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Cancer is a leading cause of death worldwide among women. In India, every day 2,000 new women cancer cases are diagnosed, with 1,200 in advanced stages. Cancer among women is estimated at 0.7 million and accounts for the third highest number of cancer cases among women after China and the US. India ranks among the top two countries globally on mortality for key women-specific cancers such as breast, cervical and ovarian cancer.

Some of the most prevalent cancers in women include cervical cancer, ovarian cancer, uterine cancer, vaginal cancer, and vulvar cancer. Knowing about these diseases and what you can do can save lives. All women are at risk for these cancers, and the risk increases with age. For example, breast cancer is the most common cancer in women in India and accounts for 27% of all cancers in women. The incidence rates begin to rise in the early 30s and peak between 50 and 64 years. For cervical cancer, as per global reports, Indian women are in the highest risk category. Every 8 minutes, a woman dies of cervical cancer in India. Women between 18 and 45 are prone to the disease.

Some of the common symptoms of cancer in women could be abnormal vaginal bleeding or discharge, pelvic pain or pressure, abdominal or back pain, changes in bathroom habits (increased urination, constipation, diarrhea), itching or burning of the vulva are some symptoms of cancers related to a woman's reproductive organs.

Prevention of cancer in women

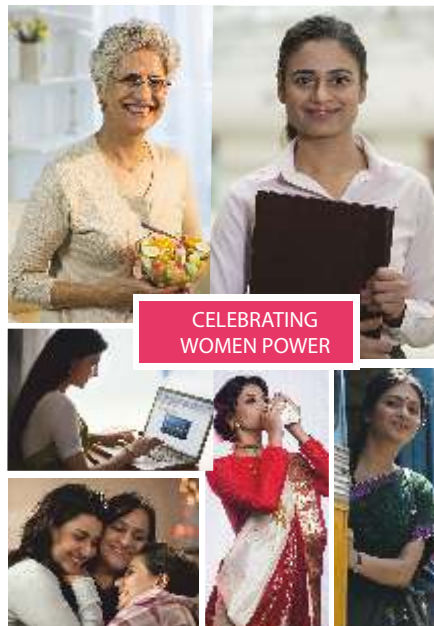
Breast cancer is sometimes found after symptoms appear, but many women with breast cancer have no symptoms. This is why, regular breast cancer screening is so important. Regular mammograms can help find breast cancer at an early stage, when treatment is most successful.

HPV infections increase the risk of getting several types of women cancer. The HPV vaccine protects against the types of HPV that most often cause cervical, vaginal and vulvar cancers. Every girl must take HPV vaccination between the age of 9 years and 26 years. Pap Smear, which can find precancerous changes on the cervix, is one of the most reliable cervical cancer screening tests. All women should get regular Pap tests as directed by the doctor.

Women with PCOS (Polycystic Ovary Syndrome) also may be at a higher risk for breast cancer and ovarian cancer. A lack of ovulation, as occurs with PCOS, is linked with a risk of breast cancer that is three to four times that of women without an ovulation.

Treatment of women cancers

At American Oncology Institute, a multi-disciplinary team consisting of Radiation Oncologists, Medical Oncologists and Surgical Oncologists collaborate to jointly plan and implement the most optimal treatment protocol for gynecologic cancers. AOI conducts a joint international tumor board every week in which Pathologists, Oncologists, Radiation Therapists and Surgeons from our facilities join the international team to review each case to ensure that every patient receives optimum care. All the treatment decisions are evidence-based and follow the VIA pathways and protocols. AOI uses state-of-the-art technologies such as TrueBeam STx and Calypso backed by the most modern diagnostic equipment such as PET-CT and digital mammograms to ensure that our diagnosis and treatment are precise and effective.





BREAST ONCOPLASTIC SURGERY

The treatment of breast cancer has evolved over the ages from being a radical mastectomy to modified radical mastectomy to integrated breast conserving surgery (BCS) with adjuvant radiation, neo adjuvant and adjuvant chemotherapies. Breast cancer has many negative feelings and insults to a woman's sense of being whole that it seems startlingly obvious that if the negative impact of surgery can be reasonably mitigated then it should. In spite of the acceptance that most BCS defects can be managed with primary closure allowing seroma formation, the aesthetic outcome may be unpredictable and occasionally achieve an unsatisfactory outcome.

As the treatment of cancer is becoming more individualized and focussed on quality of life along with cure, novel techniques like Oncoplastic breast Surgery and sentinel lymph node biopsies are being used for achieving the goals of a better breast shape, form, symmetry and aesthetic and functional outcomes in female patients.

Oncoplastic surgery is tumor specific immediate breast reconstruction. It represents the integration of plastic surgery techniques into breast cancer surgery in order to preserve aesthetic outcomes and quality of life of the patients, without compromising local control of disease. It is based on three surgical principles: ideal breast cancer surgery with free tumor margins, immediate breast reconstruction, and immediate symmetry with the other breast.

The oncoplastic techniques are related to volume displacement or replacement procedures including local flaps, latissimus dorsi myocutaneous flap and reduction mammoplasty/mastopexy volume displacement techniques having a more relevance in the content of breast conservation surgery. The majority of reconstruction techniques are performed with one of six surgical options: breast tissue advancement flaps (BAF), lateral thoracodorsal flap (LTDF), bilateral mastopexy (BM), bilateral

reduction mammoplasty (BRM), latissimus dorsi myocutaneous flap (LDMF) and abdominal flaps. Surgical planning and timing of reconstruction should include breast characteristics, volume, tumor location, the extent of glandular tissue resected, enabling each patient to receive an individual "custom-made" reconstruction

Oncoplastic surgery is being utilised throughout the world for more than 20 years. Its use has become more and more popular as a means to radically resect the tumour and leave the patient with an improved, if not excellent, aesthetic result. No significant delay in adjuvant chemotherapy and radiotherapy has been documented despite the increased complexity of these surgeries and inherent higher risk of complications. Long-term survival has been demonstrated to be equivalent with the conventional surgical approaches thus far. The cosmetic outcomes have been demonstrated to be superior in a number of different studies. They also demonstrated significantly higher scores for quality of life measures when compared with standard breast conserving therapy.

The oncoplastic surgical principles are applicable to all breast cancer surgery, although the options it can offer will have much more relevance to some women than others. The primary aim is always disease eradication, but the physical effects of this can and should be minimised. The use of an aesthetic approach to breast conservation or mastectomy greatly enhances the range of options that can be offered to women with breast cancer and facilitates better outcomes from it. It should be the standard of care.

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IMPORTANCE OF EARLY DIAGNOSIS IN PREVENTION OF CANCER AMONG WOMEN

Disability from cancer increases significantly as the disease progresses. The consequences of delays in detection increases the likelihood of death. In view of the slowly rising incidences of cancer among women and late detection and reporting, it is imperative that we incorporate better prevention and detection strategies into clinical practice to detect cancer among women early. Identifying possible warning signs of cancer and taking quick action leads to early diagnosis.

Early diagnosis is particularly relevant for cancers of the breast, cervix, mouth, larynx, colon and rectum, and skin. Early diagnosis identifies cancer cases at the earliest possible stage compared to screening that tries to find pre-cancerous lesions without symptoms. Screening helps in identifying the disease in women, who do not yet have symptoms.

Most women are unaware of the symptoms of cancer that can affect them, especially symptoms that are unrelated to the reproductive organs. Some common symptoms to look for include lump in breast, abnormal vaginal bleeding or discharge, pelvic pain or pressure, abdominal or back pain, bloating, changes in bathroom habits, and itching, rash, sores, warts, ulcers in vulva.

Human papillomavirus (HPV), a very sexually transmitted infection, increases the risk of getting cervical, vaginal and vulvar cancers. The HPV vaccination is best possible way to prevent these cancers. Every

girl should take HPV vaccination between the age of 9 years to 26 years. Two screening tests can help prevent cervical cancer or find it early. The Pap smear test is recommended for women between ages 21 and 65. Women above 30 years of age should choose to have an HPV test along with the Pap smear test. HPV DNA testing along with Pap Smears increases the sensitivity of the test. It is recommended once every 5 years if 3 consecutive Pap Smears are negative.

The most important screening test for breast cancer is the mammogram. A mammogram can detect breast cancer up to two years before the tumor can be felt by you or your doctor. Women ageing between 40-45 or older should have a mammogram once a year.

Thus, we can detect the two most common cancers affecting women at an early stage, thereby increasing cure.

When detected early, the chances for effective cancer treatment increases significantly, resulting in a greater probability of surviving as well as less expensive and less complex treatment.

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VAGINAL VAULT RECURRENCE AFTER SURGERY FOR ENDOMETRIAL CARCINOMA

Patient is a 57-year-old lady who was diagnosed with Endometrioid Adenocarcinoma of Endometrium in March 2014, after evaluation for post-menopausal bleeding. Patient underwent Total Abdominal Hysterectomy (TAH) with Bilateral Salpingo-oophorectomy (BSO) in a different hospital. Post-operative histopathology showed features of Endometrioid adenocarcinoma of endometrium, grade 2, tumour invaded less than half of myometrium, suggestive of FIGO stage IB (AJCC 6th edition). Patient was subsequently treated with intracavitary brachytherapy to the vaginal vault in a different institute.

In August 2016, patient presented to us with history of vaginal spotting. Clinical examination revealed vaginal vault growth. Biopsy was suggestive of recurrent endometrioid adenocarcinoma of endometrium. Staging whole-body PET-CT (figure 1) performed at our Institute showed metabolically active (SUV max 9.1) well defined hypodense mass lesion (3.2 x 2.7 cm) in the vaginal vault region suggestive of local recurrence. There was no evidence of nodal or distant metastasis.

In view of disease confined to the vault, we recommended local external beam radiotherapy with True Beam Rapid Arc technique.

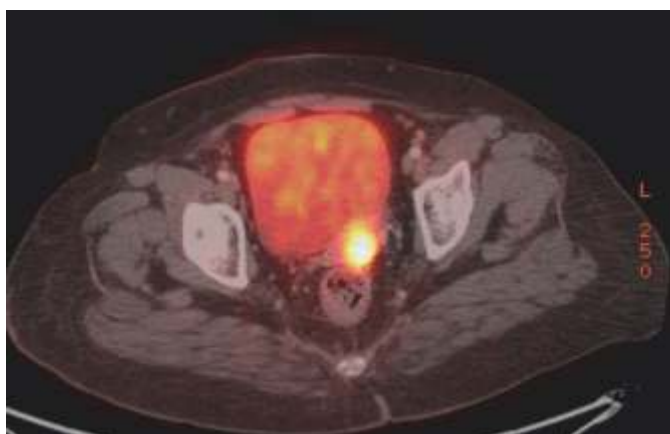


Figure 1: PET-CT scan showing FDG avid growth at vaginal vault.

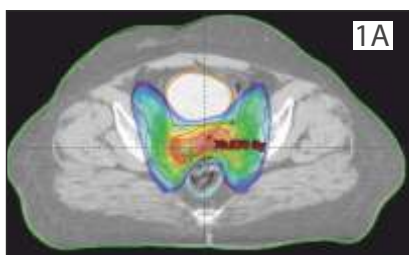


Figure 2: True Beam Rapid Arc plan showing dose distribution in colour wash (A) and True Beam Linear Accelerator (B).

Patient was immobilised in supine position on a Vacloc with full bladder and empty rectum. CT simulation was performed on a dedicated GE CT simulator. Planning CT simulation images were fused with staging PET-CT images for defining tumour volume to be treated. Also, adjacent normal structures such as rectum, urinary bladder, small bowel and head of femur were contoured in order to spare them from radiation exposure. Computerised Rapid Arc treatment plan was generated (figure 2) using Eclipse planning software. Significant normal organ sparing could be achieved with the Rapid Arc plan.

Response assessment PET-CT (figure 3) performed 3 months after completion of radiotherapy showed complete response. Patient is now asymptomatic and is living an active lifestyle.



Figure 3: Response assessment PET-CT scan (after 3 months from completion of radiotherapy) showing no evidence of any residual growth at vaginal vault suggestive of complete response.

Brief literature review: Endometrial cancer is the 5th most common cancer in women worldwide. Furthermore, it is the most common gynecologic cancer in developed countries. The continuing rise in incidence is most likely explained by increased fat consumption and obesity in developed countries and previous use of unopposed estrogens. Endometrial cancer is often detected in early stage because of abnormal uterine bleeding which is the most frequent symptom. Women diagnosed with endometrial cancer generally have a favorable prognosis. 75% are diagnosed in FIGO stage - I and have a 5-year survival of 85%. Women diagnosed in FIGO stage - II have a 5-year survival of 75%, 40% for FIGO stage - III and 20% for FIGO stage - IV. Approx. 6 - 13% of all patients with endometrial cancer will develop recurrent disease. The majority of the recurrences occur during the first 3 years after primary surgery and most of the recurrences are located in the vaginal vault. Recurrent disease is most often treated by radiotherapy which is in accordance with recommendations in the international literature.

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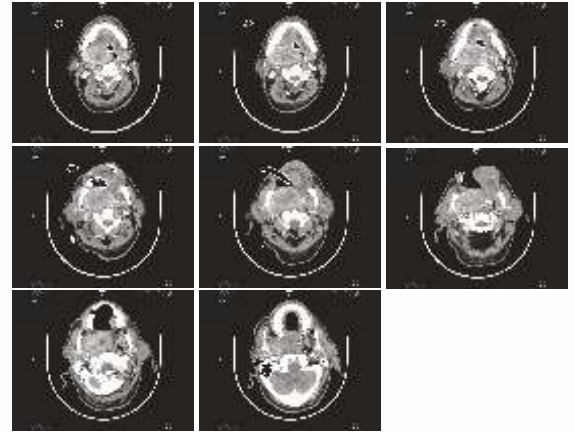
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MINIMALLY INVASIVE CERVICAL INCISION (MICI) FOR PARAPHARYNGEAL TUMOR

A 70-year-old patient presented to the hospital emergency with altered sensorium, difficulty breathing referred from outside hospital with diagnosis of COPD. He was intubated in ER, during which there was significant airway narrowing causing difficult intubation. CT Neck was done after stabilization, which showed a large 8 cm solid mass lesion in the right parapharyngeal space causing compression of nose and oropharynx. He underwent minimally invasive lateral cervical approach (instead of mandibulotomy) for excision of the right parapharyngeal mass. Patient showed rapid recovery and was discharged in stable condition in a couple of days. The histopathology report showed pleomorphic adenoma of deep lobe of parotid and the patient is still doing well.

Normally mandibulotomy carries increased morbidity and can also result in trismus using minimally invasive cervical incision results in significantly less morbidity, pain, blood loss and patient can be discharged in a few days. This case highlights that even on a very big parapharyngeal tumor (8 cms) can be removed through a trans cervical approach.



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