



OVARIAN CANCERS: A RAINBOW TO EXPLORE

Swapnil Agrahari., Amrita Singh., Kumkum Srivastava., Shipra Kunwar.,
Shivani Singh and Parul Sinha

Department of Obstetrics and Gynaecology, Era's Lucknow Medical College and Hospital

ARTICLE INFO

Article History:

Received 12th April, 2019

Received in revised form 23rd

May, 2019

Accepted 7th June, 2019

Published online 28th July, 2019

Key words:

Ovarian, malignancy, complaints.

ABSTRACT

Background: The 3 major types of ovarian tumors are epithelial, sex cord, and germ cell. Epithelial cell tumors represent the majority of all ovarian neoplasms (82%).

Although rare, dysgerminomas are important irrespective of incidence because they most commonly affect women of reproductive age (ie, < 30 y). In fact, dysgerminomas make up two thirds of all malignant ovarian neoplasms in women younger than 20 years. Moreover, once diagnosed, dysgerminomas respond well to therapy, potentially sparing patients from infertility and early mortality.

Methods: Cases of ovarian malignancies were identified from the year 2017-2018 at Era Lucknow Medical College and Hospital. Patient records and pathology were reviewed.

Results: All the cases reviewed had varied presentation.

Conclusion: Many times, patients who are thought to have benign mass comes out to be malignant. Thus, with patient coming with vague complaints, we need to be more vigilant regarding our workup and management.

Copyright © 2019 Swapnil Agrahari et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Ovarian carcinoma primarily is a disease of postmenopausal women. In past reported series, between 3–17% of patients with ovarian tumors were age \leq 40 years. Two main issues arise in the care of the woman age \leq 40 years with ovarian carcinoma. First, many of these women will be interested in preserving their fertility despite the diagnosis of ovarian carcinoma. This important concern needs to be appropriately addressed by the oncologist. Second, the young woman will have appropriate questions regarding her prognosis. Several retrospective studies have attempted to evaluate young age as an independent predictor of survival. The studies are divided in their conclusions and many contain flaws common to retrospective reviews of rare occurrences.

Many of the young women under consideration will present with borderline tumors (tumors of low malignant potential). Most of the patients will be presenting with pain. Pain may be due to torsion, intraperitoneal rupture, or bleeding in to ovarian tissue. Symptoms like pain nausea and vomiting should alert physician to rule out torsion. Most of these patients need emergency surgery. Diagnosis is mainly by clinical features, ultrasound, tumour markers, Doppler and CT scan. Management of ovarian tumours in young is a dilemma for gynaecologists as preservation of uterus with adnexa for procreation is an important aspect of therapy. Surgery plays an important role in the treatment of tumours. Here various

ovarian tumours in the reproductive age group encountered in our department is highlighted.

METHODS

All cases of ovarian tumors occurring in the reproductive age group who have undergone surgery in Era's Lucknow medical college and hospital, Lucknow, India were analyzed. Data regarding patient's age, symptoms, diagnosis, treatment, histopathology and follow up where ever possible is recorded. Here we are discussing a series of cases to study the varied pattern of presentation of ovarian malignancies.

Case 1- Pregnancy with Malignancy; a tough task to tackle

23 years old, primigravida presented with the complaint of 16 weeks 3 days pregnancy presented with pain in abdomen and difficulty in walking. On per abdomen examination, a mass of around 26 weeks size uterus felt from which uterus could not be well differentiated separately, hence fundal height of uterus could not be made out, restricted mobility, tenderness present. Margins regular, surface irregular and variegated consistency. Lower pole could not be reached. No ascites. Similar findings confirmed per vaginally. ? Malignant ovarian neoplasm. On USG findings, SLIUF ~ 16 weeks 1 day with unstable lie, placenta posterior, grade 1, liquor adequate. A large heterogenous polypoidal soft tissue SOL (141x106) mm with internal cystic component in right adnexa extending to the upper lumbar area... ? TO mass. The Morphological Index

*Corresponding author: Swapnil Agrahari

Department of Obstetrics and Gynaecology, Era's Lucknow Medical College and Hospital

(MI) came out to be 12. On MRI pelvis – urinary bladder partially distended. Uterus was gravid. Evidence of well defined, heterogenous lesion noted possibly arising from fundus of uterus, extending upto right lobe of liver on USG correlation (16x15)cm. likely fundal fibroid. Right ovary could not be commented upon. The tumor markers were – LDH – 811, CA-125 – 49.6, AFP – >500, β -hCG – 15,000. The Risk of Malignancy Index (RMI) was calculated to be 149.7 Patient was taken up for laparotomy in view of malignant ovarian neoplasms. Right sided salpingo-oophorectomy done, a right sided ovarian mass of (11x6)cm seen, removed and sent for HPE. Hepatomegaly +, friable tissue present on liver surface. ?hepatic metastases. Omentum free, omental biopsy taken. Stage-IIIb. On HPE report, the mass came out to be Dysgerminoma (right ovary). Termination of pregnancy was done followed by adjuvant chemotherapy in post op period, patient is presently well and in follow up.

Case 2-Gloomy when Young

17-year-old, unmarried girl presented with the complaint of on & off pain abdomen for 1 year and distension of abdomen for 7 days, weakness and weight loss. On per abdomen examination, an abdominal mass of around (20x15) cm felt occupying hypogastrium and ilio-lumbar region, irregular margins, surface smooth, variegated consistency, mobile side to side, lower pole could not be reached, ascites +. Provisional diagnosis made out to be Malignant ovarian neoplasm. On USG (W/A) – a large well-defined pelvic lesion (~24x15) cm with traversing vessels, displacing bowel peripherally with mild ascites. Left ovary could not be visualized separately...? ovarian mass. The MI calculated was 12. On CECT(W/A) – large well-defined solid mass with abdominopelvic extension s/o neoplastic etiology. Ascites. Mild hepatomegaly. Tumor markers were – CA-125 – 124.5, AFP – 3.46, LDH – 5439, β -hCG – 66. RMI was 373.5 Patient taken up for laparotomy in view of malignant ovarian neoplasm. Left sided salpingo-oophorectomy done. Intra operatively, ascitic fluid seen, a left sided mass of (23x14x6) cm seen, removed and sent for HPE. Omentum, peritoneum and abdominal organs explored, appeared to be free. Stage Ia ovarian cancer.

On HPE, it came out to be Dysgerminoma (left sided). Grade 2. Hence, followed by 6 cycles adjuvant chemotherapy and patient is presently well and in follow up.

Case 3 - Benign Upturning Malignant

24 year old, P2L2 presented with complaint of pain abdomen and lump per abdomen for 2 months, weight loss and difficulty in micturition. On Per abdomen examination, a firm mass felt arising from pelvis (~ 20x20) cm, regular margins, smooth surface, restricted mobility, non tender, lower pole could not be reached. Per vaginally, uterus could not be felt separately. Same mass felt involving right, left and anterior fornix (~20 x 20)cm, firm and cystic in consistency, non-tender. ? Benign ovarian neoplasm. USG showed left ovarian complex cyst (~17.8 x 9.2) cm with thin septations and no solid components. MI as calculated was – 5. CECT (W/A) showed a large well defined complex solid cystic right adnexal lesion with extensions. ?neoplastic etiology. Tumor markers were CA-125 – 38.9, LDH – 183, AFP – 0.786, β -hCG < 2.39, CA-19.9 – 10. RMI came out to be – 116.7. Patient taken up for laparotomy in view of malignant ovarian neoplasm. Left sided salpingo-oophorectomy done, a left ovarian cyst of (25x20)cm visualized, removed and sent for HPE, omentum, peritoneum

and abdominal organs free. Surgical spillage occurred. Stage IC1. On HPE, it came out to be mucinous cystadenocarcinoma (left sided). Patient was given neo adjuvant chemotherapy and then taken up for total abdominal hysterectomy with right sided salpingo-oophorectomy.

Case 4 – Only Pain: Mucinous Reign

A 30 year old woman, P4L4 presented with the complaint of pain abdomen since 12-20 days. On Per abdomen examination, a 14-16 weeks size mass palpable, mobile side to side, smooth surface and cystic consistency. ? Benign ovarian neoplasm. USG(pelvis) showed heterogeneously hypoechoic mass with cystic & solid component and raised vascularity in right adnexa (~11.3x8.7)cm. ? Neoplastic etiology. MI as calculated was – 12. Tumor Markers were - CA-125 – 9.3, LDH – 622, AFP – 10.3, β -hCG < 2.39, CA 19.9 – 15. RMI came out to be – 27.9. Laparotomy done. Total abdominal hysterectomy with B/L salpingo-oophorectomy done. Intra operatively, bulky uterus, right sided ovarian mass of (~12x9)cm, and left sided cyst (~2x3)cm seen, removed and all specimens sent for HPE. Stage – IA. On HPE, it was Mucinous Adenocarcinoma (right sided), left sided simple cyst. Hence followed by 6 cycles adjuvant chemotherapy and patient is presently well and in follow up.

Case 4 – Only Pain: Mucinous Reign

A 30 year old woman, P4L4 presented with the complaint of pain abdomen since 12-20 days. On Per abdomen examination, a 14-16 weeks size mass palpable, mobile side to side, smooth surface and cystic consistency. ? Benign ovarian neoplasm. USG(pelvis) showed heterogeneously hypoechoic mass with cystic & solid component and raised vascularity in right adnexa (~11.3x8.7)cm. ? Neoplastic etiology. MI as calculated was – 12. Tumor Markers were - CA-125 – 9.3, LDH – 622, AFP – 10.3, β -hCG < 2.39, CA 19.9 – 15. RMI came out to be – 27.9. Laparotomy done. Total abdominal hysterectomy with B/L salpingo-oophorectomy done. Intra operatively, bulky uterus, right sided ovarian mass of (~12x9)cm, and left sided cyst (~2x3)cm seen, removed and all specimens sent for HPE. Stage – IA. On HPE, it was Mucinous Adenocarcinoma (right sided), left sided simple cyst. Hence followed by 6 cycles adjuvant chemotherapy and patient is presently well and in follow up.

Case 6 – Reluctancy to malignancy, path to mortality

A 32 year old, P6L6, presented with complaint of lump per abdomen for 2 months, pain abdomen, weakness, weight loss. On per abdomen – 12-14 weeks size mass palpable, mobile side to side, smooth surface and cystic consistency. ? Malignant Ovarian neoplasm. USG (W/A) showed liver mildly coarse echotexture. Gross ascites. Right adnexal well defined heterogeneously hypoechoic SOL (3.4x2.2)cm. MI was – 10. CECT(W/A) showed a large lobulated solid cystic mass lesion seen in pelvis in midline and on left side. Mass shows multiple enhancing solid components and enhancing septae and interspread cystic. No calcification seen in the mass. Mass measures (8.1x4.8x4.5) cm in transverse, cranio, caudal and AP planes, respectively. Posteriorly, the mass lesion is abutting the anterior wall of rectum with blurring of intervening fat planes. Tumor markers – CA-125 – 124, AFP – 182, LDH – 787, β -hCG <2.39. RMI was 372. Staging laparotomy done. right sided salpingo-oophorectomy done, a

right ovarian cyst of (10x6)cm visualized, removed and sent for HPE. omentum, peritoneum and abdominal organs free. Stage IA. On HPE, it was Mucinous Adenocarcinoma. Patient came for 2 cycles of chemotherapy but did not turn up further due to financial issues. Patient expired a few months later.

DISCUSSION

The 3 major types of ovarian tumors are epithelial, sex cord, and germ cell. Epithelial cell tumors represent the majority of all ovarian neoplasms (82%). Conversely, germ cell tumors (GCTs) are rare, comprising approximately 20% of all ovarian tumors, both benign and malignant. Approximately 3-5% of ovarian GCTs are malignant. The most commonly occurring GCT is the dysgerminoma, which accounts for approximately 2% of all ovarian cancers. In the cases reported by us, out of 6 cases, 2 are of dysgerminomas (33%), 3 mucinous cystadenocarcinoma and 1 yolk sac tumor.

Dysgerminomas make up two thirds of all malignant ovarian neoplasms in women younger than 20 years. Moreover, once diagnosed, dysgerminomas respond well to therapy, potentially sparing patients from infertility and early mortality.

Most patients with dysgerminomas present with abdominal pain and a palpable abdominopelvic mass but can also present with variable presentation, like: Pelvic fullness, Pain, Early satiety, Urinary frequency, Dysuria. Vague abdominal symptoms (e.g., dyspepsia, digestive disturbances) are less common. Usually present as a unilateral mass and can occur during pregnancy. Rapid growth and predispose to rupture and torsion with associated acute change in symptoms in approximately 5-10% of patients. Similarly, we found the same spectrum of clinical presentation in our cases.

We have also used risk of malignancy index (RMI) and morphological index (MI) in the analysis of the cases to differentiate between benign and malignant and to corroborate with our clinical and per operative findings. RMI of >250 and morphological index ≥ 5 has 85% chances of malignancy.

In a study stated by Rujuta *et al*, the positive predictive value of 70.5% and negative predictive value of 87.8 % for RMI >200. In our cases, RMI has PPV of 66.7%. RMI combines three pre-surgical features: serum CA125 (CA125), menopausal status (M) and ultrasound score (U). The RMI is a product of the ultrasound scan score, the menopausal status and the serum CA125 level (IU/ml). Another study by DePriest PD *et al*, showed the the positive predictive value of 45% for MI ≥ 5 . In our cases, MI has PPV of 83%. Morphological index is an effective and cost-efficient method for malignant ovarian masses prediction, differentiation from benign masses. Regarding histopathology, grossly, dysgerminomas have a solid texture, with a tan, flesh like appearance. Microscopically, dysgerminoma cells are round and ovoid and contain an abundance of clear cytoplasm secondary to glycogen buildup. So as these changes have also been noticed in our slides.

Typically, the authors do not recommend any adjuvant chemotherapy for stage Ia dysgerminomas. Although 10-15% of stage Ia tumors may recur, essentially all of them are salvaged with chemotherapy. In our cases, we found high grade dysgerminomas even with stage Ia. Although, there are various protocols, we preferred BEP regime chemotherapy of at least 3 cycles following fertility preserving surgeries.

Most adnexal masses found in pregnancy resolve spontaneously within the first trimester. Two percent of all adnexal masses persisting during pregnancy are malignant (dysgerminomas included). For this reason, a more cautious observational approach is advocated up to 16 weeks gestation. If surgery is indicated, the ideal intervention time is 16-18 weeks gestation. Similarly, in our case 1, we also intervened at 16 weeks gestation. We took decision for termination & simultaneously did optimal debulking followed by chemotherapy.

Primary germ cell tumours of extragonadal origin are rare, 3-5%, and the exact incidence of this type of cancer is unknown. Yolk sac tumours arising in the pelvis outside of the ovary are distinctly uncommon. The majority of adults with YST present with advanced local disease and distant metastases; therefore, the complete local excision is rarely feasible.

The most common presenting symptoms for patients with endodermal primitive tumours are rapidly enlarging pelvic mass and pain which was consistent with our case. Neoadjuvant chemotherapy can be considered for patients with extensive intra-abdominal disease when initial debulking surgery is not an option as done in our case.

Fertility preservation is one of the major concerns of young patients diagnosed with gynecological cancer. With newer treatment regimens and better surgical techniques, survival rates after cancer treatment have improved, hence preservation of fertility has recently become an important issue in the treatment of gynecological cancers. As in our cases, after the required fertility preservation surgery, patients are followed up with clinical examination, ultrasonogram, and tumor markers.

CONCLUSION

As we can see from the cases discussed, there is a varied presentation of ovarian malignancies in young reproductive age group. Yolk sac tumor can show rapid growth and within a week time, can double up in size.

In pregnancy with malignancy, situation should be detected earlier so that we can plan termination as & when required according to the gestational age. Fertility preserving surgery should be considered after counselling followed by chemotherapy.

As most of the women present late in advanced stages, and are referred from FRUs to tertiary care centres for further management, it is advisable to get a better management facility at FRUs. Many times, patients who are thought to have benign mass comes out to be malignant. Thus, with patient coming with vague complaints, we need to be more vigilant regarding our workup and management. Patient should be counselled regarding strict adherence to follow up.

References

1. Chad M Michener. Ovarian Dysgerminomas. [medscape.com/article/253701](https://www.medscape.com/article/253701). 2019.
2. Williams SD, Kauderer J, Burnett AF, Lentz SS, Aghajanian C, Armstrong DK. Adjuvant therapy of completely resected dysgerminoma with carboplatin and etoposide: a trial of the Gynecologic Oncology Group. *Gynecol Oncol*. 2004 Dec. 95(3):496-9. [Medline].
3. Solheim O, Gershenson DM, Trope CG, *et al*. Prognostic factors in malignant ovarian germ cell

- tumours (The Surveillance, Epidemiology and End Results experience 1978-2010). *Eur J Cancer*. 2014 Jul. 50(11):1942-50. [Medline].
4. American College of Obstetrics and Gynecology. Educational bulletin: Ovarian Cancer. ACOG compendium of selected publications. No 250. 2000:667-675.
 5. J Rujuta, M Nandita, Risk of Malignancy Index (RMI) in Evaluation of Adnexal Mass. *J Obstet Gynaecol India*. 2015 Apr; 65(2): 117–121.
 6. DePriest PD, Shenson D, Fried A, Hunter JE, Andrews SJ, Gallion HH, Pavlik EJ, Kryscio RJ, van Nagell JR Jr. A morphology index based on sonographic findings in ovarian cancer. *Gynecol Oncol*. 1993 Oct;51(1):7-11.
 7. B Guruprasad, L Abraham Jacob. Mucinous cystadenocarcinoma of ovary: Changing treatment paradigm. *World J Obstet Gynecol*. Dec 10, 2012; 1(4): 42-45
 8. R Vilius, M Ugnius, K Justina, D Justyna. Successful treatment of advanced stage yolk sac tumour of extragonadal origin: a case report and review of literature. *Acta Med Litu*. 2016; 23(2): 110–116
 9. P Rema and A Iqbal. Fertility Sparing Surgery in Gynecologic Cancer. *J Obstet Gynaecol India*. 2014 Aug; 64(4): 234–238.

How to cite this article:

Swapnil Agrahari *et al* (2019) ' Ovarian Cancers: A Rainbow to Explore', *International Journal of Current Medical and Pharmaceutical Research*, 05(07), pp 4397-4400.
