

image based volumetric doses of organ at risk and correlate the doses with the toxicity profile observed in cancer patients.

Materials and Methods: Sixty high dose rate intracavitary brachytherapy applications were performed in thirty patients of carcinoma of cervix. External beam therapy was planned for 46 Gy in 23 fractions followed by two brachytherapy sessions of 9 Gy/session. External beam radiotherapy was given by four field box technique to each patient. CT based treatment planning was done for each intracavitary brachytherapy application. Dose volume histogram was used for analysis of volumetric dose parameters and correlated with the RTOG defined normal organ toxicity profile of the patients.

Results: In the follow up of two years 2 (6.66%) patient had died, 12 (40%) patients had reported no significant problem, 3 (10%) patient got bladder toxicity of grade 2, 10 (33.33%) patients had reported small intestine toxicity of grade 1 and grade 2 while no information could be available for 3 (10%) patients. The average volume of rectum, sigmoid colon and bowel loops were 60.34 cc, 22.19 cc and 270.82 cc. The average, median and 2 cc volume doses for rectum 289 ± 121 cGy, 263 ± 113 cGy and 884 ± 444 cGy for sigmoid colon 409 ± 211 cGy, 366 ± 185 cGy and 693 ± 371 cGy resp. and for bowel loops 240 ± 169 cGy, 153 ± 59 cGy and 870 ± 222 cGy. The average and median sigmoid colon point doses were higher than rectum average ($p = 0.000$) and median doses ($p = 0.001$) but 2cc volumetric doses of sigmoid colon are less than rectum 2cc volumetric doses ($p = 0.013$). For bowel loops the 2cc volumetric doses were much higher than average doses ($p = 0.000$) due to its large volume. The recto-sigmoidal toxicity profile were evaluated for sigmoidal max doses and rectum 2 cc volumetric dose profile. There was a poor correlation between rectum 2 cc volumetric dose and sigmoid 2 cc volumetric doses.

Conclusion: According to dose toxicity profile, sigmoidal doses represent an important role for dose constrains but till now no protocol has been formed for reporting the sigmoidal doses. This study attracts the attention for reporting the sigmoidal and bowel loop doses. This study demonstrates the possibility and role of volumetric imaging and dosimetry for improvement in dose constraints.

Uterus: Poster Abstract

Can initial grade of endometrial cancer presenting at Tata Medical Center, predict high risk factors which will require lymph node dissection and adjuvant therapy?

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Background: Pre-operative tumor grade influences the type of surgery planned for endometrial cancer, while the final grade affects the adjuvant therapy.

Aims and Objectives: To predict whether pre surgery tumour grade can predict lymph node dissection and adjuvant therapy in endometrioid endometrial cancer.

Methods: Retrospective observational study. Data was obtained from electronic hospital medical records system. All women with a diagnosis of endometrioid endometrial cancer who attended TMC, Kolkata between September 2011 and June 2015 included. Review of the histology was asked in all patients and MDT was planned for all patients. Most of the patients operated in TMC underwent standard pre-operative imaging work up like MRI pelvis and CT upper abdomen and chest evaluation. Staging/completion surgery included total hysterectomy, BSO, pelvic +/- para aortic lymphadenectomy +/- Omental biopsy. The surgico-pathological evaluation included histology, grade, myometrial invasion, adnexal involvement and nodal involvement.

Results: 155 patients had both initial and final histology. Of total 67 patients with initial grade 1 histology, 8 (12%) were upgraded to G2 and 1 (1.5%) was upgraded to G3. 35 patients with G2 disease 2 (5.7%) were upgraded to G3. Among 8 patients with G3, 7 continued to be G3. Of the 67 patients with initial grade 1, > 50% invasion was seen in 25 (37.3%). Of 35 patients with initial G2, > 50% myometrial invasion was seen in 13 (37.1%) patients. Among 8 initial G3 patients, > 50% invasion was seen in 3 (37.5%) patients. Of these 67 patients with grade 1, pelvic lymph nodes were involved in 4 (6%) patients. None of the grade 2 tumors had pelvic lymph node involvement. One (12.5%) out of 8 patients with initial G3 tumor had pelvic lymph node

involvement. Recurrence was seen in 3/67 (4.5%) of G1 patients, 7/35 (20%) with G2 cases and 1/8 (12.5%) with G3 cases.

Conclusion: Patients with initial G1 disease, about 13% were upgraded. Recurrence rate increased with G2 patients. For all initial grade tumors the myometrial involvement > 50% was 37%. For initial G1 patients the pelvic lymph node involvement was found to be 6%. For G3 tumor the pelvic lymph node involvement was 12.5%.

Ovary: Poster Abstract

Dermoid cyst in an 82-year-old woman: Can be non malignant: Its management

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Dermoid cyst of ovary is the second most common type of ovarian germ cell tumor which constitutes 30 to 40% among ovarian tumors. It occurs mostly in women of reproductive age group between 20 and 40 years and very rarely in postmenopausal women. Postmenopause has its own set of symptoms and risks. One such risk is the possibility of malignancy of ovarian cyst with an incidence of 0.5 to 2%. We present an unusual and rare case of an 82 year old woman, who presented with complaints of pain abdomen and constipation for one year duration. Colonoscopy revealed diverticulitis. Despite being treated for diverticulitis, her symptoms persisted. CT was done which showed a right ovarian mass. Diagnostic laparoscopy was done and pus seen in the abdominal cavity was collected, bowel was distended, and dermoid cyst of ovary of 12×10 cm size which had undergone torsion three and a half times. Detorsion of ovary with right oophorectomy was done. Histopathology confirmed features of dermoid cyst with torsional changes in the wall and focal gangrene with no evidence of malignancy. Dermoid cyst occurs very rarely in postmenopausal women and treatment of choice is oophorectomy. Authors with this case highlight the proper management of ovarian dermoid cyst in symptomatic postmenopausal women.

Key words: Dermoid; malignancy; oophorectomy; torsion

Miscellaneous: Poster Abstract

Sujata Das

Haemangiomas of the ovary are very rare neoplasms with a wide age range and present with pain lower abdomen and adnexal mass. Many a times this is an incidental finding on surgery. These neoplasms should be considered in the differential diagnosis of haemorrhagic ovarian lesion. A 48 yr old female presented to us with pain lower abdomen and adnexal mass. Her routine investigations were normal. Her tumour markers were S. LDH 213, CEA 1.72, CA 125 was 2.3. Ultrasound findings showed a well defined echogenic mass in left ovary measuring 6 x 3.4 cm with no ascitis. Her cervical cytological findings were within normal limits. Staging laprotomy was done and a bilobed solid ovarian mass was identified on left side. TAH with BSO was done and specimen saved for histopathology that finally showed cavernous haemangioma of ovary. Post op recovery was uneventful with subsequent relief of pain.

Miscellaneous: Poster Abstract

A rare case report of incidental solitary uterine metastasis in primary invasive lobular carcinoma of breast

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Introduction: Infiltrating Lobular carcinoma (ILC) of the breast is second most common cancer of breast next only to Infiltrating ductal carcinoma (IDC). It has a different metastatic pattern as compared to the IDC. Breast cancer is the most frequent primary site which spreads to gynaecologic organs.

Case Presentation: A 40 yrs old Iraqi lady presented as a diagnosed case of lobular carcinoma of left breast. She had already undergone a lumpectomy at Iraq a month back and now had come for completion of treatment. On

metastatic workup with PETCT scan, we found a multicentric residual disease in the left breast along with some ipsilateral axillary LN with significant uptake. The concurrent CECT done showed a uterine leiomyoma also. As she was strongly hormone receptor positive, had completed her family and was having menorrhagia probably attributable to uterine fibroids. She was offered hysterectomy with B/L salpingo-oophorectomy. She was keen for breast preservation but in view of her multicentricity of disease on the left breast she was counselled for mastectomy with upfront whole breast reconstruction with TRAM flap. She underwent left modified radical mastectomy with hysterectomy with BSO and TRAM flap reconstruction. The histopathological examination revealed a multicentric, multifocal ILC, grade II with heavy nodal involvement including extracapsular extension. The leiomyoma of uterus also showed tumor deposits from lobular carcinoma breast.

Conclusion: We report a very rare case of metastatic pattern of carcinoma of breast. On literature review we found that it is common for the lobular carcinomas of breast to metastasise to gynaecologic organs. Uterine corpus is a very rare site of metastasis for extragenital cancers including breast. All the patients of primary lobular carcinoma of breast should be screened for gynaecologic secondaries in the preoperative workup with high degree of suspicion.

Ovary: Poster Abstract

Granulosa cell tumour of ovary in a benign looking adnexal mass: A rare occurrence and its management

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Granulosa cell tumours are sex cord stromal tumours of the ovary which accounts for 1-2% of all ovarian malignancies. We present a case of a 22 yrs old unmarried girl with chief complaints of dysmenorrhoea for last 4 months. There were no other symptoms and her general physical examination revealed no abnormality. Ultrasonography showed a simple ovarian cyst of 7 x 8 cm in right adnexa with normal Doppler flow and no ascites. Her tumour markers were negative. Per-operative uterus and left sided ovary and upper abdomen was normal. Right ovary showed a simple unilocular cyst of around 8 x 8 cm and right ovarian cystectomy done. Surprisingly histopathological examination of cyst wall revealed granulosa cell tumour. Immunohistochemical staining was found to be positive especially with inhibin. Staging laparoscopy with peritoneal wash, multiple peritoneal biopsy with right sided salpingo-oophorectomy, left sided ovarian biopsy and dilatation and curettage was done. Cytological and histopathological examination were found to be normal. Post operatively patient received chemotherapy because cyst wall was ruptured per-operatively and patient is doing fine and disease free till now.

Key words: Adnexal mass; granulosa cell tumour; tumour markers

Miscellaneous: Poster Abstract

Development of nasal HPV vaccine formulations

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Cervical cancer is the second most cancer in women worldwide with over 500000 new cases and 275000 deaths being registered every year. With nearly 73000 women dying every year, India now tops the world in cervical cancer deaths. India represents 26.4% of all women dying of cervical cancer globally. Cervical cancer estimated to be responsible for about 5% of human cancers worldwide. Currently available vaccines may not provide complete protection against all HPV types as the protection is primarily type specific. Furthermore, the available vaccines are delivered via intramuscular route and require three doses and require cold chain supply which increases the cost of vaccine. Therefore a single dose vaccine delivered via non-invasive route (nasal) that protects against multiple HPV types would be a cost effective and better alternative to the currently available HPV vaccines. The main objective of this study was to prepare HPV antigen loaded poly (lactic-co-glycolic acid) (PLGA) and Tri Methyl Chitosan (TMC) coated PLGA microparticles and compare their efficacy as nasal vaccine. The developed formulations were characterized for size, zeta potential, entrapment efficiency, mucin adsorption ability, *in vitro* and *in vivo* studies. PLGA microparticles demonstrated negative zeta potential

whereas PLGA-TMC microparticles showed higher positive zeta potential. The protein loading efficiency was found as above 80%. Results indicated that PLGA-TMC microparticles demonstrated substantially higher mucin adsorption when compared to PLGA microparticles. HPV antigen encapsulated in PLGA-TMC particles elicited a significantly higher secretory (IgA) immune response compared to that encapsulated in PLGA particles. Present study demonstrates that PLGA-TMC microparticles with specific size range can be a better carrier adjuvant for nasal subunit vaccines. Surface modified PLGA microparticles proved great potential as a nasal delivery system for HPV infections where systemic and mucosal responses are necessary particularly in conditions after viral pathogens invade the host through the mucosal surface.

Ovary: Poster Abstract

Retrospective analysis of surgical outcomes and survival in women with advanced ovarian cancer undergoing interval debulking surgery

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Introduction: Both primary (PDS) and interval debulking surgery (IDS) have reported similar progression free survival (PFS) and overall survival (OS) rates in various studies. Complete resection of all macroscopic disease is the strongest independent variable in predicting survival in both groups.

Objective: To evaluate the demographics, surgical outcomes and survival in women with advanced ovarian cancer undergoing IDS.

Methods: All women with Stage IIIC or Stage IV epithelial ovarian or primary peritoneal cancer, registered at our institution from January 2010 to December 2010, who were treated with NACT followed by IDS, were included in the study. Demographic data, CA-125 levels (baseline and presurgery), chemotherapy and surgical details were collected. Progression free survival (PFS) and overall survival (OS) were calculated and Cox regression and Kaplan-Meier survival analysis were used to evaluate factors associated with survival.

Results: One hundred fifty women with Stage IIIC or Stage IV epithelial ovarian or primary peritoneal cancer were included in the analysis. The mean age was 51.08 years (27 to 73 years) and 97.3% had serous histology. Eighty percent (n = 120) had Stage IIIC and 20% (n = 30) had Stage IV disease. Ninety five percent women received Carboplatin and Paclitaxel or single agent Carboplatin as NACT and the median number of NACT cycles was 3. The median baseline CA-125 was 1649.3 U/ml (Range 16.4–235,100 U/ml) and the median CA-125 post NACT was 42.75 U/ml (Range 4.4–5151 U/ml). Seventy four percent women (n = 111) underwent an optimal cytoreduction – 62.7% (n = 94) had R0 and 11.3% (n = 17) had R1 resection. Twenty six percent women (n = 39) had R2 resection. The median CA-125 post NACT was 27.3 U/ml, 36 U/ml and 99 U/ml in women with R0, R1 and R2 resection respectively and the difference was statistically significant (p < 0.0005). The CA125 response was respectively, 97.6%, 95.7% and 93.8% in R0, R1 and R2 resection (p < 0.0005). The median follow up was 42.48 months (Range 1.48–70.93 months). The median PFS was 12.06 months (95% CI 10.02–14.1) – 12.98 months (95% CI 9.7–16.2) in R0, 9.56 months (95% CI 1.7–17.4) in R1 and 6.64 months (95% CI 4.9–8.3) in women with R2 resection (p = 0.158). The median OS was 38.9 months (95% CI 31.7–46.1) – 43.3 months (95% CI 33–53.5) in R0, 46.1 months (95% CI 26.6–65.5) in R1 and 28 months (95% CI 25–30.9) in R2 resection (p = 0.121). The median PFS and OS in women undergoing optimal cytoreduction (R0 and R1) was 12.98 months (95% CI 9.86–16.1) and 43.7 months (95% CI 34.7–52.7) respectively as compared to 6.64 months (95% CI 4.95–8.32) and 28 months (95% CI 25–30.9) respectively in women with R2 resection (PFS p = 0.064, OS p = 0.04). Multivariate analysis discussing the factors affecting the probability of optimal cytoreduction and the survival will be discussed.

Conclusion: In women with advanced ovarian cancer undergoing NACT followed by IDS, a high rate of optimal cytoreduction is achieved. Residual disease is a primary factor affecting the survival of these women.

Ovary: Poster Abstract

Primary signet ring cell mucinous carcinoma ovary: A very rare neoplasm

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