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## Case Report

# Giant ovarian mucinous cystadenoma in an 8-year-old prepubertal girl: a rare paediatric case

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## ABSTRACT

Ovarian tumours in the paediatric population are uncommon, and epithelial tumours constitute only a small proportion of these cases. Mucinous cystadenomas are benign epithelial tumours typically seen in adult women and are rarely reported in prepubertal girls. Giant ovarian cysts are also uncommon today because early imaging often leads to earlier detection. We report a rare case of a giant right ovarian mucinous cystadenoma in an 8-year-old prepubertal girl presenting with progressive abdominal distension and pressure symptoms. Imaging revealed a large multiloculated cystic mass arising from the right adnexa without suspicious malignant features. The patient underwent exploratory laparotomy with right salpingo-oophorectomy, and histopathology confirmed benign mucinous cystadenoma. Early diagnosis and appropriate surgical management with preservation of reproductive potential remain essential in paediatric patients.

**Keywords:** Mucinous cystadenoma, Paediatric ovarian tumour, Giant ovarian cyst Prepubertal girl, Ovarian neoplasm

## INTRODUCTION

Ovarian tumours in the paediatric population are uncommon, with an estimated incidence of approximately 2.6 cases per 100,000 girls annually.<sup>1,2</sup> Among these, germ cell tumours constitute the majority, accounting for nearly 60-80% of cases in children and adolescents.<sup>1,3</sup> In contrast, epithelial ovarian tumours such as cystadenomas are relatively rare in this age group and occur infrequently before menarche due to the immature ovarian epithelium.<sup>4</sup> Mucinous cystadenomas are benign epithelial tumours typically encountered in women of reproductive age and are known for their potential to grow to large sizes.<sup>5,6</sup> However, their occurrence in prepubertal girls is exceedingly rare, with only sporadic cases reported in the literature.<sup>3,5,7</sup>

Because of their slow growth, these tumours may remain asymptomatic for long periods and often present with progressive abdominal distension and compressive symptoms once they reach a considerable size.<sup>8</sup> Imaging

modalities such as ultrasonography and magnetic resonance imaging (MRI) play a crucial role in determining the origin and characteristics of adnexal masses in children while minimizing radiation exposure.<sup>1</sup>

We report a rare case of a giant right ovarian mucinous cystadenoma in an 8-year-old prepubertal girl presenting with progressive abdominal distension and pressure symptoms. To the best of our knowledge, giant mucinous cystadenomas occurring in children younger than 10 years remain exceptionally uncommon.

## CASE REPORT

An 8-year-old prepubertal girl presented to the outpatient department with complaints of progressive abdominal distension for two months. The swelling initially appeared in the lower abdomen and gradually increased in size. It was associated with dull aching pain in the right lower abdomen. The patient also complained of pressure symptoms including early satiety, occasional vomiting

after meals, constipation, and increased urinary frequency. There was no history of fever, weight loss, vaginal bleeding, or vaginal discharge. The child had no significant past medical history and no family history of ovarian, breast, or gastrointestinal malignancies.

On general examination, the patient appeared well nourished with stable vital signs. There was no pallor, icterus, or lymphadenopathy. Abdominal examination revealed marked abdominal distension with a large, firm, non-tender mass extending from the pubic symphysis to the xiphisternum. The mass had a smooth surface and dullness on percussion. Bowel sounds were normal. Pelvic examination was not performed due to the patient's age.

Laboratory investigations revealed haemoglobin of 11.4 g/dL, total leukocyte count of  $6.3 \times 10^3/\mu\text{L}$ , and platelet count of  $235 \times 10^3/\mu\text{L}$ . Liver and renal function tests were within normal limits. Tumour markers were evaluated and were within normal limits (Table 1).

Ultrasonography of the abdomen revealed a large multiloculated cystic mass measuring approximately  $24 \times 18$  cm arising from the right adnexa with internal septations and variable echogenicity suggestive of mucinous content. No papillary projection or solid component was observed. Mild bilateral hydroureteronephrosis was noted due to compression by the mass. Magnetic resonance imaging confirmed a well-defined multiloculated cystic lesion measuring approximately  $25 \times 20 \times 11.2$  cm occupying the abdominopelvic cavity and arising from the right ovary. The lesion displaced bowel loops and caused mild bilateral hydroureteronephrosis. No evidence of solid components, haemorrhage, or metastasis was noted (Figure 1).

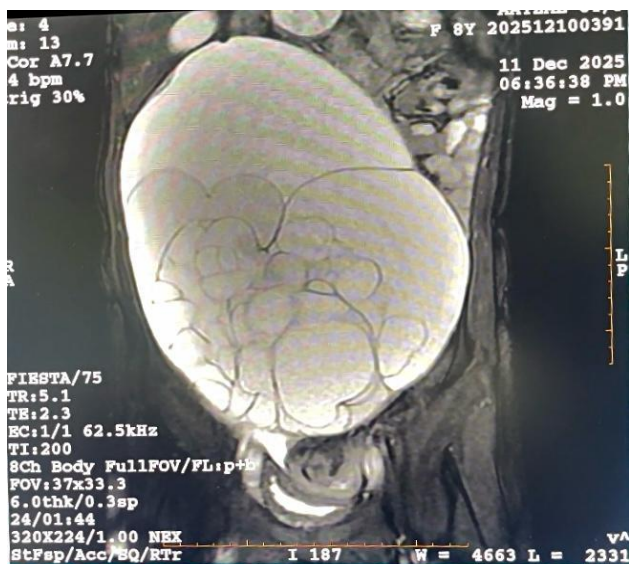


**Figure 1: MRI (coronal T2-weighted image) demonstrating a giant multiloculated cystic abdominopelvic lesion arising from the right ovary, with multiple thin internal septations and mass effect on adjacent abdominal viscera.**

After multidisciplinary discussion and counselling of the patient's parents, exploratory laparotomy was performed. Intraoperatively, a giant cystic mass measuring approximately  $30 \times 20 \times 15$  cm and weighing about 4 kg was identified arising from the right ovary. The cyst was smooth, tense, and well encapsulated without adhesions or surface excrescences. The uterus and left ovary appeared normal. A right salpingo-oophorectomy was performed and the mass was removed intact without rupture (Figure 2).

The postoperative period was uneventful. The patient resumed oral intake on postoperative day one and was discharged on postoperative day five. Histopathological examination showed a multiloculated cyst lined by mucin-secreting columnar epithelium without atypia, confirming the diagnosis of benign mucinous cystadenoma. At six-month follow-up, the patient was asymptomatic and ultrasound examination showed a normal left ovary.

**Table 1: Laboratory investigation result.**

| Tumour markers | Results | Normal values |
|----------------|---------|---------------|
| LDH            | 404     | 140-280 U/l   |
| AFP            | 1.28    | <10 ng/ml     |
| CEA            | 0.55    | <5 ng/ml      |
| CA-125         | 19.6    | <35 U/ml      |
| $\beta$ -hCG   | 0.77    | <1 mIU/ml     |

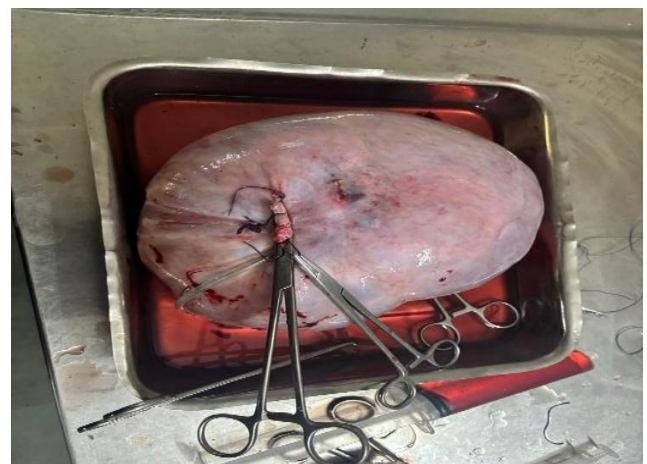


**Figure 2: Intraoperative photograph showing the giant ovarian cyst following complete surgical excision with the cyst wall intact.**

## DISCUSSION

Mucinous cystadenomas are benign epithelial ovarian tumours characterized by multiloculated cystic structures lined with mucin-secreting epithelium. While these tumours are frequently observed in women of reproductive age, their presence in the paediatric population is statistically rare. Paediatric ovarian tumours are overwhelmingly of germ cell origin, constituting 60-80%

of cases, leaving epithelial tumours to represent a very minor subset.<sup>1,3</sup>

The pathogenesis of epithelial ovarian tumours is typically linked to post-pubertal hormonal stimulation and the mechanical trauma of repeated ovulations. Therefore, their emergence in an 8-year-old premenarchal girl suggests an alternative aetiology, potentially arising from embryological invaginations of the coelomic epithelium that undergo mucinous metaplasia independent of hormonal influence.<sup>7</sup> Only a handful of premenarchal cases have been documented, and diagnosis in children under 10 years old remains exceptionally scarce.<sup>3,6</sup>

Consistent with previously reported paediatric cases, our patient presented with a massive tumour size and compressive symptoms.<sup>8</sup> Because of their slow, indolent growth, mucinous cystadenomas often remain clinically silent until they reach a considerable volume. Symptoms typically manifest as progressive abdominal distension, vague gastrointestinal discomfort, or pressure effects.<sup>4,5</sup> In our case, the 30 cm cyst caused mild bilateral hydroureteronephrosis due to mass effect. This mechanical compression of the urinary tract by giant cystadenomas has been similarly described by Alobaid, who reported secondary renal insufficiency in a 12-year-old girl that resolved following tumour excision.<sup>7</sup>

Diagnostic workup relies heavily on imaging and biochemical markers. Ultrasonography serves as the primary, radiation-free modality, while MRI is instrumental in delineating internal cyst architecture, confirming the absence of solid nodules or thick septations that would suggest malignancy.<sup>1</sup> Furthermore, normal preoperative tumour markers (such as CA-125, AFP, and  $\beta$ -hCG) in our patient helped differentiate this benign epithelial mass from malignant germ cell tumours, a finding consistent with the diagnostic profiles reported by Marzouk et al and Pramod et al in similar adolescent cases.<sup>4,8</sup>

Management of benign ovarian tumours in children focuses on complete surgical excision with the preservation of ovarian tissue and future fertility whenever feasible. Ovarian-sparing surgery is the ideal approach; however, when a giant cyst completely obliterates the normal ovarian parenchyma; as observed in our patient; a unilateral salpingo-oophorectomy becomes necessary.<sup>1,6</sup> As emphasised by Alkan et al and Knaus et al removing the cyst intact without intraoperative rupture or spillage is critical to preventing recurrence and ensuring an excellent long-term prognosis.<sup>2,6</sup> By maintaining the normal

contralateral ovary and uterus, the patient's future reproductive potential is fully preserved.

## CONCLUSION

Giant mucinous cystadenomas of the ovary are extremely rare in prepubertal girls. This case highlights the importance of considering ovarian neoplasms in the differential diagnosis of large abdominal masses in children. Early imaging and timely surgical management are essential to achieve favourable outcomes while preserving future reproductive potential.

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