What is the effect of "spill" during surgery for removal of an ovarian cancer?

Accidental rupture of the smooth surfaced, freely movable cyst will probably have little unfavorable effect on prognosis. The exception may be the mucinous cystadenoma or carcinoma whose fluid content varies from a stringy, sticky mucus to a secretion the consistency of wet glue. It is this adhesive property that creates pseudomyxoma peritonei following rupture or spillage from the cyst. Rupture of a soft vascular ovarian tumor which is densely adherent and directly infiltrated suggests a poor prognosis. Obviously, prognosis represents the extent of disease and is not directly related to spillage.

What role do radioactive substances play in the management of patients with ovarian cancer?

The five-year survival figures for patients with Stage I ovarian cancer treated by total hysterectomy, bilateral salpingo-oophorectomy, omentectomy, appendectomy and the instillation of radioactive phosphorus (P³²) are impressive and range between 85 to 90 percent. Not all series confirm this spectacular result. In addition, since radioactive phosphorus emits only beta rays, it usually causes very little bowel reaction; however, by increasing the dose to 20 millicuries, damage to the bowel may occur. Radioactive phosphorus is able to control ascites associated with small implants, but is ineffective in large cancer nodules. The use of radioactive gold which emits gamma as well as beta rays has been abandoned because of associated dense adhesions, bowel obstruction and late bowel necrosis.

Should a node dissection be part of planned definitive therapy?

The consensus is against node dissection. Ovarian cancer usually spreads over the surface of the peritoneum and the bowel to the upper abdomen. Since the ovary arises embryologically about T10, it is not surprising that if nodal involvement occurs, it will be in the retroperitoneal nodes of the upper abdomen around the duodenum, kidney and celiac axis. From here spread is
to the mediastinal and then to the supraclavicular areas; retrograde extension to the inguinal nodes is very infrequent. The iliac nodes are involved about one-quarter as often as in cancer of the cervix. Thus, the natural history of the disease contraindicates node dissection. The exception may be in the management of a patient with a germinoma.

**How is ovarian cancer managed in a pregnant patient?**

Fortunately, this is not a common problem. Less than 10 percent of all ovarian cancers occur in women under 35 years of age. The incidence is only about one in every 18,000 pregnancies. (Table 5.) Generally, however, the management of ovarian cancer in a pregnant patient is the same as that in a nonpregnant patient. If the tumor is low-grade and confined to only one ovary, unilateral oophorectomy and bisection of the opposite ovary is the treatment of choice. The pregnancy is allowed to go to term. If, on the other hand, the ovarian cancer has extended beyond the ovary from which it arose, total hysterectomy, bilateral salpingo-oophorectomy and postoperative radiation therapy are recommended.

| Table 5. Ovarian Cancer and Pregnancy |
|--------------------------------------|
| **Incidence** | One ovarian cancer in 18,000 pregnancies. |
| **Diagnosis** | **Signs and Symptoms** |
| | Similar to those of nonpregnant patient, i.e., vague abdominal discomfort, dyspepsia, mild digestive disturbances. |
| | Complications of cancer may cause torsion, rupture, hemorrhage, infection, sudden abdominal pain and vomiting, possibly shock. |
| **Pelvic Findings** | An adnexal mass is usually present at first antepartum visit. If it regresses on follow-up, the diagnosis is a functional cyst (corpus luteum). If it is 6 cm. or larger and persists, laparotomy is indicated at about 16 weeks. |
| | Tumor is rarely bilateral. |
| **Malignancy Rate** | Two to five percent compared to 18 to 20 percent in non-pregnant patients. |
| **Treatment** | If low-grade and confined to one ovary, perform unilateral oophorectomy and bisection of opposite ovary. Pregnancy may go to term. |
| | If extended beyond ovary, perform total hysterectomy, bilateral salpingo-oophorectomy and postoperative irradiation. |
| | Inspect tubes and ovaries at all cesarean sections. |
Are there any tumor-specific antigens for ovarian cancer?

Carcinoembryonic antigen has been identified in the plasma of 35 percent of patients with ovarian cancers, but not in the plasma of patients with benign ovarian tumors. Both entodermally and nonentodermally derived carcinomas show elevated levels of CEA. Although it is not specific enough to screen patients, it can monitor progress following surgery.

Several research groups have identified an antigen that is unique for epithelial ovarian cancers which can produce an antibody when injected into rabbits. The absorbed antisera has a very high specificity for epithelial ovarian cancer, but it may not be sensitive enough to diagnose early lesions. Radioimmunoassay studies are necessary to determine whether the antigen will remain bound to the tumor and if it will be secreted as an antigen or as an antigen-antibody complex. The prospects are promising.

Teratomas containing significant vitelline component (endodermal sinus tumors, polyvesicular vitelline tumors) have been shown to give rise to a serum alpha fetoprotein. The fetal antigen has also been identified in the ascitic fluid.

What are the reasons for removing the bulk of ovarian cancer?

There are many reasons for removing the bulk of cancer. Some are factual and others fanciful but not unreasonable. As far as the patient is concerned, if the mass in her abdomen has been removed, she feels that there is hope for her survival and this psychological lift is important. Radiation therapists are loathe to radiate in the presence of multiple nodules greater than two centimeters in size. Although the cancer cells at the periphery are destroyed there are a great number of anoxic cells in the center that remain viable. Reduction of the bulk of tumor is also important prior to the start of anticancer chemotherapy although it may not be as important as it is prior to radiation therapy.

A large mass may produce such great quantities of antigen that an immune paralysis may result or conceivably, by a feedback mechanism, antigenic proliferation may cease. It is also possible that the antibodies formed may attach to antigenic determinants on the cancer cell and in essence produce an effect similar to coating the tumor with a cream. The result would prevent killer lymphocytes from making contact with the cancer cells. Immunotherapy is not effective against a large volume of tumor; to be successful, tumor volume must be reduced to a level at which the natural body defenses are effective. If possible, it is therefore important to remove all or most of the cancer.