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CA 125 IN OVARIAN NEOPLASMS CAN BE MISLEADING THAN A GUIDING FACTOR - A CASE REPORT

General Surgery

Rahavi Ravisekar MBBS, First author, Postgraduate student, Dept of General Surgery, ACS Medical College, Velapanchavadi, Chennai-600077, Tamilnadu, India.

Guru Prasad* MBBS, MS, Mch, Professor, Dept of General Surgery, ACS Medical College, Velapanchavadi, Chennai-600077, Tamilnadu, India. *Corresponding Author

Sriram MBBS, MS, Assistant Professor, Dept of General Surgery, ACS Medical College, Velapanchavadi, Chennai-600077, Tamilnadu, India.

Senguttuvan Kathirvel MBBS, MS, Head of the department, Dept of General Surgery, ACS Medical College, Velapanchavadi, Chennai-600077, Tamilnadu, India.

ABSTRACT

Abdominal masses in women are highly likely to be ovarian tumours. They tend to occur especially in the reproductive age group often affecting the productive years of life. The large tumours can either be both benign as well as malignant. Imaging gives an approximate idea of the masses with several criteria but to differentiate them we need the help of biomarkers. Over a period of 40 years, we have developed several biomarkers starting with CA125. CA 125 if elevated in thousands it indicates malignancy. In this patient an unmarried nulliparous women of 31 years, her Ca125 was elevated close to 4000 IU creating a diagnostic difficulty on how to proceed in the algorithm of management of an ovarian mass. Considering her situation, we planned a two staged surgery of cystectomy initially. The cystectomy showed serous cystadenoma as final diagnosis. So Ca125 values need to be dealt with discretion.

KEYWORDS

INTRODUCTION:

Abdominal masses are one of the common entities in General surgery and surgical oncology. The differential diagnosis ranges from retro peritoneal tumours, GISTs, Renal masses, uterine masses and ovarian masses. Ovarian masses are usually abdomino - pelvic masses and grow to a huge size before producing symptoms. Ovarian masses can be benign, borderline or malignant. Even though imaging can give us clues we cannot differentiate the three easily from it. So, adjuncts like tumour markers come into play. For ovarian tumours we use CA 125 predominantly which if elevated delineates epithelial tumours from others. The other markers are CA 19-9, CEA, AFP, Beta HCG, LDH and Inhibin.

The Risk of Malignancy Index (RMI) to some extent can give an idea whether the ovarian mass is benign or malignant. One of the important components of RMI is CA 125, hence if it high in thousands it definitely concludes the mass to be malignant. But is it reliable? We will discuss in this case report

CASE REPORT:

A 31 years old unmarried nulliparous woman presented to the outpatient department with abdominal distension for 4 months and abdominal discomfort for 2 months. History of irregular menstrual cycles once in two months, attained menarche at age of 14, No previous surgery no history suggestive of tuberculosis, normal bowel and bladder habits, not a known case of thyroid disease, No weight loss or gain.

On examination patient's general condition was normal, abdomen was distended two finger breath above umbilicus and the abdominopelvic mass showed minimal side to side mobility, smooth surface.

On per rectal examination the mass was smooth and showed minimal mobility. Respiratory examination was normal.

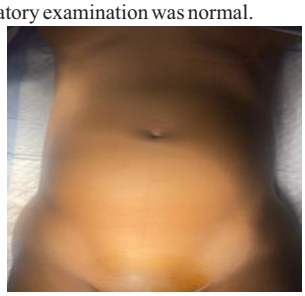

Figure 1: Abdomino pelvic mass extending till epigastrium

She was suspected to have an Ovarian mass (Figure 1).

USG was done which showed a large cystic mass arising from pelvis but could not delineate the details hence MRI was taken. MRI showed 21x 18x 11 cms cystic mass arising from right ovary. It shows high T1 and T2 signal intensity probably having a proteinaceous or mucin content. It had a mural nodule of 6x 4 mm (Figures 2.3). There were no septations. Since she was young the entire panel of tumour markers were done. CA 125- 3872 (normal upto 35) was elevated. The other markers CEA, Ca19-9, AFP, beta HCG, LDH, and Serum Inhibin were all within normal limits. Elevated Ca 125 strongly suggested carcinoma . Tumour board was convened on whether to go for surgical staging including hysterectomy and bilateral oophorectomy or to do a two staged procedure where cystectomy followed by further procedure based on the initial findings as she is young and had not completed her family.

Figure 2: CT scan showing a large mass with clear cyst and no septations.

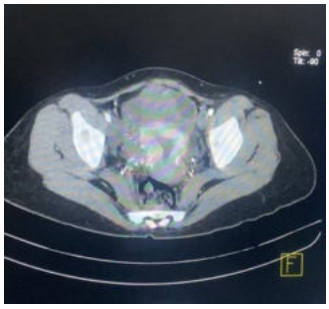

Figure 3: CT showing the tumour arising from right ovary – a mural

nodule present

The second choice of a two staged procedure was discussed in detail with the patient and she agreed. On exploratory laparotomy there was no peritoneal metastases and 100 ml of ascites was there. The large cyst was found to arise from right ovary (Figures 4to 6).

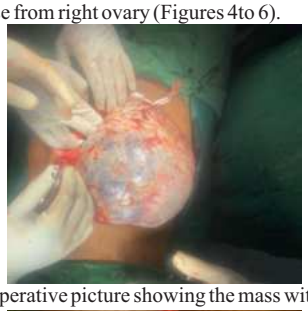

Figure 4: Intra operative picture showing the mass with no metastases

Figure 5: The mass arising from the right ovary

Figure 6: No peritoneal metastases and omentum was normal

A right salpingo - oophorectomy was done and the swelling removed without rupturing. The left ovary and uterine surface were normal. The abdomen was closed in layers. The specimen was subjected to histopathology and the final turned out be serous cystadenoma. The ascitic fluid was normal with no malignant cells.

Serous cystadenoma is a benign condition but CA 125 report in thousands was a misleading. CA125 as a marker for Carcinoma ovary has to be taken with discretion as from this case, we realise it is unreliable. Hence tumour markers should be only taken as adjunct parameters in diagnosing Malignancies and major decisions ought to be taken only after much scrutiny.

DISCUSSION:

Ovarian cancer is the gynaecologic cancer that causes the highest moratality. It is the fifth leading cause of cancer-related death in women [1]. It also affects women in the reproductive age group consuming precious lives. Although surgical techniques and chemotherapy have improved significantly in recent decades, there has been no significant improvement in the survival of patients with ovarian cancer. The high mortality is partly due to its nontypical symptoms, which are difficult to detect in the early stages, high invasiveness and peritoneal metastases at the time of presentation itself. Data reveal that 60% of patients with ovarian cancer are diagnosed in advanced stages, and their 5-year overall survival is only 29%.[2].

After it was discovered approximately 40 years ago, carbohydrate antigen 125 (CA125) became the most widely biomarker in ovarian cancer screening .[3]. However, there is still controversy about its role in clinical practice. In patients with ovarian cancer, serum CA125 level may be elevated, but this marker has a low sensitivity in the early stages of ovarian cancer [4]. Increased CA125 levels are also reported in other physiological or pathological conditions, such as menstruation, pregnancy, endometriosis and inflammatory diseases of the peritoneum compounding the usage in detection of malignancy[5]. So, in these there will be false positives. CA 125 is elevated in over 90% of patients with advanced ovarian cancer, but is only elevated approximately in 50% of patients with early-stage disease. Hence CA125 is not reliable in diagnosis to screen for early-stage ovarian cancer. Since then, our knowledge of the biology of ovarian cancer has significantly improved, and as of now, ovarian cancer classification is based not only on histological attributes but also on molecular phenotype [6]. CA125, also called mucin16 (MUC16), has been a reliable biomarker used to screen epithelial ovarian cancer by most centres. However, the value of this marker in clinical practice to label a ovarian mass as benign or malignant is not confirmatory. The normal value is less 35 International units. If elevated in thousands it definitely points towards malignancy but our index patient in the study had CA125 elevated to nearly 4000. But the imaging didn't support the findings. In our nulliparous unmarried woman, it added more confusion than clarity.

So, CA 125 in aiding diagnosis or screening in early-stage cancers remains questionable. But CA125 can be used for other purposes.[7] Many studies have recognized the important role of CA125 in oncogenesis and metastasis. An increasing number of researchers have chosen this marker as the target to design an antitumour strategy. So even though it has a dubious role in diagnosis a renewed exploration of this significant marker is warranted for other purposes. May be the role of CA125 in monitoring response to chemotherapy in epithelial ovarian cancer, assessing prognosis, and as a promoter with the potential to be used as a new target in future treatments should be explored [8]. In some studies serial changes in patients with ovarian cancer were considered to be related to response or progression of the cancer. So prospective strategies of Ca 125 need to be targeted targeting it.

CONCLUSION:

We still do not know much about the biological role of CA 125. Though several studies have indicated that this marker participates in the occurrence and development of ovarian cancer still data on it needs further evaluation. At present we don't have other reliable markers for epithelial cancers, hence we need better refinement in CA 125 correlation. For a better development of anticancer therapies, a renewed and systematic understanding of the roles of CA125 in diagnosis, prediction, and tumorigenesis is much needed.

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