

# Massive ovarian edema: A case report

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## Abstract

Massive ovarian edema is a rare tumor like entity described as accumulation of edema fluid within the ovarian stroma, separating normal follicular structures. Our case was a 14 year young patient who presented with a large abdominal mass associated with pain. Ultrasound of abdomen revealed cystic enlargement of right ovary and clinical diagnosis of dermoid cyst was made. Exploratory laparotomy showed torsion of right ovarian mass, edematous fallopian tube, for which salpingo-ovariotomy was done. Histopathology was consistent with features of massive edema of right ovary. This entity though rare poses a significant clinical challenge as it can be easily mistaken for neoplasm and should be considered in young patients with solid enlargement of ovary to avoid aggressive treatment.

**Key words:** Conservative management, Ovarian edema, Torsion, Ultrasound

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## CASE HISTORY

A female patient aged 14 year was admitted with history of pain abdomen and scanty menstruation of three months duration. There were no signs of virilization. Per abdominal examination revealed an ovarian mass on the right side, freely mobile with smooth surface measuring 18x8cms. Ultrasound showed partly solid and cystic mass measuring 18x12 cms arising from right ovary with thick contents in cyst. (Fig 1) Uterus, left ovary, other pelvic and abdominal organs were unremarkable. A clinical diagnosis of dermoid cyst of right ovary was made. Exploratory laparotomy showed right ovarian mass, solid and cystic in nature with torsion of pedicle. Right fallopian tube was edematous. There was hemorrhagic fluid in the peritoneal cavity. The opposite ovary and the uterus were normal. Peritoneal fluid was sent for cytology and detorsion of the mass and right salpingo-ovariotomy was done. Grossly the ovarian mass measured 20x15x10 cms with stretched fallopian tube. Outer surface of the mass was smooth, shiny with intact capsule. Cut section was solid, homogenous, jelly like exuding watery fluid. Histopathological sections showed diffuse loose and edematous ovarian stroma with few cystically dilated follicles (Fig 2). The peripheral cortex was made up of dense collagenous stroma (Fig 3). Vascular and lymphatic dilatation was seen at places (Fig 4). Stroma showed focal luteinization (Fig 5). There was no evidence of necrosis. Sections from fallopian tube showed features of hydrosalpinx. Cytological examination of peritoneal fluid showed plenty of red blood cells. The final diagnosis of

## INTRODUCTION

Massive edema of ovary is a rare tumor like enlargement of one or both ovaries as a result of accumulation of fluid within the ovarian stroma. It was first described by Kalstone et al in 1969.<sup>1</sup> This condition typically occurs in young women more frequently in second and third decade of life due to partial and intermittent pedicle torsion that interfere with lymphatic and venous drainage. The massive edema of ovary presents more commonly with abdominal pain less frequently with menstrual disorders and androgenic manifestations.<sup>2</sup> It is important to recognize this condition as it is often misdiagnosed for an ovarian neoplasm, putting the younger patient at risk of over treatment with the resultant loss of hormonal function and fertility. This case report underlines the fact that massive ovarian edema should be suspected in young patient with solid enlargement of the ovary and aim at conservative treatment.

massive ovarian edema was made. Patient had uneventful postoperative recovery. She was asked to come for regular follow up. To date no recurrence of ovarian

enlargement in remaining left ovary has been observed and she is having regular menstruation.



Figure 1A

Figure 1B

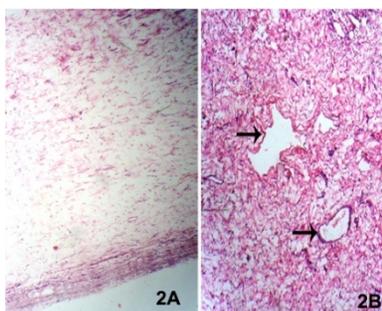


Figure 2A

Figure 2B

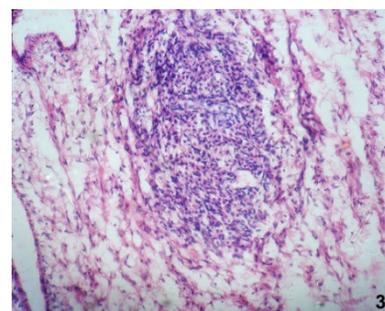


Figure 3

**Legends of photos**

**Figure1A.** USG pelvis showing solid and partly cystic right ovarian mass

**Figure1B.** Microphotograph of stromal edema surrounding the follicles (H&E, x 200)

**Figure2A.** Microphotograph showing diffuse stromal edema sparing cellular cortex (H&E, x 200)

**Figure2B.** Microphotograph showing dilated vascular spaces (arrows) (H&E, x 400)

**Figure 3.** Microphotograph of focal luteinization (H&E, x 200)

**DISCUSSION**

Massive edema of ovary is a rare clinical entity defined by the world Health organization as a tumour like condition in which there is marked enlargement of usually one, but occasionally both ovaries due to accumulation of edema fluid within the stroma, separating normal structures.<sup>3</sup> Age group affected is between 6 and 33 years with most cases seen around 20 years of age.<sup>2, 3, 4</sup> About 90% of the cases are unilateral and right sided.<sup>5</sup> This is probably because of high pressure in right ovarian vein which drains directly in to the inferior vena cava.<sup>6</sup> Left ovarian vein drains in to renal vein which is relatively at low pressure zone. Our case was also unilateral in 14 years old female and involved right ovary. One proposed cause of edema of ovary is interference with its venous and lymphatic drainage due to partial or intermittent torsion as seen in 50% of cases.<sup>5</sup> An alternative explanation is primary stromal proliferation or stromal hyperthecosis with secondary edema caused by torsion of an ovary.<sup>7</sup> In our case also there was evidence of torsion intra operatively. The gross specimen had a definite pedicle. Most of the times, suspicion of massive ovarian edema arises at the time of laparotomy. However, there have been several reports of preoperative diagnosis either by ultrasound or MRI or both. Many a times, ultrasound reveals a solid tumor like mass or the presence of a solid mass with a cystic component. Recently, typical ultrasound appearance of multiple peripherally arranged follicles within an enlarged ovary has been also reported.<sup>8</sup> Most common presenting features are acute abdominal pain and a mass in the abdomen. Rare modes of presentation are

menstrual irregularities, precocious puberty and virilization.<sup>2, 9</sup> Grossly the enlarged ovary may range from 5 to 35cms in diameter, and has a gelatinous cut surface and oozing of thin edema fluid. Histopathology reveals edematous, hypocellular stroma. Identification of the cystic follicles within the edematous stroma strongly suggests the diagnosis of massive edema. The peripheral cortex is typically composed of dense collagenous tissue and does not participate in the edema.<sup>2</sup> Luteinized stromal cells may be seen and probably are responsible for the androgenic manifestations that occur in about 20% of cases. In our case though focal luteinization was seen clinically there were no signs of virilization. Massive edema of ovary, though rare, should be distinguished from ovarian neoplasms like edematous fibroma, sclerosing stromal tumour and Krukenberg tumor.<sup>2, 4</sup> Observation of preserved follicular structures within an edematous stroma can help differentiate the lesion from edematous fibroma, luteinized thecoma or sclerosing stromal tumour.<sup>5</sup> The presence of signet ring cells in the stroma should be carefully evaluated to exclude Krukenberg tumor.<sup>3, 8</sup> Massive edema of ovary is a condition without any malignant potential, more prevalent in young girls and the aim of surgery should be to conserve fertility. For those who have completed their family, ipsilateral oophorectomy may be offered, however if fertility preservation is the issue, one should arrange for frozen section and if report confirms ovarian edema, then ovarian plication to reduce further episodes of torsion may be done.<sup>10</sup>

## CONCLUSION

This entity should be suspected in women at the fertile age range with solid enlargement of ovary and definite treatment should be undertaken only after confirmed pathological diagnosis. Conservative treatment is rule when fertility preservation is mandatory.

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