THE JOURNAL OF OBSTETRICS AND GYNECOLOGY OF INDIA

The Journal of Obstetrics and Gynecology of India (January–February 2019) 69(1):92–94
https://doi.org/10.1007/s13224-017-1071-7

CASE REPORT

Benign Ovarian Edema Masquerading as Malignancy: A Case Report

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Received: 23 June 2017 / Accepted: 26 October 2017 / Published online: 20 November 2017

About the Author

Dr. Shalini Singh completed her medical school from the prestigious All India Institute of Medical Sciences (AIIMS), New Delhi, in the year 2006. She continued in the institute to complete her post-graduation in Obstetrics and Gynecology (2011). Subsequently, she joined the department of Obstetrics and Gynecology in a Government Hospital in New Delhi and worked there for one year. Later, she went on to successfully complete a fellowship in minimally invasive gynecologic surgery under the guidance of Dr. Rakesh Sinha in Mumbai. Ever since she has been attached to Fernandez Hospital, a reputed specialized tertiary referral center in Hyderabad, India (2015–till submission).

Introduction

Benign massive ovarian edema (MOE) is a rare clinical finding described in anecdotal case reports [1]. It presents clinically as an enlargement of the ovary. The mass is of variable size resulting from accumulation of fluid within ovarian stroma. It poses a stiff clinical challenge to practitioners as it can masquerade any ovarian malignancy [2]. There is no pathognomonic or diagnostic feature differentiating it from other solid ovarian masses clinically or by imaging. Hence, the specific diagnosis is only made on histopathology.

Case Report

A 15 year old girl came to our gynaec outpatient clinic with complaints of dysmenorrhoea and abnormal uterine bleeding since her menarche at age 13. She had prolonged cycles with heavy bleeding spanning 10–15 days. Periods

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occurred once in 6 months. Transabdominal pelvic ultrasonography elsewhere showed bilateral bulky ovaries with small immature follicles and foci of calcifications suggestive of endometriosis.

She was asthenic with a body mass index (BMI) of 18. Physical examination including per rectal examination was unremarkable. Ultrasonography was repeated which showed bilateral solid ovarian masses measuring 6 × 6 cm on right and 5 × 5 cm on the left side with multiple anechoic areas. Capsule was intact and vascularity was increased. This was suggestive of neoplastic etiology although no septations or papillary projections were noted. Magnetic resonance imaging (MRI) scan revealed complex multilocular cystic mass with thick irregular walls measuring 9.3 × 5.9 cm in the right ovary showing restricted peripheral diffusion and internal septations. This increased the suspicion of neoplasm. Germ cell neoplasm was being considered as a possibility. Left ovary was described as normal (Fig. 1).

All blood investigations and tumor markers including alpha fetoprotein, human chorionic gonadotropin, CA-125, lactate dehydrogenase and carcinoembrogenic entigen were within normal range. After due discussion with parents, options of a single-staged procedure (laparotomy with frozen section of the affected ovary followed by complete resection if malignant in the same sitting) or a two-staged procedure (laparotomy with right salpingo-oophorectomy and relaparotomy if malignant) were provided. Parents opted for the latter, as they were concerned about her fertility.

Informed consent was obtained. Abdomen was opened by a midline infra-umbilical incision. Intraoperatively, 50 ml of straw-colored free fluid was seen in pelvis which was sent for cytology. Uterus was normal in size and left ovary was small in size. Right ovary was irregular in contour and enlarged to 10 × 8 cm with intact white-colored capsule and normal pedicle (without torsion). Liver, omentum, bowel, mesentery and pelvic peritoneum appeared normal. Omental and peritoneal biopsies were obtained, and right salpingo-oophorectomy was performed. Postoperatively, patient recovered well and was discharged in stable condition (Fig. 2).

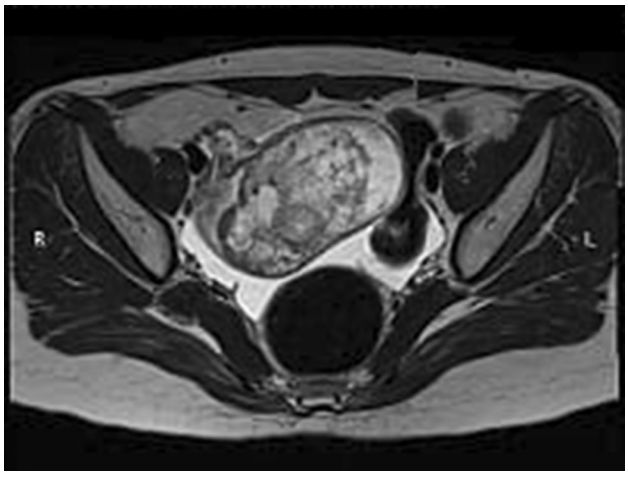

Fig. 1 MRI showing right ovarian mass. *MRI* magnetic resonance imaging

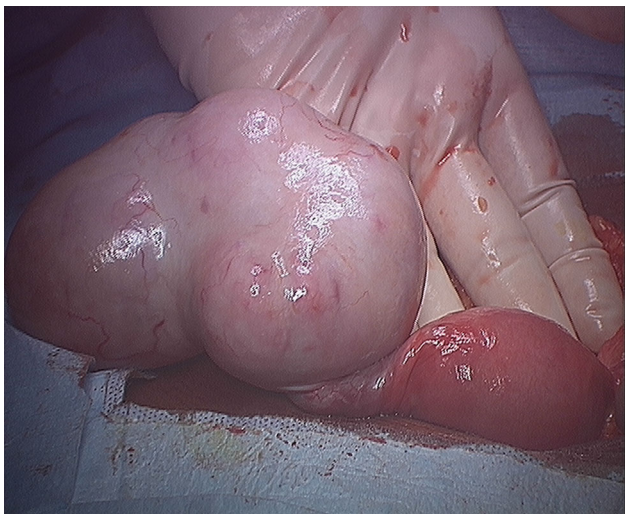

Fig. 2 Right ovarian mass seen on laparotomy

Fluid cytology did not show malignant cells, and histopathology of ovary revealed peripherally preserved cortical tissue and primordial follicles with markedly edematous and hypocellular central part and areas of hyalinization suggestive of massive ovarian edema. There was no evidence of neoplasm. Right fallopian tube, omentum and peritoneal biopsies were unremarkable. This came as a surprise and relief to us!

Discussion

Massive ovarian edema is a rare condition seen mostly in young women. Most cases have been described in girls of pubertal age. It is defined as edema within the ovarian stroma separating normal follicular structures. The edema is considered to result from torsion of ovaries interfering with venous and lymphatic drainage but insufficient to cause necrosis [3].

The presentation can be varied including abdominal pain, distension or mass in the abdomen. In some cases, irregular vaginal bleeding, precocious puberty and virilisation can also occur due to luteinization of stroma. Majority of cases of ovarian edema are primary without concomitant pathology [3]. Ovarian torsion resulting in interference of lymphatic and venous drainage without causing necrosis is postulated as the cause of edema and

enlargement of the ovary. Sometimes, ovarian edema can occur secondary to drugs used for ovulation induction or disease in ovary like hemangiomas, cystadenomas, mature cystic teratoma, ovarian fibrothecoma and Meig's syndrome. In rare scenarios, lymphatic permeation of malignancies like uterine cervix, gastric carcinoma and lymphangitis carcinomatosis can be present as ovarian edema [3]. Peripheral arrangement of multiple ovarian follicles in a solid ovarian mass is the characteristic ultrasound feature of this condition. MRI may be useful adjunct in the diagnosis as described by Umesaki et al. [4].

Gross morphological appearance of the lesion can give a clue. The cut surface of the specimen appears gray in color and is spongy to touch. The edematous fluid oozes out with a bulge from the cut surface.

Histopathological examination shows ovarian stroma to be widely separated by copious edema fluid clinching the diagnosis. Tunica albuginea and the superficial cortical zone are typically spared.

Most of the cases described in the literature were overtreated [1, 2]. The lesions were mistaken for primary ovarian neoplasm at laparotomy and unilateral salpingo-oophorectomy was done for majority as in our case [1, 2]. Awareness and knowledge of this rare clinical condition would help to manage such patients better and avoid unnecessary surgeries. Management options include diagnostic laparoscopy and frozen section. Careful examination of ovary and vascular pedicle should be done. Depending on the age of the patient, treatment options could be detorsion, ovarian puncture, decompression of ovary, wedge resection or unilateral salpingo-oophorectomy [3]. Massive ovarian edema can be diagnosed with awareness, astute clinical thinking and appropriate use of imaging.

Conclusion

Massive ovarian edema is a rare condition mimicking graver ovarian neoplasms and causing a diagnostic dilemma. It should be considered in young girls with adnexal mass and normal tumour marker profile. Recognition of this condition is of clinical significance to prevent unnecessary radical procedures and to preserve fertility.

Compliance with Ethical Standards

Conflict of interest The authors declare that there is no conflict of interest.

Ethical Statement Informed consent was taken from parents for publication of the case along with figures.

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