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Background: TCGA data using expensive multi-modality diagnostic platforms have shown that 50% epithelial ovarian cancers (EOCs) are estimated to be homologous recombination (HR) deficient (HRD). We developed a functional assay for HR using gamma H2AX-Rad51 immunofluorescence.^[1]

Methods: Primary cultures were developed in 50 consecutive EOCs from ascitic fluid and HR assay was performed.

Results: 50% patients were HRD based on the functional assay and show improved ex-vivo chemosensitivity to PARP inhibitor (PARPi) (PPV = 92%, NPV = 100%). HRD patients showed improved platinum sensitivity (53.8% vs 16.7%), survival (12 month OS - 41.7% vs. 11.5%) and optimal cytoreduction (80% vs. 62%) rates compared to HR competent (HRC) tumours which are less responsive and represent an unmet clinical need.

Conclusions: Personalised surgical and chemotherapeutic strategies may be developed for HR stratified EOCs. Primary surgery may be the preferred approach in HRC due to poor chemoresponse; surgical expertise/environment should be optimised to ensure optimal surgical outcome. Intra-operative hyperthermic treatment and selective HR inhibitors may improve subsequent chemoresponse in HRC and are currently being investigated.

Reference

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Ovary: Oral Abstract

Diagnostic accuracy of intraoperative frozen section in ovarian neoplasms: Experience in a tertiary oncology centre

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Aims and Objectives: This study is done to assess the accuracy of intraoperative frozen section in the diagnosis of various categories of ovarian neoplasm conducted in RGCI.

Materials and Methods: Intraoperative frozen sections for suspected ovarian neoplasm that underwent surgery as primary line of therapy at this institution were analyzed retrospectively from Jan. 2014 - Dec. 2015. The results of frozen section were compared with the final histopathologic diagnosis on paraffin sections and the overall accuracy, sensitivity, specificity, positive and negative predictive values were determined.

Results: The study included 159 cases and the mean age of patients was 44.72 ± 14.28 years (Range 19-75 years). The mean size of tumor was 12.5 ± 5.9 cm. Sensitivity of frozen section for benign, borderline and malignant tumors was 98.53%, 73.33% and 94.74% respectively. And the related specificities were 95.60%, 96.53% and 100% respectively. There were 150 concordant cases and 9 discordant cases. Overall diagnostic accuracy of frozen section was 94.33%.

Conclusion: Intraoperative frozen section diagnosis appears to be an accurate and comparable technique for the histopathology diagnosis of ovarian tumours. It is a valuable tool to guide the surgical management of these patients.

Key words: Frozen section; ovarian neoplasm

Ovary: Oral Abstract

Modified posterior pelvic exenteration and rectosigmoid anastomosis for advance epithelial ovarian cancer: A safe cytoreductive procedure

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Introduction: Surgery plays an important role in the management of advanced stage ovarian cancer and is complex involving surgical procedures including peritonectomy, splenectomy, diaphragmatic stripping, retroperitoneal lymph node dissection and bowel resection including resection of recto-sigmoid.

Objective: To assess the safety and efficacy of the patients undergoing modified posterior pelvic exenteration and rectosigmoid anastomosis achieving in optimal cytoreduction.

Methods: Between June 2011 and June 2014 a total of 100 patients underwent surgical cytoreduction for advanced epithelial ovarian cancer of which 20 patients had undergone modified posterior pelvic exenteration with rectosigmoid anastomosis. The present study includes a retrospective analysis of these 20 patients. Rectosigmoid anastomosis was done using circular stapler in these patients. All patients had a PS score of 1 or 2.

Results: The median age of patients was 50 years. The optimal status of no macroscopic residual disease was achieved in all patients. Modified posterior pelvic exenteration with rectosigmoid anastomosis was carried out to achieve optimal status of surgical cytoreduction in 20 patients out of which fifteen patients had primary surgical cytoreduction, three patients had interval surgical cytoreduction surgery after receiving three cycles of neoadjuvant chemotherapy with paclitaxel & carboplatin while two patients had this procedure as a part of secondary surgical cytoreduction. The most common histology was papillary serous carcinoma. Average blood loss was 500 ml. Mean operative time was 6 hours. There were no intra operative complications. Bowel movements returned to normal in 3 to 5 days. The median length of hospital stay was 7 days. The median time to start post-operative chemotherapy was 32 days. There was no major morbidity and mortality.

Conclusion: Modified posterior pelvic exenteration with rectosigmoid anastomosis should be performed when indicated as a part of cytoreduction. In our experience this is a safe and effective procedure to achieve optimal status in advanced ovarian cancer.

Ovary: Oral Abstract

Evaluation of ovarian reserve in women undergoing ovarian cystectomy by laparoscopy and laparotomy

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Ovarian cysts are one of the commonest problems encountered in the gynecological field. Majority of these cysts are functional i.e., disappear spontaneously, while few need cystectomy. Ovarian cystectomy is done by laparotomy and laparoscopic technique. The method to achieve haemostasis in the ovarian bed after cyst removal varies with the type of technique. Electrocoagulation is used to achieve haemostasis in laparoscopic cystectomy while the bleeding vessels are sutured for haemostasis in cystectomy by laparotomy. Both the modalities of management varies in terms of compromise of ovarian reserve. The study was carried out to evaluate the surgical impact of benign ovarian masses on ovarian reserve as measured by serum levels of antimullerian hormone. In this prospective study on 30 women of reproductive age group with benign ovarian masses, 15 women were enrolled for laparoscopic ovarian cystectomy and another 15 women were enrolled for cystectomy by laparotomy and ovarian reserve was measured by levels of serum AMH preoperatively, postoperative one week and postoperative 3 months using standard ELISA assay kit. The preoperative, postoperative one week and postoperative 3 months levels of mean AMH were 4.74 ± 1.86 ng/ml, 2.92 ± 1.45 ng/ml and 2.64 ± 0.96 ng/ml respectively, in women undergoing laparoscopic cystectomy and 3.98 ± 1.35 ng/ml, 2.48 ± 0.64 ng/ml and 2.11 ± 0.63 ng/ml respectively in women undergoing ovarian cystectomy by laparotomy. So there was decline of mean AMH levels in postoperative one week and postoperative 3 months samples in both of the groups of enrolled women. However, this decline varied with the type of cyst removed and is insignificantly greater in laparoscopy group, wherein electrocoagulation may cause extensive and sustained damage to ovarian tissue.

Ovary: Oral Abstract

Multiple recurrence of granulosa cell tumor of the ovary: A case report and literature review

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Introduction: Granulosa cell tumors comprise approximately 5% of all ovarian malignancy and account for 70% of malignant sex cord stromal tumors. Granulosa cell tumors have been diagnosed from infancy, the peak incidence being perimenopausal age. The potential of malignancy of these tumors is low, recurrences are often late and found in 10-33% of cases.

Case Report: A 32-year-old P1L1 presented with large abdominal mass for which she underwent staging laparotomy with debulking surgery. She was a known case of granulosa cell tumor in the past and had undergone three laparotomies, along with chemotherapy. At the age of 13 years, she was diagnosed with a stage IA granulosa cell tumor (GCT) of the ovary first time. She underwent surgical staging and removal of left sided adnexal mass, after which she was asymptomatic for 7 years. In 2003 she again presented with lump abdomen for which she underwent resection of adnexal mass, histopathology was consistent with recurrent GCT. After second surgery she also received two cycles of chemotherapy. Despite adjuvant chemotherapy, patient presented again after three years in 2006 with adnexal mass and was found to have a third recurrence. At that time, she received 6 cycles of chemotherapy and the mass regressed. Meanwhile she got married and had one child. After four year in 2010 she again presented with lump abdomen and she underwent surgical staging, total abdominal hysterectomy with right salpingo oophorectomy along with removal of mass. After five year in 2015 she again presented with lump abdomen; there was a large pelvic mass which was removed and patient referred for chemotherapy.

Discussion: GCTS which a rare malignant tumors of ovary tend to be associated with late recurrences. Although most recurrences occurs within 10 years after initial diagnosis, there are occasional reports of recurrences after 10 years. We experienced the rare case of a patient who relapsed multiple times over 20 years, despite surgical and targeted treatment. In conclusion the long history of granulosa cell tumor highlights the importance of extended follow up of the patient.

Key words: Granulosa cell tumor; recurrent disease; chemotherapy; surgical staging

Ovary: Oral Abstract

Role of IL-6 and VEGF in epithelial ovarian cancer

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Introduction: Over the last two decades there is a trend toward increasing incidence of ovarian cancer cases. CA-125 and some other tumor markers are known to have prognostic importance. Some cytokines have also been studied for their role in prognosis; IL-6 and VEGF are among them. It is hypothesized that these cytokines might affect the clinical progression of patients with ovarian cancer.

Aim and Objectives: To measure and correlate the effect of levels of IL-6 and VEGF in ascitic fluid on presentation, treatment response and outcome in patients with epithelial carcinoma ovary and to determine whether levels of IL-6 significantly correlate with progression-free survival.

Materials and Methods: Thirty patients with epithelial ovarian carcinoma and 15 patients who were undergoing hysterectomy for benign condition were recruited. Once patients found fit for study, they were taken up for primary debulking surgery. Ascitic fluid was collected and sent for measuring IL 6 and VEGF levels. Peritoneal washings taken from patients posted for total abdominal hysterectomy for benign pathology was used as control to achieve the values of IL-6 and VEGF in the study population. Patients were followed up for 1 year after surgery with ultrasound abdomen and pelvis and serum CA 125 levels.

Results: Median value of IL-6 in ascitic fluid was 8563.18 pg/ml in EOC cases and 17 pg/ml in benign pathology group and of VEGF was 6090.35 pg/ml and 34.01 pg/ml, which were found to be significantly higher in cases compared to control group ($p = 0.0001$). Levels of VEGF was significantly higher in patients with positive ascitic fluid cytology ($p = 0.009$) and ascitic fluid volume $> 1L$ ($p = 0.021$). Correlation of VEGF and IL6 levels with other prognostic was not statistically significant. Levels of IL-6 and VEGF in ascitic fluid did not correlate statistically with survival time or with recurrence ($p = 0.651$).

Conclusion: Levels of VEGF in ascitic fluid were found to correlate with ascitic fluid cytology and volume but not with FIGO stage, histological grade, histological type, tumor size, residual tumor, CA 125 levels, chemotherapy response, presentation and with overall outcome and survival time. None of the above mentioned prognostic factors were found to correlate with levels of IL-6 in ascitic fluid.

Ovary: Oral Abstract

Clinico-pathological characteristics of epithelial ovarian malignancy in young female

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Background and Objective: Epithelial ovarian cancer mostly appears in aged women, but rarely in young women. Little is known about the clinical characteristics and prognosis of epithelial ovarian cancer in women aged below 40 years. This study was to evaluate the clinical and histopathological characteristics of young patients with epithelial ovarian cancer.

Methods: A total of 31 patients with confirmed epithelial ovarian cancer under the age of 40 years between 2007 to 2015 were retrospectively analyzed.

Results: Mean age of the patient is 32 years. The common symptoms included abdominal pain (21 patient 67%), self detected pelvic mass (9 patient 29%) and 1 patient with bleeding per vaginum. The average maximum diameter of tumour is 10.7 cm. Family history positive in 8 patient (5 ca.breast and 3 ca.ovary). Mean level of CA.125 is 883.36 u/ml. CA 125 level lowest is of 6 u/ml and highest is of 7557 u/ml. Tumour located bilaterally in 14 patient (45%). Ascites present in 18 patient (58%). Pleural effusion seen in 6 patient (19%). Twenty six cases underwent optimal cytoreduction out of them 7 taken NACT. Two patient underwent fertility preservation surgery. Three patient underwent palliative chemotherapy due to unwillingness. Eleven patient classified as stage III and stage IV each (35% of each), six patient is of stage I (19%) and three patient of stage II (9.6%). Serous adenocarcinoma (80.6%) and mucinous adenocarcinoma (19%) are the common histopathological findings. Thirteen patient (41.9%) has well differentiated tumour, eight (25.8%) has moderately differentiated and ten (32.25%) has poorly differentiated tumour. Twenty eight patient received platinum and paclitaxel-based chemotherapy before or after operation.

Conclusion: Young women with epithelial ovarian cancer under the age of 40 years mostly have serous adenocarcinoma; well differentiated and tumors are normally bilateral. The ovarian function can be preserved (fertility preservation) in part of stage Ia and Grade I patients.

Ovary: Oral Abstract

Role of CA 19-9 in complex ovarian tumors

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Background: Cancer antigen 19-9 (CA 19-9) is a tumor-associated mucin glycoprotein antigen that may be elevated in healthy individuals as well as in patients with benign and malignant tumors. It is useful in the management of pancreatic and other gastrointestinal tumors. CA 19-9 is also elevated in benign and malignant ovarian tumors.

Aim: To study the pattern of serum CA19-9 in complex ovarian tumors.

Methods: The study design was descriptive, based on data collected from medical records. Patients with a complex ovarian mass, who were investigated with CA 19-9 and had undergone surgery, were included in the study. The study duration was 2 years from January 2014 to December 2015. A total of 273 patients (119 - benign and 154 malignant) with complex ovarian mass and elevated CA 19-9 underwent surgery during the study period.

Results: CA 19-9 was elevated in 55 patients (20%). Of these, 23 patients had benign tumors while 32 had malignant tumors.

Among patients with benign tumors, 21 had dermoid, 23 had mucinous tumors and 75 had other types of tumors. CA 19-9 was elevated in 10 (47.6%) of the dermoids, 7 (30.4%) of the mucinous tumors and 6 (8%) of the other benign tumors. Among patients with malignant tumors, 138 were epithelial and 16 were non epithelial tumors. Of the epithelial tumors, 31 were mucinous and 107 were non mucinous types. Overall, 29 (21%) had elevated CA 19-9. Of the epithelial tumors, 22.6% of the mucinous type and 20.6% of the non mucinous type had elevated CA 19-9. Among the non-epithelial tumors, 3 (18.8%) had elevated CA19-9.