Journal of Pediatric Surgery 61 (2026) 163536

Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.sciencedirect.com/journal/journal-of-pediatric-surgery

Outcomes of robotic-assisted excision of paratubal cysts in a pediatric cohort: A multicentric retrospective study and systematic review

Giulia Fusi [a], Gaia Brenco [a], Maria Escolino [b], Bartosz Bogusz [c], Sylwester Gerus [d], Justyna Łuczak [d], Marcin Polok [e], Marcin Łosin [f], Giovanni Boroni [g, h], Girolamo Mattioli [i, j], Maurizio Cheli [k], Wojciech Górecki [c], Ciro Esposito [b], Mirko Bertozzi [a, l, *]

[a] Department of Pediatric Surgery, IRCCS San Matteo Polyclinic, University of Pavia, Pavia, 27100, Italy
[b] Division of Pediatric Surgery, Department of Translational Medical Sciences, Federico II University, Via Pansini 5, Naples, 80131, Italy
[c] Department of Pediatric Surgery, Jagiellonian University Medical College Faculty of Medicine, University Children's Hospital of Krakow. Ul. Wielicka 265, Kraków, 30-663, Poland
[d] Department of Pediatric Cardiosurgery, Surgery and Urology, Wroclaw Medical University, Ul. Borowska 213, Wrocław, 50-556, Poland
[e] Department of Pediatric Surgery and Urology, University of Zielona Gora, Ul. Zyty 26, Zielona Gora, 65-046, Poland
[f] Chair and Department of Pediatric and Adolescent Surgery and Urology, Smoluchowskiego 17, Gdańsk, 80-214, Poland
[g] Department of Pediatric Surgery, "Spedali Civili" Children's Hospital, Brescia, Italy
[h] Department of Clinical and Experimental Sciences, University of Brescia, Brescia, Italy
[i] IRCCS Istituto Giannina Gaslini, Pediatric Surgery, Genoa, Italy
[j] University of Genoa, DINOGMI, Genoa, Italy
[k] Department of Pediatric Surgery, ASST Ospedale Papa Giovanni XXIII, Bergamo, Italy
[l] Department of Clinical, Surgical, Diagnostic and Pediatric Sciences, University of Pavia, Pavia, 27100, Italy

ARTICLE INFO

Article history:
Received 15 April 2026
Received in revised form
15 September 2026
Accepted 3 October 2026

Keywords:
Robotic-assisted surgery
Paratubal cystectomy
Pediatric gynecologic surgery
Fertility preservation

ABSTRACT

Introduction: Paratubal and paraovarian cysts are benign lesions located between the ovary and fallopian tube, often of mesothelial origin. Although typically asymptomatic, larger cysts may cause pelvic pain or complications requiring surgery. Management depends on cyst size, symptoms, and patient age, with fertility preservation essential in pediatric populations. This multicenter study evaluates robotic-assisted excision of paratubal cysts in children, alongside a literature review.

Materials and methods: We performed a retrospective analysis of pediatric patients undergoing robot-assisted paratubal cystectomy at five European pediatric surgery centers. Data included demographics, surgical details, hospitalization, and follow-up. A systematic review following PRISMA guidelines was conducted using Embase, Scopus, PubMed, and Web of Science. Two independent reviewers screened studies and extracted data.

Results: Twenty-seven girls underwent robotic cystectomy for cysts measuring 11–176 mm (median 50 mm). Median age was 14 years, with median weight of 56 kg. Median operative time was 88 min. No conversions occurred. Median hospital stay was 2 days (range 1–4), with no complications at median follow-up of 19 months. The review identified 764 records; four studies were included, reporting nine pediatric cases treated robotically without complications.

Conclusions: Robotic-assisted surgery appears safe and feasible for paratubal cyst excision in selected pediatric patients, offering precision and minimally invasive access, with favorable perioperative outcomes and preservation of adnexal anatomy. It may support fertility preservation, however evidence regarding long-term reproductive outcomes are lacking and further prospective studies are required.

© 2026 Published by Elsevier Inc.

* Corresponding author. Department of Pediatric Surgery, IRCCS San Matteo Polyclinic, University of Pavia, 27100 Pavia, Italy.
E-mail address: mirko.bertozzi@unipv.it (M. Bertozzi).

https://doi.org/10.1016/j.jpedsurg.2026.163536
0022-3468/© 2026 Published by Elsevier Inc.

1. Introduction

Paraovarian and paratubal cysts are benign cystic formations located between the ovary and the fallopian tube, accounting for approximately 10% of all adnexal masses [1,2]. These terms are used interchangeably to describe cysts located within the mesosalpinx or the broad ligament [3,4]. The origin of these cysts is most commonly mesothelial, although they may also arise from embryonic remnants of the paramesonephric (Müllerian) or mesonephric (Wolffian) ducts, reflecting the embryological complexity of the female genital tract [5]. The incidence of these cysts is highest during the reproductive years, with a peak between the third and fourth decades of life, likely related to hormonal fluctuations and increased ovarian activity during this period [6,7]. However, approximately 4% of paratubal cysts occur during adolescence, suggesting the need to consider this diagnosis in younger patients presenting with abdominal or pelvic symptoms [8]. Recent retrospective analyses have confirmed the safety and efficacy of laparoscopic management in pediatric populations [9]. Clinically, most paraovarian and paratubal cysts are asymptomatic and are discovered incidentally during imaging studies performed for other reasons. However, larger cysts can cause compressive symptoms on adjacent organs, such as pelvic pain, abdominal distension, or alterations in bowel and urinary function. Complications such as torsion, rupture, or hemorrhage, though rare, can lead to acute clinical presentation and may require timely surgical intervention [10]. Complications such as torsion, rupture, or hemorrhage, though rare, can lead to acute clinical presentation and may require timely surgical intervention [9,11]. Management of these cysts depends on several factors, including patient age, size and symptomatology. In pediatric patients, fertility preservation is a priority, making cystectomy with ovarian preservation the treatment of choice. Minimally invasive surgical techniques, such as laparoscopy and robotic surgery, are preferred to reduce the risk of postoperative adhesions and maximize adnexal function preservation [12]. Surgical management can be more complex in the case of giant cysts, sometimes requiring modified approaches or robotic assistance to ensure complete resection with minimal risk of recurrence [13]. The aim of this study, conducted across multiple centers, was to report our experience in the robotic surgical management of paraovarian cysts, analyzing clinical and surgical outcomes in a pediatric population, and comparing these results with the current literature.

2. Materials and methods

2.1. Study design and setting

We conducted a multi-center, retrospective study. We included all female patients under 18 years of age who were diagnosed with paraovarian cysts and underwent robotic-assisted cyst excision at five European institutions over a 12-years period (January 2013–April 2025). Surgical treatment was indicated in patients presenting with persistent abdominal or pelvic pain, enlarging cysts during imaging follow-up, large cyst size, or radiological findings suggestive of an increased risk of complications such as torsion. The indication for robotic surgery was established by the treating multidisciplinary team at each participating institution according to local clinical practice. No standardized multicenter protocol was used to select robotic-assisted surgery over conventional laparoscopy. The specific factors underlying the choice of the robotic approach were not prospectively recorded in a standardized manner and therefore their individual contribution to the decision-making process could not be quantified. Consequently, institutional practice and case selection may have introduced heterogeneity and selection bias into the cohort.

2.2. Data collection and management

The collected data included demographic information, clinical characteristics, symptoms, cyst size and laterality, age and weight at surgery, details of the surgical procedure (operative duration, intraoperative complications, length of hospital stay), and postoperative follow-up.

Although minor technical variations existed among the participating centers, all procedures followed the same surgical principles. After docking of the robotic platform, the paratubal cyst was identified and the mesosalpinx was carefully opened using monopolar curved scissors. Blunt and sharp dissection was then performed to separate the cyst from the surrounding mesosalpinx while preserving the fallopian tube, ovarian tissue, and their vascular supply. The cyst was completely excised and retrieved using an endoscopic specimen retrieval bag. Particular attention was paid to minimizing tissue trauma and preserving normal adnexal anatomy whenever feasible.

The data were collected using hospital software and a computerized database.

Patients over 18 years of age were excluded.

2.3. Ethical considerations

The study was conducted in accordance with the principles of the Declaration of Helsinki. This retrospective multicenter study included only anonymized data collected during routine clinical practice. According to the regulations of the participating institutions, formal Ethics Committee approval was not required. Written informed consent for surgical treatment was obtained from the parents or legal guardians of all patients, and all data were anonymized before analysis.

2.4. Review of literature

A systematic review of the literature was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to identify studies describing robotic-assisted surgical management of paratubal cysts in pediatric and adolescent patients.

The literature search was performed in four electronic databases (PubMed, Embase, Scopus, and Web of Science) from inception to January 2026, without applying any restriction on publication date. The search strategy was based on free-text terms related to paratubal or paraovarian cysts and robotic surgery. The same search string was applied to all four databases (“paratubal cyst" OR “paraovarian cyst" OR “paraoophoric cyst" OR “adnexal cyst") AND (robot OR “robot-assisted" OR “robotic surgery" OR “robotic-assisted surgery").

Studies were considered eligible if they included pediatric or adolescent patients with paratubal cysts undergoing robotic-assisted surgical treatment. Articles involving adult populations, non-paratubal adnexal lesions, non-robotic surgical approaches, or lacking sufficient clinical data regarding diagnosis or surgical management were excluded.

Reference management, duplicate removal, and screening procedures were performed using Rayyan. Two reviewers independently screened titles and abstracts for relevance. Full texts of potentially eligible studies were subsequently retrieved and assessed for inclusion according to predefined eligibility criteria. Any disagreement between reviewers was resolved through discussion and consensus. During title and abstract screening, records

could be assigned more than one exclusion reason; therefore, the number of exclusion reasons may exceed the number of records excluded at this stage.

3. Results

3.1. Our cohort

We collected a total of twenty-seven female patients who underwent robotic-assisted excision of paratubal cysts at five institutions. The median age at the time of surgery was 14 years (range: 10–17), and the median body weight was 56 kg (range 39–115). All patients were younger than 18 years at the time of surgery, and all but one had no significant comorbidities. One patient had previously undergone successful surgery and proton therapy for a brain tumor two years prior to the diagnosis of a paratubal cyst.

Clinical presentation varied, with most patients reporting nonspecific lower abdominal or pelvic pain. In five cases, the cysts were identified incidentally during imaging for unrelated concerns. Preoperative imaging—including ultrasound and, in selected cases, MRI—confirmed the presence of unilateral, thin-walled, anechoic cystic structures consistent with benign paratubal cysts. The median cyst diameter measured on imaging was 50 mm (range 11–176).

All procedures were performed using a robotic-assisted laparoscopic approach, using the da Vinci Surgical System (Model Xi). A standardized surgical technique was followed, involving careful dissection of the cyst from the mesosalpinx and adnexal structures while preserving the vascularization of fallopian tube, the tube itself and ovary. Median operative time was 88 min (range 33–155). No conversions to open surgery were necessary, and no intraoperative complications such as bleeding, injury to adjacent organs, or technical difficulties were encountered.

Postoperative recovery was uneventful in all patients. The median length of hospital stay was 2 days (range: 1–4 days), and all patients resumed normal activities within one week. No postoperative complications such as infection, hematoma, or readmission were observed. Histopathological examination confirmed the diagnosis of benign paratubal cyst in all patients, with no evidence of malignancy.

At follow-up, which had a median duration of 19 months (range: 12–112 months), none of the patients demonstrated radiologic or clinical evidence of recurrence. All retained normal ovarian and tubal anatomy, as assessed by follow-up imaging and gynecologic evaluation.

To our knowledge, this cohort represents the largest pediatric series to date on robotic-assisted excision of paratubal cysts [Table 1].

3.2. Review of literature

A systematic review was conducted following PRISMA 2020 guidelines to identify studies on robotic-assisted surgery for paratubal cysts in pediatric population. The search spanned four databases—PubMed, Embase, Scopus, and Web of Science—yielding a total of 764 records: PubMed (n = 112), Embase (n = 286), Scopus (n = 215), and Web of Science (n = 151).

The inclusion criteria were full-text articles reporting on pediatric or adolescent female patients (under 18 years of age) treated with robotic-assisted surgery specifically for paratubal cysts. Studies were excluded if they involved other types of ovarian or tubal masses, solid lesions, or if they lacked sufficient clinical or surgical data for analysis.

After the removal of 367 duplicates, 397 records remained for screening. Of these, 355 were excluded based on title and abstract. The remaining 42 full-text articles were assessed for eligibility. Ultimately, 4 studies met all inclusion criteria and were included in the final review. A detailed PRISMA flow diagram is provided in Fig. 1.

The four included studies comprised three single-case reports and one retrospective case series including six pediatric patients. Overall, nine adolescent females with benign paratubal cysts were treated using a robotic-assisted approach. In all reported cases, the

Table 1
Overview of demographic, clinical, and relevant baseline data for all patients included in the study.

Patients	Age (years)	Weight (kg)	Cyst diameter (mm)	Operative time (min)	Conversion	Complication	Length of stay (days)	Follow-up (months)
1	12,9	55	35	105	No	No	2	112
2	16,4	61	30	90	No	No	4	104
3	11,5	74	73	155	No	No	4	38
4	12,5	52	33	140	No	No	2	24
5	14,4	75	49	130	No	No	2	23
6	12	60	40	95	No	No	2	12
7	13,8	56	69	135	No	No	3	18
8	17,2	56	95	90	No	No	2	12
9	16,9	69	63	80	No	No	2	12
10	15	39	160	102	No	No	3	19
11	16	72	44	42	No	No	3	20
12	15,5	47	30	74	No	No	2	20
13	17	78	76	60	No	No	2	21
14	16	59	39	45	No	No	2	12
15	15	56	50	42	No	No	2	23
16	10,5	49	54	85	No	No	3	12
17	14,8	63	11	129	No	No	4	19
18	13,6	58	30	73	No	No	3	15
19	15,7	54	82	100	No	No	2	12
20	17,5	44	58	88	No	No	2	36
21	14	52	80	62	No	No	2	35
22	11	43	30	33	No	No	1	32
23	15	115	176	130	No	No	4	20
24	11	48	53	53	No	No	4	18
25	16	62	48	45	No	No	2	17
26	11,9	43	50	95	No	No	2	12
27	10,1	39	65	70	No	No	2	12

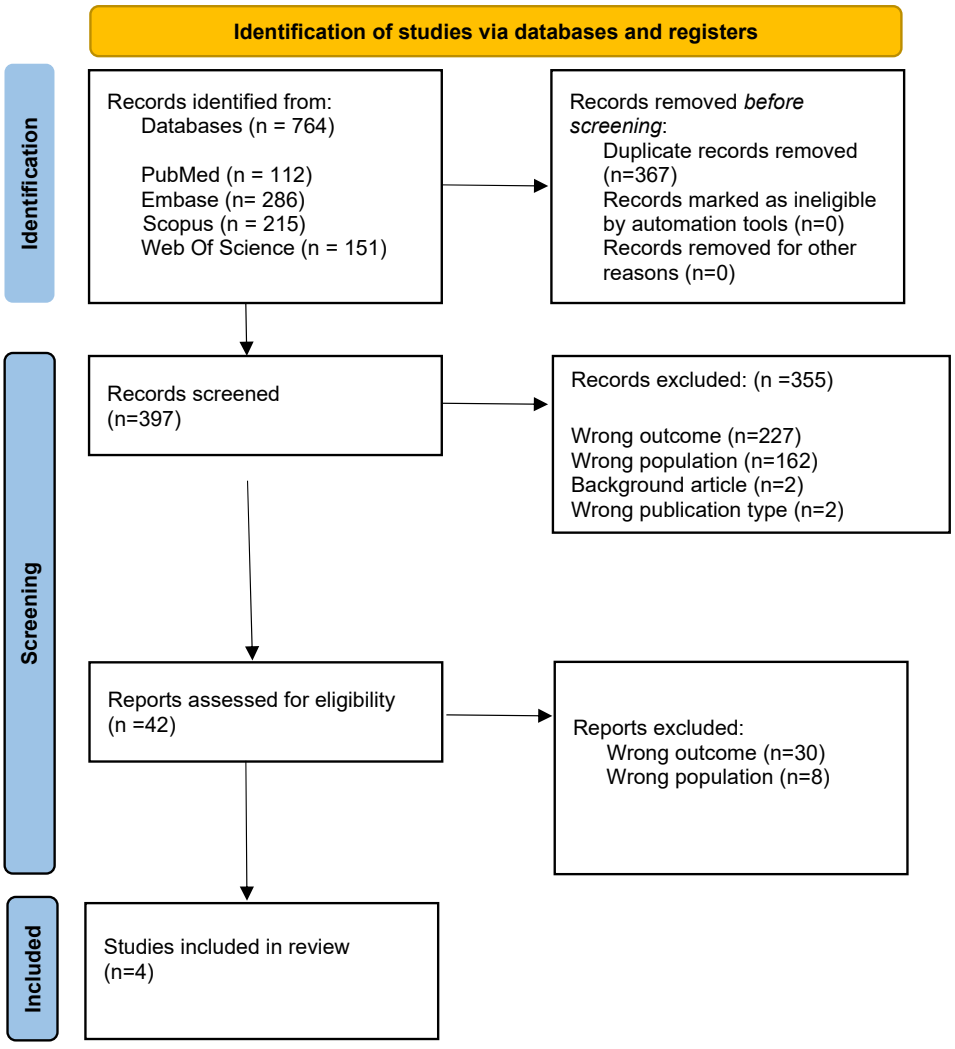


Fig. 1. PRISMA flow chart. PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only. *From:* Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021; 372:n71. Doi: 10.1136/bmj.n71.

procedures were completed successfully without intraoperative complications, and postoperative recovery was uneventful, with short hospital stays and no recurrence during follow-up. However, all available evidence is based on case reports or small retrospective series, and no study has provided comparative data with conventional laparoscopy or prospective evaluation, highlighting the limited evidence currently available on robotic-assisted management of paratubal cysts in the pediatric population.

4. Discussion

In recent years, RAS has gained increasing relevance in the management of pediatric gynecological conditions, as well as other pediatric pathologies, demonstrating both safety and precision [14]. In light of the scarce literature currently available on this topic, this case series adds to the growing body of evidence regarding the use of robotic-assisted surgery (RAS) for the management of paratubal cysts in pediatric and adolescent patients. The findings from this study support the feasibility, safety, and potential clinical benefits of robotic-assisted paratubal cystectomy in carefully selected young patients. These results are particularly significant considering the rarity of such procedures in this age group and the limited availability of large case series or comparative studies in literature, especially in pediatric gynecological pathologies.

4.1. Feasibility, safety, and surgical outcomes

All twenty-seven cases in our series were successfully managed using a robotic-assisted approach without intraoperative or postoperative complications. These findings suggest that robotic platforms can be employed safely, particularly when supported by appropriate surgical expertise and institutional infrastructure. Our results are consistent with those reported in the two previously published case reports, both of which described uneventful postoperative courses and no recurrence during follow-up [15,16]. Even in patients with longer follow-up, these findings provide additional reassurance regarding the durability of this approach in terms of recurrence prevention and preservation of adnexal structures.

In our opinion, the absence of recurrence and postoperative complications in our cohort underscores the value of robotic surgery in achieving precise dissection while minimizing trauma to surrounding reproductive anatomy. All patients resumed normal daily activities rapidly, with a short hospital stay ranging from 1 to 4 days. Ovarian and tubal morphology was preserved in all

patients at follow-up imaging. These findings further support the safety of the procedure and its ability to preserve normal adnexal anatomy.

4.2. Technical advantages in a pediatric setting

Robotic systems offer several unique advantages that are particularly beneficial in pediatric surgery. These include enhanced three-dimensional visualization, fine motor control with tremor filtration, and increased range of motion via articulated instruments. Such features allow for meticulous dissection even in anatomically limited spaces, reducing the risk of inadvertent injury to adjacent structures [17–19].

The application of robotic surgery in pediatric patients requires careful preoperative planning due to the limited space and smaller anatomical proportions, notably in the pelvic area. Trocar and robotic arm placement must be meticulously adapted to ensure safe and effective access while minimizing instrument collisions. Although these factors pose specific challenges compared to adult cases, the enhanced precision and stability of the robotic platform are particularly advantageous within gynecologic surgery for preserving adnexal structures. These technical benefits are amplified in young patients, where pelvic anatomy may be less forgiving, and precision is particularly relevant when preservation of normal ovarian and tubal anatomy is intended.

In our experience, the robotic platform was particularly useful in managing larger cysts, where traditional laparoscopy might be hampered by reduced triangulation or poor visualization.

Although our study was not designed to compare robotic surgery with conventional laparoscopy, our experience suggests that the two techniques should be considered complementary rather than competitive. Small, uncomplicated paratubal cysts can be safely managed laparoscopically, including with mini-laparoscopic instruments, providing excellent cosmetic outcomes with minimal abdominal wall trauma. In selected larger or technically demanding lesions, robotic assistance may facilitate meticulous dissection within the mesosalpinx; however, this potential technical advantage remains hypothesis-generating and cannot be established from our study. In particular, our findings do not allow conclusions regarding the superiority of robotic surgery in terms of fertility preservation, complication rates, postoperative recovery, recurrence, or cosmetic outcomes compared with conventional laparoscopy. Likewise, the preservation of ovarian and tubal anatomy observed in our cohort cannot be interpreted as evidence of improved reproductive outcomes. Comparative prospective studies with standardized long-term follow-up would be required to determine whether the technical advantages of robotic surgery translate into clinically meaningful benefits over conventional laparoscopy. One limitation of current robotic platforms remains the size of the available instruments and ports, which may reduce some of the cosmetic advantages of minimally invasive surgery in children. Future development of smaller robotic instruments specifically designed for pediatric patients may further expand the indications for robotic-assisted surgery.

4.3. Comparison with existing literature

The literature on robotic-assisted management of adnexal masses in pediatric population remains sparse. A recent multicenter European study by Esposito et al. reported the safety of robotic surgery in various pediatric gynecologic conditions, including adnexal masses, endometriosis, and ovarian torsion, reinforcing its utility across a broader spectrum of indications beyond cystectomy [20]. The largest unicentric series of pediatric gynecologic robotic assisted surgery is reported by Fusi et al., in 2025 [21] reporting also 6 cases of paratubal cysts excision and affirming that robotic surgery is poised to become an integral tool in the treatment of gynecologic conditions in children and adolescents.

Delotte et al. described a single adolescent case treated with robotic paratubal cystectomy, emphasizing the technique's role in fertility preservation [15]. Similarly, Bertozzi et al. reported a complex pediatric case involving paratubal cyst with tubal torsion and hydrosalpinx successfully managed with robotic-assisted surgery and neosalpingostomy, further demonstrating the versatility of the robotic platform in challenging scenarios [22]. To the best of our knowledge, our study comprises the largest pediatric series to date with a total of twenty-seven patients. It helps to bridge this evidence gap and provides a more robust assessment of medium-term outcomes.

4.4. Cost-effectiveness and resource allocation

While robotic-assisted surgery offers clear technical advantages, its cost remains a critical consideration. The initial capital investment in robotic platforms, maintenance expenses, and longer operative times, particularly during the learning curve, can significantly impact cost-effectiveness, especially in publicly funded or resource-constrained settings [16]. The mean operative time observed in our series should also be interpreted in light of the multicenter design and the long study period, during which robotic programs were progressively implemented at the participating institutions. Consequently, operative duration likely reflects, at least in part, the learning curve associated with robotic surgery rather than the intrinsic complexity of paratubal cystectomy itself. Likewise, the median postoperative stay of two days was influenced by institutional postoperative pathways and discharge policies, which differed among centers, rather than by postoperative complications or delayed recovery. However, these costs must be balanced against potential downstream savings, including shorter hospital stays, fewer complications, and lower rates of adhesion-related infertility or reoperation [19]. In pediatric gynecology, where long-term reproductive health is paramount, the benefits of enhanced tissue preservation and reduced surgical trauma may justify the higher upfront costs in selected cases. Our study does not allow for such an evaluation. Nonetheless, more formal health economic analyses are needed to define cost-benefit thresholds in this specific population.

4.5. Ethical considerations and patient selection

Appropriate patient selection is critical in pediatric robotic surgery. In our cohort, all patients had symptomatic or enlarging cysts, with imaging findings suggestive of benign etiology. The decision to proceed with robotic-assisted surgery was made jointly by a multidisciplinary team, emphasizing fertility preservation and minimizing postoperative adhesions. Ethical concerns around resource utilization must be weighed against the potential for optimal long-term reproductive outcomes in this vulnerable population [23].

4.6. Limitations and future directions

Despite its contributions, our study has limitations. The retrospective nature of the analysis introduces potential biases in case selection and reporting. Patients were identified according to local institutional experience and the availability of robotic surgery; therefore, case selection may have been influenced by institutional practice and surgeon preference, introducing a potential selection bias. The small sample size, while larger than prior reports, still

limits statistical generalizability. Additionally, the lack of a comparator group (e.g., conventional laparoscopy or open surgery) restricts our ability to draw conclusions about relative efficacy or cost-effectiveness.

The rarity of pediatric paratubal cysts and the limited number of high-volume pediatric robotic centers hinder the development of large-scale, prospective trials. Future research should promote a wider multi-institutional collaboration aimed at establishing shared registries and standardized outcome measures, in order to harmonize data collection and enhance comparability across centers. In this context, the definition of common clinical endpoints, encompassing not only short-term surgical outcomes but also parameters related to reproductive function, is essential. Specifically, menstrual regularity, ovarian reserve, and future fertility should be systematically monitored through validated assessment tools and extended follow-up. A structured and consistent approach to data collection will be key to confirming the long-term benefits of robotic surgery in this highly selected population.

5. Conclusions

Robotic-assisted surgery is a safe and feasible option for the treatment of paratubal cysts in pediatric and adolescent patients. In our series, robotic-assisted cystectomy was associated with excellent surgical outcomes, minimal postoperative morbidity, and preservation of adnexal anatomy. The enhanced dexterity and visualization offered by robotic platforms may facilitate meticulous dissection and tissue preservation; however, prospective studies evaluating long-term reproductive outcomes are required to determine its impact on future fertility. [18,19]. These technical advantages may make robotic surgery a valuable option in selected complex cases, although comparative studies with conventional laparoscopy are needed [14].

However, despite these promising results, evidence remains extremely limited, with few published cases and no high-level comparative studies. Questions regarding cost-effectiveness, long-term reproductive outcomes, and optimal patient selection criteria remain open [2,3]. Larger, multicenter prospective studies and long-term follow-up are urgently needed to define the role of robotic surgery in pediatric gynecology and to establish standardized management protocols.

In summary, while robotic-assisted management of paratubal cysts in pediatric patients is still an emerging field, our findings suggest that, with appropriate indications and surgical expertise, it may represent a valuable minimally invasive option in selected pediatric patients, particularly in anatomically complex cases where meticulous dissection and preservation of the adnexa are required. Future research should aim not only to validate these benefits but also to address cost-effectiveness, equitable access, and long-term reproductive health implications.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflicts of interest

Have nothing to declare.

Acknowledgements

No special acknowledgements to be made.

References

[1] Azzena A, Quintieri F, Salmaso R. A voluminous paraovarian cyst. Case report. Clin Exp Obstet Gynecol 1994;21(4):249–52. PMID: 7994876.
[2] Barloon TJ, Brown BP, Abu-Yousef MM, Warnock NG. Paraovarian and paratubal cysts: preoperative diagnosis using transabdominal and transvaginal sonography. J Clin Ultrasound 1996;24(3):117–22. 0.1002/(SICI)1097-0096(199603)24:3<117::AID-JCU2>3.0.CO;2-K.
[3] Kiseli M, Caglar GS, Cengiz SD, Karadag D, Yılmaz MB. Clinical diagnosis and complications of paratubal cysts: review of the literature and report of uncommon presentations. Arch Gynecol Obstet 2012;285:1563–9. https://doi.org/10.1007/s00404-012-2304-8.
[4] Thakore SS, Chun MJ, Fitzpatrick K. Recurrent ovarian torsion due to paratubal cysts in an adolescent female. J Pediatr Adolesc Gynecol 2012;25(4):85–7. https://doi.org/10.1016/j.jpag.2011.10.012.
[5] Dietrich JE, Heard MJ, Edwards C. Uteroovarian ligament torsion due to a paratubal cyst. J Pediatr Adolesc Gynecol 2005;18(2):125–7. https://doi.org/10.1016/j.jpag.2005.01.009.
[6] Gupta A, Gupta P, Manaktala U, Khurana N. Clinical, radiological, and histopathological analysis of paraovarian cysts. J Midlife Health 2016;7:78–82. https://doi.org/10.4103/0976-7800.185337.
[7] Sagili H, Krishnan M, Dasari P. Huge bilateral paramesonephric cysts in a 25 year old nulliparous woman. J Clin Diagn Res 2013;7(11):2589–90. https://doi.org/10.7860/JCDR/2013/6563.3597.
[8] Tjokroprawiro BA. Huge paratubal cyst: a case report and a literature review. Clin Med Insights Case Rep 2021;14:11795476211037549. https://doi.org/10.1177/11795476211037549.
[9] Fryczek M, Szymon O, Maślanka M, Bogusz B, Górecki W. Paraovarian cysts in pediatrics: retrospective analysis of diagnostic and laparoscopic treatment in a single institution. J Pediatr Adolesc Gynecol 2025;38(4):515–20. https://doi.org/10.1016/j.jpag.2025.02.005.
[10] Kiran S, Jabri SS, Razek YA, Devi MN. Non-tender huge abdominal mass in an adolescent: bilateral paraovarian cysts. Sultan Qaboos Univ Med J 2021;21(2):e308–11. https://doi.org/10.18295/squmj.2021.21.02.022.
[11] Bertozzi M, Noviello C, Molinaro F, Ratta A, Lisi G, Cobellis G, et al. Isolated fallopian tube torsion in pediatric age: an Italian multicenter retrospective study. J Pediatr Surg 2020 Apr;55(4):711–4.
[12] Felipe JH, Alcantar AR, Franco RF. Adolescent with paraovarian cyst. Surgical treatment. Cir Cir 2017;85(6):535–8. https://doi.org/10.1016/j.circir.2016.08.002.
[13] De Sanctis V, Soliman AT, Elsedfy H, Soliman NA, Elalaily R, Di Maio S, et al. An adolescent with an asymptomatic adnexal cyst: to worry or not to worry? Medical versus surgical management options. Acta Biomed 2017;88(2):232–6. https://doi.org/10.23750/abm.v88i2.6050.
[14] Tesoro S, Gamba P, Bertozzi M, Borgogni R, Caramelli F, Cobellis G, et al. Pediatric robotic surgery: issues in management-expert consensus from the Italian society of pediatric and neonatal anesthesia and intensive care (SARNePI) and the Italian society of pediatric surgery (SICP). Surg Endosc 2022 Nov;36(11):7877–97. https://doi.org/10.1007/s00464-022-09577-0. Epub 2022 Sep 19. PMID: 36121503; PMCID: PMC9613560.
[15] Delotte J, Breaud J, Mialon O, Verger S, Bongain A. Un rôle de la chirurgie robot-assistée pour préserver la fertilité féminine? Réflexion à propos d'une première exérèse de kyste paratubaire par cœliochirurgie robot-assistée "Da Vinci S" chez une jeune fille [A role of robotic-assisted surgery to preserve female fertility? Comments about the first paratubal cystectomy performed with the "Da Vinci S" robotic system in a young girl]. Gynecol Obstet Fertil 2010;38(10):631–3. https://doi.org/10.1016/j.gyobfe.2010.08.010.
[16] Nguyen A, Tamayo J, Paluru S. An atypical presentation of coexisting pancreatic and ovarian cysts. Am J Gastroenterol October 2024;119(10S):S1857. https://doi.org/10.14309/01.ajg.0001039984.38815.0b.
[17] Meehan JJ, Sandler A. Pediatric robotic surgery: a single-institution experience. Pediatrics 2008;121(3):e591–6. https://doi.org/10.1542/peds.2007-1212.
[18] Dangle PP, Reynolds WS, Lee DI. Cost analysis of robotic vs laparoscopic surgery for gynecologic procedures. J Minim Invasive Gynecol 2010;17(6):730–6. https://doi.org/10.1016/j.jmig.2010.06.011.
[19] Sinha R, Sundaram M, Lakhotia S, Hedge A. Robotic surgery in gynecology: evolution and clinical applications. J Minimal Access Surg 2015;11(2):92–9. https://doi.org/10.4103/0972-9941.153981.
[20] Esposito C, Blanc T, Di Mento C, Ballouhey Q, Fourcade L, Mendoza-Sagaon M, et al. Robotic-assisted surgery for gynecological indications in children and adolescents: european multicenter report. J Robot Surg 2024;18(1):20. https://doi.org/10.1007/s11701-023-01767-9. Published 2024 Jan 13.
[21] Fusi G, Ferlini CM, Vitali V, Raffaele A, Avolio L, Riccipetitoni G, et al. Pediatric robotic gynecologic surgery: a retrospective institutional experience and systematic review. J Pediatr Surg 2025 Dec;60(12):162713. https://doi.org/10.1016/j.jpedsurg.2025.162713. Epub 2025 Oct 7. PMID: 41061954.
[22] Bertozzi M, Raffaele A, Romano P, Ferlini CM, Vitali V, Fusi G. Association of paratubal cyst, tubal torsion, and hydrosalpinx: a pediatric case treated by robotic-assisted surgery and neosalpingostomy. Case Reports in Obstetrics and Gynecology 2026;2026(1):2740299.
[23] Cain MP, Dangle P, Kaefer M. Pediatric robotic surgery: the early experience. J Endourol 2008;22(4):731–6. https://doi.org/10.1089/end.2007.0306.