to the ovary or ovaries

**IA** Growth limited to one ovary. No ascites. No tumor on external surface, capsule intact.

**IB** Growth limited to both ovaries, no ascites, no tumor on the external surface, capsule intact.

**IC\*** Tumor either Stage 1A or Stage 1B, but with tumor on surface of one or both ovaries; or with capsule ruptures; or with ascites present containing malignant cells with positive peritoneal washings.

### Stage II—Growth involving one or both ovaries with pelvic extension

**IIA** Extension and/or metastasis to uterus and/or fallopian tubes.

**IIB** Extension to other pelvic tissues, such as the bladder, sigmoid colon, or rectum.

**IIC\*** Tumor either Stage IIA or Stage IIB but with tumor on surface of one or both ovaries; or with capsule ruptures; or ascites present containing malignant cells with positive peritoneal washings.

**Stage III—Tumor involving one or both ovaries with peritoneal implants** outside pelvis to the abdominal lining and/or positive retroperitoneal or inguinal lymph nodes. Superficial liver metastasis equals Stage III.

**IIIA** Tumor grossly limited to the true pelvis with negative lymph nodes but with histologically confirmed seeding of abdominal peritoneal surfaces.

**IIIB** Tumor of one or both ovaries with histologically confirmed seeding of abdominal peritoneal surfaces, none exceeding 2 cm in diameter. Nodes negative.

**IIIC** Abdominal implants more than 2 cm in diameter and/or positive retroperitoneal or inguinal lymph nodes.

**Stage IV—Growth involving one or both ovaries with distant metastasis.** If pleural effusion is present, there must be positive cytology. Parenchymal liver metastasis equals Stage IV.

### Recurrent disease—When ovarian cancer returns after treatment

\*When staging, it's important to note whether the capsule rupture was spontaneous or caused by the surgeon. If malignant cells are detected, it's important to note whether the source was peritoneal washings or ascites.

tumor originated. Most (85% to 90%) ovarian cancers are *epithelial ovarian carcinomas*, meaning they originated from the cells on the surface of the ovary. The other 10% are either *germ cell tumors* arising from the ova-producing cells within the ovary, or *stromal cell tumors* arising from the connective tissue that holds the ovary together and produces most female hormones.<sup>2</sup>

Epithelial ovarian tumors can be further classified into the following histologic groups or subtypes: serous (the most common), mucinous, endometrioid, and clear cell. Tumors that don't fall into any of these categories are called undifferentiated.<sup>2</sup> In stage distribution, serous carcinoma

is found predominantly in Stage III or Stage IV cancers. In contrast, clear cell and endometrioid carcinomas tend to remain confined to the ovary.<sup>12</sup>

### Case study: Diagnostics and staging

After an examination by a gynecologic oncologist, Ms. Burr undergoes a CT scan of the abdomen and pelvis. CT scan results reveal a significantly enlarged (20 mm) left periaortic lymph node. Other findings include a moderate amount of abdominal ascites and a right plural effusion suspicious for malignancy. Ms. Burr undergoes an exploratory laparotomy, total abdominal hysterectomy with bilateral salpingo-oophorectomy,

posterior pelvic exenteration (removal of the anus, rectum, and sigmoid colon) with colostomy, tumor debulking, and insertion of an intraperitoneal port for chemotherapy. Her final surgical pathology report identifies a Stage IIIC epithelial ovarian cancer.

Ten days later, Ms. Burr returns to her gynecologic oncologist, who inspects her midline abdominal incision and removes the surgical staples. The oncologist discusses the results of her surgical pathology with her and her family, and informs her that she has an advanced stage of ovarian cancer. The oncologist says that chemotherapy offers the best chance for a remission. Some of the chemotherapy will be administered I.V. and some will be given through the port that was placed in her abdomen during surgery.

### **Chemotherapy and beyond**

After cytoreduction surgery and staging of ovarian cancer, chemotherapy is the treatment of choice. Radiation therapy is rarely used as a primary treatment for this disease, but it may be used to palliate symptoms of recurrent cancer.

First-line chemotherapy generally consists of a taxane (paclitaxel or docetaxel) combined with a platinum agent (carboplatin or cisplatin) for 18 weeks. Traditionally these drugs were given I.V. on an every-3-week schedule. However, in 2006 the National Cancer Institute (NCI) issued a clinical announcement on the treatment of ovarian cancer that set a new standard. According to a study by the Gynecologic Oncology Group, a nonprofit organization supported by the NCI and the National Institutes of Health, women with Stage IIIC ovarian cancer who'd been optimally debulked during surgery had a median survival benefit of 16 to 18 months longer when treated with a combination of I.V. and IP chemotherapy, compared with women who received I.V. chemotherapy alone.<sup>13</sup> This was the first time in over 30 years that the NCI had put out such a strong directive in the

treatment of ovarian cancer. These data were quickly adopted by the gynecologic oncology community and are now widely accepted as the standard of care.

Administering certain chemotherapy drugs, such as cisplatin, carboplatin, and paclitaxel via the IP route has some distinct advantages, such as higher drug concentrations and longer drug half-lives in the peritoneal cavity. However, chemotherapy drugs given via the IP route are also absorbed systemically and can cause significant adverse reactions, including abdominal discomfort, nausea, fatigue, alopecia, and peripheral neuropathy.<sup>2</sup>

### **Administering IP chemotherapy**

IP chemotherapy may be administered in the inpatient or outpatient setting. When prepared for IP administration, the chemotherapy drug is mixed in 1 to 2 liters of fluid and instilled into the peritoneal cavity through an implanted IP catheter. The length of treatment varies. Some institutions use a fluid warmer while infusing the chemotherapy to decrease the potential for abdominal cramping and keep the patient more comfortable.

Before treatment starts, review the patient schedule, specific drugs to be received, and the expected duration of treatment. Assure the patient and family that every effort will be made to keep her comfortable. Also tell them about adverse reactions and provide helpful hints on how to manage any distressing adverse reactions, such as hair loss, nausea, fatigue, decreased appetite, and constipation or diarrhea.

Advise the patient to eat a light dinner the night before and a light breakfast the morning of the treatment. Encourage her to wear expandable or loose-fitting clothes to the treatment session, and suggest bringing music to listen to or another activity to help pass the time. Because she may receive medications to help prevent nausea and anxiety that may cause drowsiness, make sure she arranges

for a friend or family member to drive her home.

Ask the patient to void before treatment starts. Assess the IP port for positioning. Help her to a supine position to assist with proper accessing of the IP port. Before instilling chemotherapy, the practitioner may test the IP port with 0.9% sodium chloride solution to assure proper functioning of the port and to assess for leakage from around port site or vaginally due to incomplete postsurgical healing of the vaginal cuff.

Tell the patient to expect frequent repositioning during treatment, which helps disperse the fluid throughout the peritoneum. The fluid is left in the peritoneal cavity, where it's eventually absorbed and excreted.

During the treatment, monitor the patient's vital signs, level of pain or discomfort, and signs and symptoms of extravasation or infusion reactions to the chemotherapy. Also assess for signs and symptoms of chemical or bacterial peritonitis.

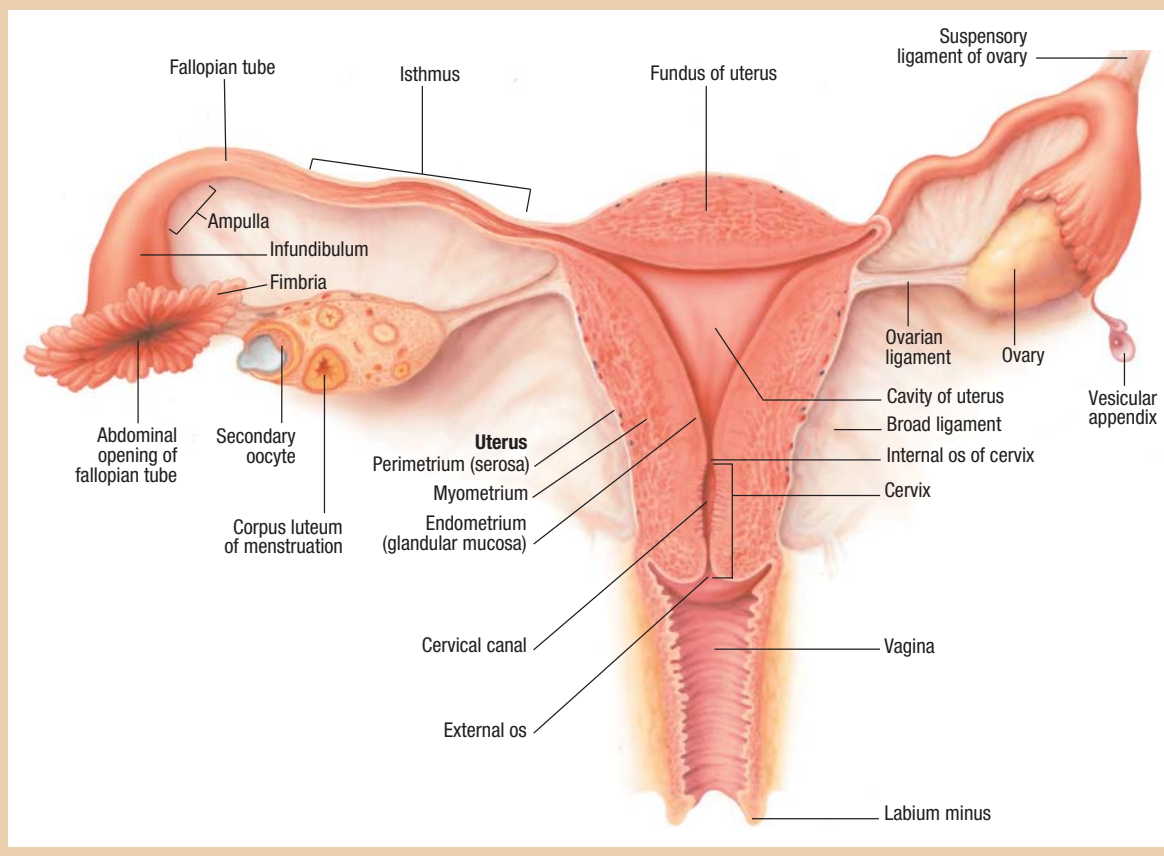
After the widespread acceptance of IP chemotherapy to treat ovarian cancer, several new treatment regimens have emerged—for example, more use of IP carboplatin (versus cisplatin) and less IP paclitaxel. Experience has shown that many patients can't tolerate the originally published treatment schedule, which often triggered serious problems with myelosuppression, nausea, fatigue, and peripheral neuropathy. Today, weekly I.V. paclitaxel combined with IP carboplatin every 21 to 28 days, typically for six cycles of treatment, may be used as a less-toxic alternative.

### **Supporting your patient**

Once a diagnosis is confirmed, helping the patient and family understand the disease process and recommended treatment requires patience and sensitivity.

One of your key roles is helping patients navigate the cancer experience. Cancer treatments can be mentally and physically exhausting for patients and their families. To best meet patients' needs, assess what

## Anatomy review



resources and support systems are available to her—social, economic, and spiritual. Will the patient need help with transportation to treatments? Is she concerned about being out of work for an extended period? Ask what she's most worried about and help make appropriate referrals to other members of the healthcare team. Social workers, pastoral care representatives, health psychiatrists, geneticists, nutritionists, and pain management specialists can all step in to help support the patient and family.

Women with ovarian cancer come from all walks of life, so take care to assess your patient's overall understanding of the disease, along with preferred learning style and potential barriers to learning. Also assess presenting signs and symptoms, functional status, and comorbidities such as diabetes, heart disease, or hypertension to help you

focus on the issues most important to the patient.

In most cases surgery is the first treatment, so give the patient and family information on the anticipated surgical experience and answer their questions, or arrange for the surgeon to address their questions and concerns if appropriate. How long the patient may be in the hospital or out of work are often top concerns. Providing information can help relieve apprehension. Perform medication reconciliation and discuss pre-op administration instructions or restrictions with the patient.

To help ensure a smooth post-op course, also review information on management of postoperative pain, nausea, and constipation. The patient should understand how to care for the surgical incision and receive instructions about restrictions on activities such as bathing, driving, and sexual intercourse.

Make sure the patient knows what problems to look for and when to call the healthcare provider—for example, to report a fever, signs of wound infection, uncontrolled pain, persistent constipation or nausea, or difficulty voiding.

After surgery, many women experience menopausal symptoms (mood swings, depression, vaginal dryness, hot flashes, sleep disturbances, decreased libido). The onset of these symptoms can be abrupt and very distressing. Along with information on managing symptoms, patients appreciate a caring approach and a listening ear.

Women may also experience problems with delayed wound healing, lower extremity lymphedema, and deep vein thrombosis (DVT). Stress the importance of maintaining post-op DVT prophylaxis as prescribed, teach them about DVT risk factors, such as prolonged sitting,

and encourage them to participate in such activities as walking or swimming. Also teach them to recognize and report early signs and symptoms of lymphedema. Strategies for prevention and management may require continued reinforcement and assistance from nutritionist, physical therapist, and lymphedema programs.

### **Chemotherapy considerations**

After surgery, most patients receive chemotherapy. Key components for educating the patient and family about chemotherapy include:

- rationale for treatment
- information on route of chemotherapy administration (I.V. and IP)
- chemotherapeutic agents prescribed
- treatment schedule
- potential adverse drug reactions, including how to manage them
- signs and symptoms of complications the patient should report to the healthcare provider
- contact numbers for the healthcare team.

Provide patient education both orally and in writing. The pace and amount of detail in your teaching will vary depending on your patient's readiness to learn and ability to comprehend. Review information frequently, as needed.

Anticipate the expected adverse reactions to chemotherapy drugs and regimens, and educate the patient about strategies to alleviate discomfort. Nausea and vomiting are common problems with both I.V. and IP chemotherapy. Premedicate the patient with antiemetics as indicated, and provide instruction on the use of postchemo antinausea strategies and medications, as prescribed. For example, advise the patient to eat small frequent meals and avoid foods with a strong odor, which can trigger nausea. Also ensure that the patient is informed about bowel and pain regimens.

Hair loss, a common adverse reaction to taxane drugs, can be very distressing. Offer suggestions such as cutting the hair short and avoiding

the use of dyes and other chemicals that may hasten hair loss. Provide information about where she can buy wigs, hats, and scarves, and inform her about local and national sources of support, such as the "Look Good... Feel Better" program (<http://www.lookgoodfeelbetter.org/>).

Some patients experience persistent cognitive impairment secondary to chemotherapy. Patients may complain of poor concentration, impaired problem-solving ability, forgetfulness, and difficulty recalling names or words—in short, a "foggy" mental state commonly called chemobrain.<sup>14</sup> Tell patients to report cognitive problems to the healthcare provider and direct them to resources for information and support, such as <http://www.chemobraininfo.org>.

The Oncology Nursing Society (ONS) offers a wealth of evidence-based practice guidelines to assist nurses caring for patients undergoing cancer treatment. *Putting Evidence into Practice: Improving Oncology Patient Outcomes* is one such resource available through ONS.

### **Recurrence: Too often, a grim reality**

Although some ovarian cancers respond well to initial treatment and go into remission, many will recur. It's not uncommon for a woman to be offered continued treatment called consolidation or maintenance treatment after completion of first-line therapy in hopes of keeping her cancer in remission longer. Maintenance treatment most often consists of a taxane given I.V. monthly for up to 12 months.<sup>15</sup>

Whether or not a patient is receiving maintenance treatment, she's followed closely for signs and symptoms of disease recurrence. These may include increased abdominal girth with the presence of ascites, new-onset abdominal pain or discomfort, bowel obstruction, nausea, anorexia, and weight loss. Ovarian cancer usually spreads to the lymph nodes and pelvic organs, causing kidney and bowel problems. It may

also spread to other body organs, such as the lungs and liver.

The decision of when to initiate treatment when recurrence is suspected is a matter of debate. Many patients and healthcare providers may want to begin treatment at the first sign of a rise in the CA-125 tumor marker, but new data suggest that a better approach is to defer treatment until the patient becomes symptomatic or the disease becomes visible on imaging. The evidence suggests there is no overall survival benefit to starting chemotherapy sooner.<sup>16,17</sup>

If ovarian cancer returns within 6 months of completing initial treatment, the patient is thought to be platinum-resistant. If her disease-free interval is longer than 6 months, she's believed to be platinum-sensitive and will most likely be offered another regimen containing a platinum agent.<sup>18</sup>

Various agents are approved for second- and third-line therapy. The healthcare provider decides which agent or regimen to use based on discussion with the patient about risks and benefits and potential adverse reactions. The healthcare provider will also evaluate how well the patient tolerated previous treatments, current signs and symptoms, and what issues are most important to her quality of life. For example, if a woman has suffered peripheral neuropathies from a previous treatment, then her healthcare provider may prescribe a treatment that may be less neurotoxic.

Many patients are on and off chemotherapy for the rest of their lives and experience ever shorter durations of remission. These patients and their families often turn to their nurse to help steer them through the complexities of their disease as they make decisions about treatment options. Developing a bond based on an understanding of what's important to the patient begins with listening and asking. Help patients set simple, realistic goals. Provide them with information on support or

survivor groups. Encourage them to maintain optimal health through exercise, journaling, or whatever outlet they find fulfilling.

Difficult discussions related to end-of-life decisions should be dealt with openly, with care and sensitivity. When appropriate, referral to hospice or palliative care professionals can help the patient make the transition from treatment to palliative care.

### Case study: Continuing care

The patient we met initially, Ms. Burr, has been seeing her gynecologic oncologist every 3 months for surveillance exams and routine CA-125 checks. After a 9-month disease-free interval, she experiences disease recurrence and starts her second round of treatment, which lasts 6 months. She tolerates treatment well.

Five months after her last chemotherapy treatment, her CA-125 levels are stable. She sees her gynecologic oncologist every 3 months for surveillance exams. Now back to work, she recently celebrated her daughter's college graduation. Like

many patients with ovarian cancer, she's enjoying life and feeling hopeful about her future. ■

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