Overview
Ovarian cancer survival is related to the stage at diagnosis. Unfortunately, the majority of women are diagnosed at an advanced, incurable stage with 70% of patients presenting with stage III or higher disease. Early symptoms of ovarian cancer are vague and often unrecognized in part due to their non-specific nature. Abdominal/pelvic pain, abdominal bloating/distension, increased urinary frequency, constipation or diarrhea, abnormal vaginal bleeding, weight loss, and fatigue have all been reported which are also common in non-malignant conditions. With no effective screening tool currently available, early symptoms identification with appropriate investigations is crucial for decreasing mortality.

Diagnostic Considerations

History
- Risk Factors
  i) family history of breast, colon, endometrial, ovarian cancer
  ii) BRCA 1/2 or history of Lynch syndrome → consider referral for genetic counseling
  iii) early menarche/late menopause
  iv) age → 60% are diagnosed at ages 50-79
  i) nulliparity
  ii) race: Caucasian, Ashkenazi Jews, French Canadians, Dutch, and Icelandic
- Protective Factors
  i) OCP
  ii) pregnancy/breastfeeding
  iii) bilateral salpingo-oophorectomy or hysterectomy
- Symptoms
  i) It is not true that ovarian cancer comes without symptoms. 89% of women with stage I/II and 97% with advanced disease reported symptoms prior to their diagnoses. It usually present with back pain, vague abdominal symptoms including bloating, pain, indigestion, anorexia, nausea, or menstrual irregularities. General constitutional symptoms such as fatigue and weight changes are also common.
  ii) Effects from mass
    (1) abdominal distention from ascites or tumor
    (2) urinary frequency/urgency
    (3) constipation/bloating
    (4) change in baseline vaginal bleeding
    (5) palpable adnexal mass
    (6) early satiety/difficulty eating
  iii) Acute advanced disease
    (1) SOB- from pleural effusion
    (2) Bowel obstruction - causing severe nausea and vomiting
    (3) Abdominal ascites
    (4) VTE

Differential Diagnosis (by presenting symptoms)
- Mass effect in abdomen: bowel obstruction, colon cancer
- Functional or benign tumors: Hydrosalpinx, peritoneal inclusion cyst, paraovarian cysts, teratomas
- Metastatic ovarian tumors (Krukenburg tumor) which deposit from other sources (rare)
  o Consider the diagnosis of ovarian ca especially if symptoms last longer than 3 wks or if a women >50 experiences symptoms of IBS as it is rare to develop this later in life

Investigations
- Physical exam including bi-manual exam
- Bloodwork → CBC, LFT, Cr, electrolytes
- Pap smear → can occasionally show atypical glandular cells
- Tumor markers: Ca-125, AFP, B-hCG
  i) if women is <40 and ovarian cancer is suspected perform at least AFP, B-hCG, CA125
  ii) if > 50 only CA125 needed
- Imaging
  i) Ultrasound - abdomen and transvaginal
  ii) CT chest, abdomen and pelvis for metastatic disease
- Endometrial biopsy: for any woman presenting with post menopausal bleeding or spotting
- Ovarian pathology/biopsy; oophorectomy is the gold standard via laparotomy or image guided biopsy

Screening
- No effective method of screening including CA-125 or U/S especially in low risk patients. During early disease CA-125 only has 50% sensitivity it is also non-specific to the ovary. Can be increased in multiple other conditions including: pancreatic, stomach, and colon cancers, pregnancy, PID, fibroids, benign ovarian neoplasm, endometriosis, colitis, cirrhosis.
- Lack of consensus in screening high risk patients (history of endometrial, breast, colon cancers, BRCA-1/2)
**Risk of Malignancy Index (RMI) II score**

Helps assess for the risk of ovarian malignancy based on multiple factors:

RMI = U/S x Menopause X CA-125

1. U/S (1 pt for each: if total = 0-1 then U=1, if total = 2-5 then U = 4)
   1. Multilocular cyst
   2. Presence of solid areas
   3. Presence of intra-abdominal metastases
   4. Presence of ascites
   5. Bilaterality of lesions
2. Menopausal score = 1 for premenopausal, 4 for post menopausal
3. CA-125 in U/ml

**Refer for assessment by gynecologic oncology if RMI >200**

**FIGO Staging and five year survival rates**

Stage I: Limited to one or both ovaries (75-95% 5-yr survival rate)

Stage II: Disease with pelvic extension (60-75% 5-yr survival rate)

Stage III: Microscopic peritoneal extension outside of the pelvis; or limited to the pelvis with extension to the small bowel or omentum (23-41% 5-yr survival rate)

Stage IV: Distant metastases to the liver or outside the peritoneal cavity (11% 5-yr survival rate)

**Management**

1. Low malignancy potential tumors = prognosis is excellent regardless of stage; rate of transformation is less than 0.5% and staging resection is generally used; chemotherapy does not have a role.

2. Peritoneal washings + bilateral salpingo-oophrectomy +/- hysterectomy (common site of spread) +/- pelvic / paraortic lymph node sampling +/- infracolic omentectomy.

3. Platinum-based adjuvant / neoadjuvant chemotherapy +/- paclitaxel or docetaxel depending on stage of disease. No chemotherapy needed in Stage Ia/b disease and optimal surgical staging. Chemo should only be offered in cases where there is actual tissue diagnosis unless exceptional cases.

4. Radiation therapy plays only a limited role in most ovarian cancers as an initial therapy.

5. Palliative care is important to maximize patient care throughout the course of the disease. It includes such things as pain management, managing malignant ascites with paracentesis or indwelling peritoneal catheters and alleviating symptoms from malignant bowel obstructions (using medications, surgery or venting gastrostomy tubes) and many others concerns related to the disease, side effects of treatment and end of life issues.

**Bottom Line**

Ovarian cancer unfortunately presents with very vague, non-specific symptoms of abdominal pain/bloating, dyspepsia, early satiety and urinary/bowel movement changes. It often is only diagnosed at advanced stages and carries a high 5-year mortality risk and is the most common cause of gynecologic cancer death in women. Unfortunately there is no effective screening tool. Clinicians should have a high index of suspicion especially in women over 45, nulliparous, a positive family history of breast or ovarian cancer or a history of HRT use and late onset of IBS. Treatment is usually focused on surgery and chemotherapy +/- radiation depending on staging investigations. The role of family physicians often involves palliation of common symptoms, some of which include pain, ascites, constipation, and bowel obstruction, improving patients overall quality of life.

References can be found online at http://www.dfcu.utoronto.ca/programs/postgraduateprogramme/One_Pager_Project_References.htm