

Enigma of Ovarian Cancer - Early detection Challenges and Solutions!

“To begin is the most important part of any quest and by far the most courageous”

–Plato

Ovarian cancer is a silent killer; unfortunately, 75% of cases are diagnosed in an advanced stage; stages III and IV.

Ovarian masses are the most common type of adnexal mass and are identified in all ages.

Ovarian malignancy is the sixth-leading cause of death.^[1]

The prevalence of adnexal masses in different age groups is^[2] newborn and adolescent 2.6%, reproductive age 30%–42%, premenopausal subjects 8%–35%, and in postmenopausal subjects 3%–10%. Ovarian tumors have a 10% lifetime risk of surgical intervention.

During the evaluation of ovarian masses, it is most important to find that the ovarian tumor is benign or malignant. Only on this basis, the management decides does it require expectant management or surveillance or surgical treatment.

The challenges for early detection of ovarian cancer are to develop a population-based effective screening strategy^[3] for ovarian cancer in an average-risk woman, which has a low false-positive predictive value (10%) and a high specificity of 99.6% and sensitivity of 80% at the same time of early detection of ovarian cancer.

The potential options are history, CA125, imaging of the pelvis, multimodal screening, and recognition of symptoms to aid the diagnosis of epithelial ovarian cancer.

The history of the patient is important to identify women at high risk or low risk and whether genetic testing and counseling are required;^[4] prophylactic bilateral salpingo-oophorectomy is an option.

The high-risk factors for ovarian cancers are BRCA1, BRCA2, Lynch syndrome, and others. BRCA1 is the most common and will be positive in 39%–65%, BRCA2 11%–37%, and Lynch syndrome in 3%–33%.

The PLCO cancer screening trial, UKCTOCS,^[5,6] and others used a single reading of raised CA125; TVUS; the multimodal screening^[7] TVUS with CA125 for early detection of ovarian cancer. The results of all these studies did not do well in a low-risk population. The results of multimodal screening for high-risk populations were found favorable; it had high PPV and resulted in decreasing the screening interval by 4 months.



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The tumor markers CA125, CEA, HE4, CEA, CA19.9, OVA1, Overa, and others were also used for screening ovarian cancer; the other screening tests, pelvic examination, Pap smear, and ovarian cancer syndrome index were also used for screening of ovarian cancer.

The ovarian cancer symptom consensus statement –

The women with ovarian cancer reported symptoms^[8] of bloating, pelvic or abdominal pain, difficulty in eating or feeling full quickly, and urinary symptoms of urgency and frequency 20–30 times/month versus 3–4 times in the general population. The frequency of abdominal symptoms (77%), gastrointestinal (70%), pain (58%), constitutional (50%), fatigue, indigestion, back pain, constipation, menstrual irregularities, urinary (34%), and pelvic pain (26%).

The symptom index^[9] is considered positive if there are new symptoms of abdominal/pelvic pain, bloating distention of the abdomen, difficulty in eating or feeling full quickly, and occur 12 or more times per month.

In summary, ovarian cancer is a silent killer,

- 75% of cases are diagnosed in the advanced stage
- No screening for average-risk women (Grade 1A)
- No screening strategies CA125, TVUS, or multimodal testing have been shown to reduce the mortality
- All screening strategies are associated with a high rate of false-positive tests and there is a risk of harm from invasive testing
- Most patients with epithelial ovarian cancers have a positive symptom index
- Prompt medical evaluation by history, pelvic examination, CA125, TVUS with IOTA and O-RADS, and other biomarkers may lead to early diagnosis and management of diseases
- There is a role of screening and rSO for women at high risk of ovarian cancer.

The challenge for early diagnosis of ovarian cancer remains unsolved and the quest to solve goes on.

“The only way to discover the limits of the possible is to go beyond them into the impossible.”

–Arthur C. Clarke

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