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Giant serous cystadenoma in an adolescent: A case report

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Abstract

Ovarian tumours occur at an incidence rate of 2.6 cases per 100,000 children, and their frequency escalates proportionally with age. These tumours typically have an organic origin and are seldom functional. The frequent presence of pain primarily characterizes the clinical manifestation of ovarian cysts. The complexity inherent in analyzing this pain can complicate diagnosis, necessitating a thorough evaluation that could potentially require resorting to a pelvic ultrasound to confirm the diagnosis and determine the optimal management. Additional imaging techniques and tumour marker assays aid in specifying the nature of this mass, where surgery remains the sole therapeutic option. The histopathological analysis further confirms the precise nature of the mass or cyst to establish a prognosis and guide the management strategies and progression follow-up. Our case is for a girl aged 15 years old without notable medical history, presenting at admission with a 6-month history of a gradually enlarging abdominal mass associated with abdominal pain and tumour markers (BHCG was negative). In addition, LDH, CA125, Inhibin, CEA and CA19.9 were negative. Radiologically, the ultrasound revealed a huge cystic abdominopelvic mass occupying the entirety of the abdomen and pelvis with posterior compression of the intestines without visualization of the left ovary; the right ovary appeared normal. MRI confirmed the presence of a voluminous intraperitoneal abdominopelvic cystic formation measuring $31 \times 20 \times 8$ cm. The patient underwent laparoscopic surgery, revealing a large cystic mass with septations filling the abdomen and pelvis and displacing the gastrointestinal tract. After draining 6 L of clear fluid, the entire cyst was removed while preserving some left ovarian tissue, with the right ovary appearing normal. The follow-up is still ongoing, with the last consultation being 8 months post-operative.

Keywords

Cystadenoma, ovarian tumour, adolescent, paediatric surgery

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Introduction

Ovarian neoplasms are rare in children, less than 3 per 100,000 girls per year.[1] Epithelial tumours represent the majority of ovarian neoplasms in adults, accounting for approximately 70% of cases. In contrast, the occurrence of these tumours in paediatric populations is significantly lower, with reported frequencies ranging from 5% to 31%, depending on the study and specific age group. This difference highlights a distinct variation in the prevalence of epithelial ovarian tumours between adult and paediatric patients.[2,3] Ovarian masses in adolescents, though uncommon, range from benign cysts to rare malignant tumours. Serous cystadenomas, while more frequent in adults, can occasionally appear in this age group. Managing these cases involves balancing accurate diagnosis with the preservation of ovarian function. This article discusses a 15-year-old with a serous cystadenoma, emphasizing diagnostic and management considerations. The ovarian serous cystadenoma is a tumour that is, generally considered benign, it is more common in adults than children where ovarian tumours are relatively rare, among which, serous cystadenoma is especially even more so. We describe the

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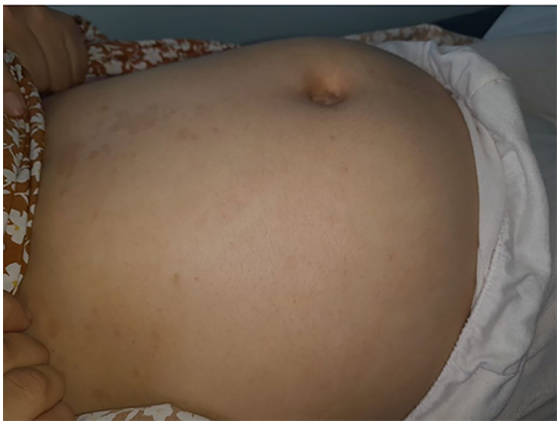

Figure 1. Clinical image of abdominal distension.

case of a 15-year-old adolescent who was diagnosed with a massive left-side ovarian mass, which manifested as a significant increase in volume in the abdomen and pelvic region. This mass was successfully removed through a laparoscopic paratubal cyst removal.

Case presentation

We report the case of a menstruating 15-year-old girl without notable medical history, presenting at admission with a 6-month history of a gradually enlarging abdominal mass associated with abdominal pain, chronic constipation and alimentary vomiting. The evolution was marked by the worsening of abdominal pain, Menarche occurred at the age of 13, with a regular menstrual cycle. However, there was a disruption in the cycle 6 months before her consultation, with only three cycles in the last 6 months, without any sign of excess of androgen and also the appearance of abdominal distension, without fever or general deterioration.

On admission, physical examination revealed a massive and slightly tender soft abdominopelvic mass with palpation of giant painful mass measuring approximately 25 cm with dullness on percussion (Figure 1), with intact hernial orifices. The rest of the examination was unremarkable. Laboratory results were within the normal range with complete blood count showing (haemoglobin 13.7 g/dL, WBC 6060, platelets 274,000), tumour markers (BHCG was negative). In addition, LDH, CA125, Inhibin, CEA and CA19.9 were negative.

Radiologically, the ultrasound revealed a huge cystic abdominopelvic mass occupying the entirety of the abdomen and pelvis with posterior compression of the intestines without visualization of the left ovary; the right ovary appeared normal. MRI confirmed the presence of a voluminous intraperitoneal abdominopelvic cystic formation measuring $31 \times 20 \times 8$ cm, with thin walls showing no enhancement after contrast injection, containing liquid content with hypo-intensity on T1 and hyper-intensity on T2 without septations classed O-RADS 2 (almost certainly benign: Cyst with fatty content and no solid tissue and no wall enhancement). This mass was causing right ureteropelvic junction obstruction with associated hydronephrosis. No deep lymphadenopathy was noted in the explored region (Figure 2).

The patient was taken to the operating room, where a laparoscopic exploration revealed a massive cystic mass with septations occupying the entirety of the abdomen and pelvis, displacing the intra-abdominal gastrointestinal tract upwards and posteriorly. After the evacuation of 6 L of clear fluid, resection of the entire cyst was performed laparoscopically, preserving a layer of left ovarian parenchyma, while the right ovary appeared normal (Figure 3).

The specimen was sent for histopathological examination, which revealed a cystic formation lined by a simple cuboid-columnar epithelium with occasional pseudo-stratification, forming papillary tufts representing less than 10% of the cystic surface. The cystic lining rested on a fibrous wall containing congested vessels and a mild lymphoplasmacytic inflammatory infiltrate, with no histological signs of malignancy (Figure 4).

Clinical differentials could be a Mucinous Cystadenoma, Borderline Ovarian Tumour or Functional Ovarian cyst.[4] This shows an interest in an anatomopathological examination

Post-operative recovery was initially uneventful; however, 8 months post-operation, the patient developed pain in the pelvic and right hypochondriac regions in the absence of fever. Abdominopelvic ultrasound revealed the presence of a gallstone along with a recurrence of a cystadenoma measuring 35 mm. Consequently, the patient underwent a simultaneous cholecystectomy and simple resection of the ovarian cyst while preserving the ovarian parenchyma, which appeared to be in good condition. The post-operative course was uneventful. Follow-up has been maintained for 8 months ago with a regular menstrual cycle, with normal levels of androgens and progesterone.

Discussion

We distinguish between two types of ovarian cysts, the most common being functional (follicular; corpus luteum) and organic (germinal 70% and epithelial 30%). In our case, the clinical signs were abdominal pain with episodes of vomiting and abdominal distension, accompanied by menstrual and transit disturbances, as described in numerous series.[5,6]

Abdominal examination may reveal localized or diffuse abdominal tenderness and abdominal distension and sometimes confirm the presence of ascites. Palpation may detect an abdominal mass, which is often median due to the abdominal position of the ovary in young girls, considering the narrowness of the pelvis. The mass is usually slightly lateralized and relatively mobile if not very large. Abdominal guarding is possible with a large mass.[7]

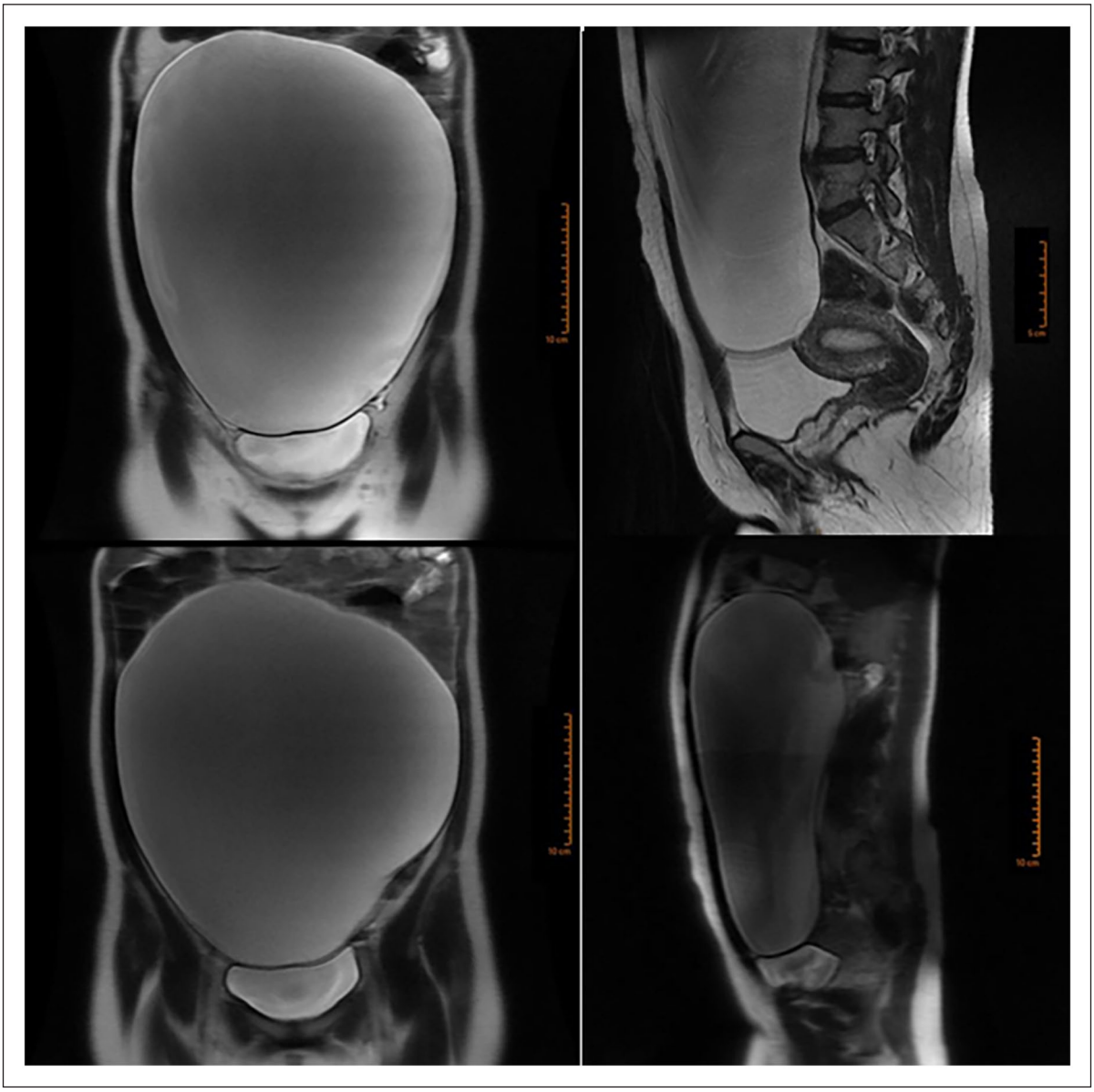

Figure 2. Abdominal-pelvic MRI, coronal and sagittal views.

While the definitive diagnosis of an ovarian cyst requires surgical exploration and a histopathological study, the contribution of imaging to the diagnosis is crucial for determining the origin and characteristics of the cyst. Ultrasound remains the key examination in the initial assessment. MRI and computed tomography are performed as second-line imaging depending on the size and nature of the cyst found.[5]

Ultrasound is easy to perform, completely harmless and generally well-tolerated by children. It is the key examination in the initial assessment of a classic ovarian cyst, with a specificity of 93% and a sensitivity of 80%. It is the gold standard for diagnosis. It requires examination of the pelvis with a full bladder to visualize the ovaries and uterus. It helps identify normal structures, analyze their morphology, describe anomalies and search for possible extensions. Colour Doppler aids in localizing the mass relative to vessels and allows the study of the vascularity of anomalies.

However, in giant cysts as in our case, the etiological diagnosis is difficult. Ultrasound cannot show the cyst's origin. The cystic mass may be similar to cysts of other origins, especially cystic lymphangioma.[5,8,9]

MRI is preferable due to its performance and lack of irradiation, but the use of which is limited by local accessibility to techniques. It is the examination of choice for the female pelvis, indicated as second-line imaging after ultrasound and X-ray. It is performed without contrast (injection) in purely liquid lesions and with contrast (injection) if there is a tissue component. Large field frontal slices allow for a thorough exploration of the abdomen.[10] In our case,

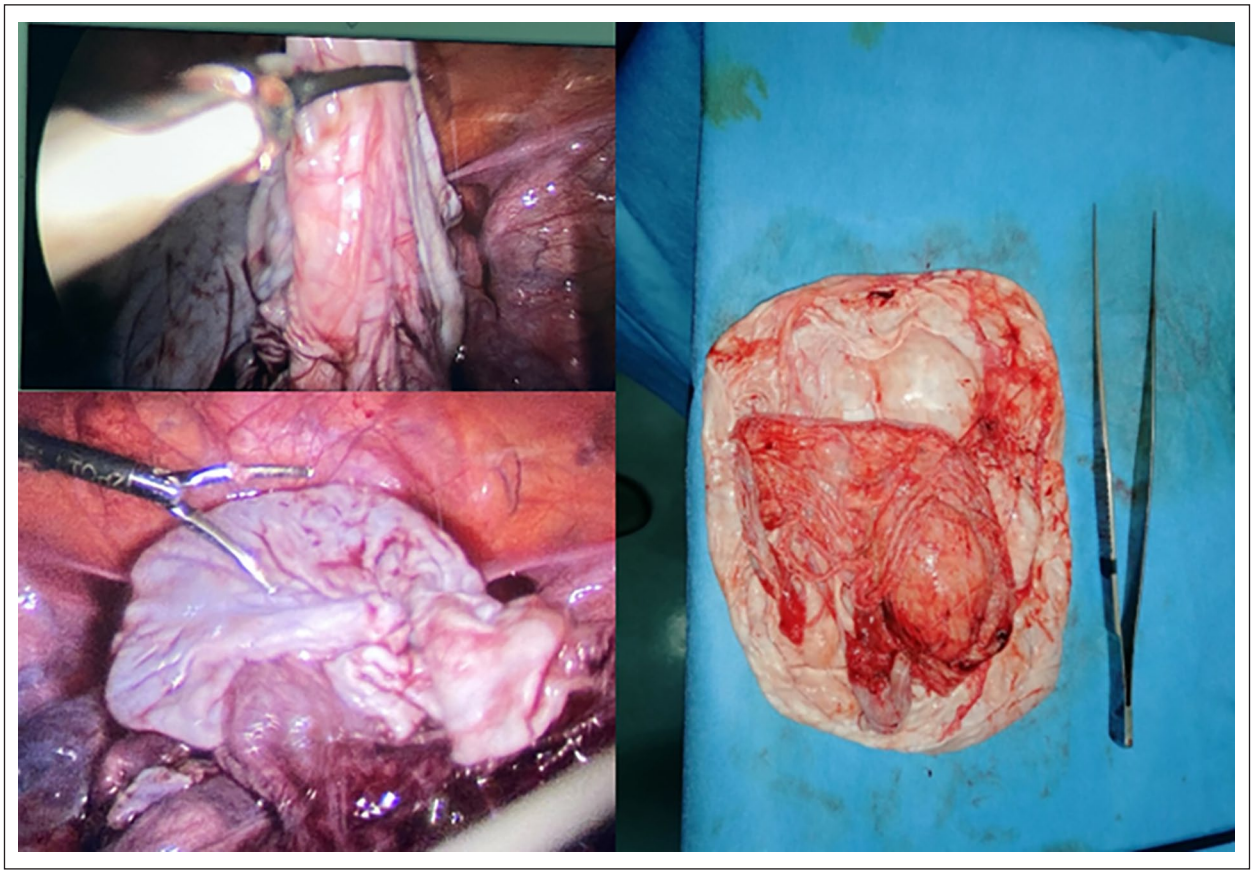

Figure 3. Perioperative image showing the appearance of the cyst. Surgical tweezer for reference.

MRI, despite its performance, has not shown the cyst origin.

Regarding standard biological assessment, a minimal infectious assessment (complete blood count, CRP (C-Reactive Protein), ESR (Erythrocyte Sedimentation Rate), urine dipstick) may suggest an inflammatory or infectious pelvic or abdominal cause.[11] The treatment of benign ovarian tumours remains primarily surgical since no medical treatment has proven effective. Considering the benign nature of ovarian cysts, the lack of proven benefits of progestogen therapy in this indication and their adverse effects particularly the thromboembolic risks, progestogen therapy should not be considered in the management of ovarian cysts.[12]

When the cyst is giant, its laparoscopic excision, remains difficult. In our case, we perform it after laparoscopic cyst evacuation. Then, conservative surgery becomes easy. Surgical intervention must adopt a conservative approach as much as possible, given that the affected patients are young and still developing, and that castration would have disastrous repercussions.[13] Laparoscopic ovarian cystectomy represents the preferred surgical approach for the treatment of presumed benign ovarian cysts.[14]

Cystectomy is preferred because it preserves ovarian function, crucial for younger patients who desire fertility. And with a lower impact on hormonal balance, which is important in maintaining reproductive health.[15]

Recurrence of serous cystadenoma after laparoscopic surgery is rare but can occur if a residual cyst wall remains. Incomplete removal of the cyst wall can lead to regrowth, as the epithelial lining may regenerate new cysts. Laparoscopic surgery, though minimally invasive, can sometimes make full removal more difficult, especially in complex masses. Post-operative monitoring is essential, and repeat surgery may be needed if the cyst recurs.[16]

A case in the literature described a 16-year-old girl with a 25 cm serous cystadenoma. The mass was removed via cystectomy, preserving the ovarian tissue. The patient had an uneventful recovery, and follow-up showed no recurrence.[17]

Conclusion

Serous cystadenoma, a rare mass in an adolescent, is unusually giant and occupies the entire abdominopelvic cavity. Even with the difficulty of diagnosis when the mass is huge MRI and ultrasound can confirm the diagnosis in most cases and laparoscopic can be done.

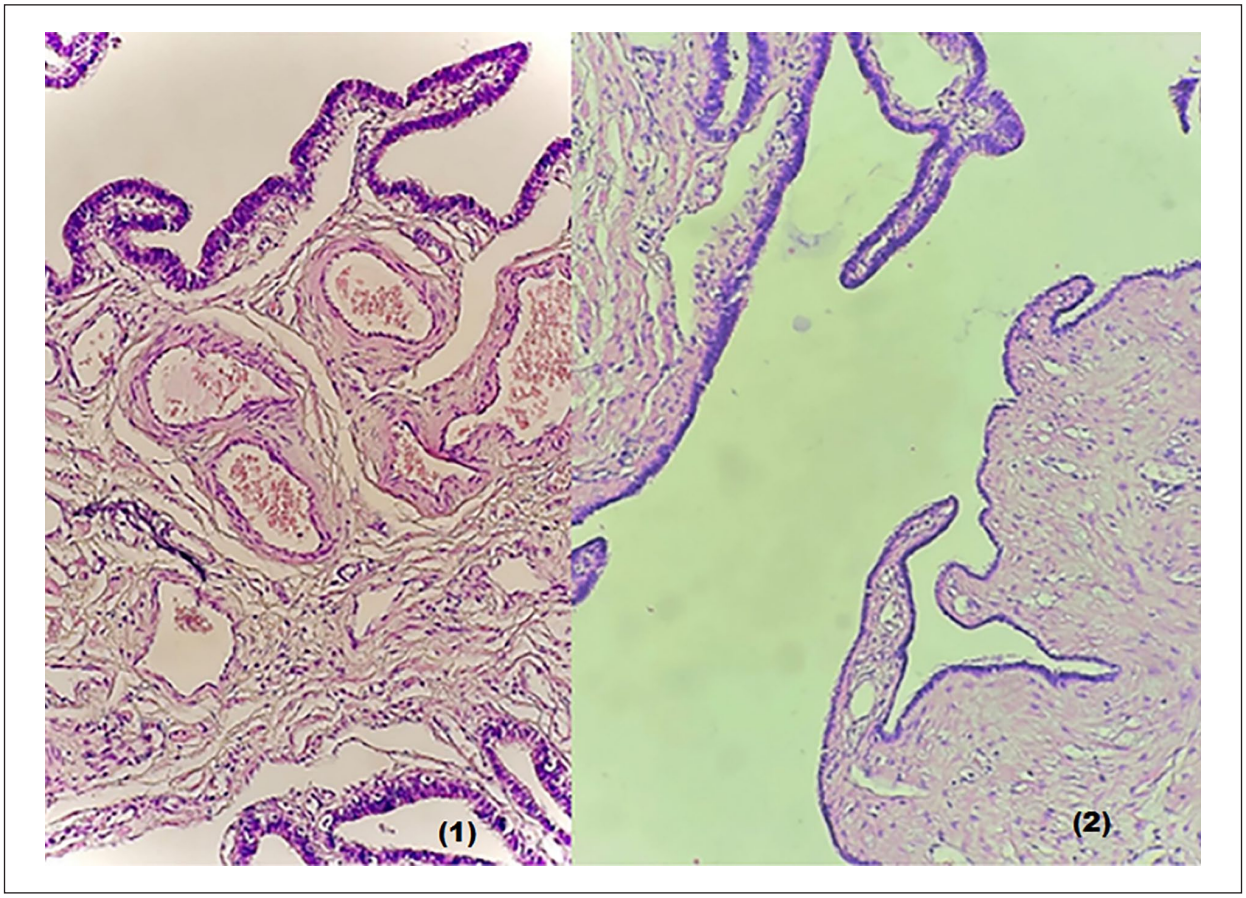

Figure 4. (1) High magnification H&E staining shows an unstratified flattened cuboid-columnar epithelium forming focal papillary tufts. The underlying fibrous wall contains congested vessels and a lymphoplasmacytic inflammatory infiltrate. (2) Low magnification.

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None.

Author contributions

A. Amara and H.B.: performed the surgery, drafted the initial manuscript and coordinated author contributions. A. Amine and H.S.: assisted in surgery and contributed to the discussion and review of the manuscript. M.E.M.: analyzed surgical specimens, provided histopathological insights, reviewed pathology content. A. Amara, A. Abdelouhab, and N.Z.: conducted literature review, assisted in drafting the introduction and discussion and ensured proper citation. H.B.: provided oversight, ensured scientific rigour and conducted final review and approval of the manuscript.

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Ethics approval

Our institution does not require ethical approval for reporting individual cases or case series.

Informed consent

The authors have gained authorization from the patient's legal representative (her mother) to carry any act of submission or publication of her anonymous medical file for scientific purposes.

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References

1. Skinner MA, Schlatter MG, Heifetz SA, et al. Ovarian neoplasms in children. *Arch Surg* 1993; 128: 849–853.
2. Cass DL, Hawkins E, Brandt ML, et al. Surgery for ovarian masses in infants, children, and adolescents: 102 consecutive patients treated in a 15-year period. *J Pediatr Surg* 2001; 36: 693–696.
3. Piippo S, Mustaniemi L, Lenko H, et al. Surgery for ovarian masses during childhood and adolescence: a report of 79 cases. *J Pediatr Adolesc Gynecol* 1999; 12: 223–227.
4. Birbas E, Kanavos T, Gkrozou F, et al. Ovarian masses in children and adolescents: a review of the literature with

emphasis on the diagnostic approach. *Children (Basel)* 2023; 10(7): 1114.
5. Cartault A, Ponsar C, Menendez M, et al. Kystes et tumeurs ovariennes de l'enfant prépubère: aspects hormonaux [Ovarian cysts and tumors in prepubertal children: hormonal aspects]. *Arch Pediatr* 2008; 15(5): 778–780.
6. Choudry A, Bangash N, Malik A, et al. Adolescent ovarian tumors: a clinicopathological review of 15 cases. *J Ayub Med Coll Abbottabad* 2008; 20(4): 18–21.
7. Brown MF, Hebra A, McGeehin K, et al. Ovarian masses in children: a review of 91 cases of malignant and benign masses. *J Pediatr Surg* 1993; 28(7): 930–932.
8. Balu M, Tarrant A, Lenoir M, et al. Imagerie des masses ovariennes avant la puberté [Imaging of ovarian masses before puberty]. *Arch Pediatr* 2008; 15(5): 783–785.
9. M'pemba Loufoua-Lemay AB, Peko JF, Mbongo JA, et al. Torsion de tumeur kystique de l'ovaire chez une adolescente, révélatrice d'un hémangiome caverneux [Torsion of cystic tumor of the ovary in an adolescent, revealing a cavernous hemangioma]. *Arch Pediatr* 2003; 10(11): 986–988.
10. Genevois A, Marouteau N and Lemercier E. Imagerie de la douleur pelvienne aiguë [Imaging of acute pelvic pain]. *J Radiol* 2023; 89(1): 92–105.
11. Vizza E, Galati GM, Corrado G, et al. Voluminous mucinous cystadenoma of the ovary in a 13-year-old girl. *J Pediatr Adolesc Gynecol* 2005; 18(6): 419–422.
12. Thomin A, Daraï E and Chabbert-Buffet N. Traitements médicaux des tumeurs ovariennes présumées bénignes [Medical treatments for presumed benign ovarian tumors]. *J Gynecol Obstet Biol Reprod (Paris)* 2013; 42(8): 774–785.
13. Medeiros LR, Rosa DD, Bozzetti MC, et al. Laparoscopy versus laparotomy for benign ovarian tumour. *Cochrane Database Syst Rev* 2009; 2: CD004751
14. Mage G. *Chirurgie coelioscopique en gynécologie* [Laparoscopic surgery in gynecology]. 2nd ed. Issy-les-Moulineaux: Elsevier-Masson, 2013. (Techniques chirurgicales).
15. Cartault A, Masse J, Gros P, et al. Ovarian masses in adolescent girls. *Endocr Dev* 2012; 22: 194–207.
16. Mittal S, Gupta N, Sharma AK, et al. Laparoscopic management of a large recurrent benign mucinous cystadenoma of the ovary. *Arch Gynecol Obstet* 2008; 277(4): 379–380.
17. Zvizdic Z, Bukvic M, Murtezic S, et al. Giant paratubal serous cystadenoma in an adolescent female: case report and literature review. *J Pediatr Adolesc Gynecol* 2020; 33(4): 438–440.