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Laparoscopic Management of Ovarian Cysts in Adolescents and Outcomes at SVIMS.

Malathi Jonna, G.Hinduja Vidmahe, Pravallika sudharani R, Sonatejaswi M R(Corresponding Author)

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KEYWORDS

Laparoscopic Management, Adolescents, SVIMS

ABSTRACT:

Background:

Treatment for ovarian cysts depends on the characteristics of the cysts, whether symptoms are present, and whether surgery is necessary to identify the type of adnexal mass. Laparoscopic surgery has gained acceptance as the gold standard for treating adnexal masses in gynecologic surgery in recent years, and several adult series have thoroughly established its benefits.

Materials and methods:

It's a retrospective study, adolescent age group women who underwent laparoscopic surgery in the department of obstetrics and gynaecology at SVIMS were the study population. It was conducted over a one year period from 2022 july to 2024 july. Patients with suspected pregnancy, suspected pelvic inflammatory disease, married and above 20 years of age were excluded from the study.

Results:

A total of 31 adolescents were included in the analysis. The age of the study participants ranged from 13 to 19 years, with a Mean age of 17.258±1.7121 years. The preoperative USG showed a simple ovarian cyst in 29% of cases, a Haemorrhagic cyst in 16.1% cases, and a paraovarian cyst in 12.9% of cases. The most common histopathological findings in our study are serous cystadenoma(19.4%), Haemorrhagic cyst(16.1%), and Ovarian cyst with torsion(12.9%). 64.5% of the patients underwent cystectomy, Puncture + cystectomy(12.9%), Cystectomy + oophorectomy(9.7%), Cystectomy with detorsion(3.2%), Cystectomy with salpingectomy(3.2%), Detorsion + cystectomy(3.2%) and Oophorectomy(3.2%).

Conclusion:

Surgical laparoscopy offers benefits such as less blood loss, less tissue damage, less perioperative pain, fewer hospital stays, and lower total healthcare costs.

Introduction:

All age groups are susceptible to ovarian masses, which can include both neoplastic tumors and non-neoplastic lesions. Children and adolescents have different incidence, clinical presentation, and histological distribution of these lesions than adults do, necessitating a customized treatment strategy [1-2]. Ovarian masses can range from benign functioning cysts to cancerous neoplasms. Three to eight percent of children and adolescents with an adnexal mass have ovarian cancer, which makes up one to two percent of all childhood malignancies [3,4]. Since benign and malignant lesions are treated fundamentally differently, determining the possibility of malignancy is the primary goal when evaluating an ovarian tumor. For proper therapy, it is therefore essential to accurately characterize ovarian masses in children and adolescents [3]. Numerous biomarkers, such as imaging traits and serum tumor markers, have been suggested as indications of either high or low risk of malignancy and can aid in the diagnostic procedure. Clinical signs, serum tumor marker levels, and imaging characteristics should all be used to make the differential diagnosis.

Computed tomography (CT), magnetic resonance imaging (MRI), and ultrasound (US) are common imaging modalities used to assess a juvenile ovarian tumor. Since the US is widely accessible, simple to use, does not expose young children to ionizing radiation, and does not require sedation, it is usually the first modality of choice for evaluating an adnexal tumor. While

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endovaginal US may be utilized in sexually active teenagers, the transabdominal technique is often employed in the pediatric population [4,5].

Treatment for ovarian cysts depends on the characteristics of the cysts, whether symptoms are present, and whether surgery is necessary to identify the type of adnexal mass. Laparoscopic surgery has gained acceptance as the gold standard for treating adnexal masses in gynecologic surgery in recent years, and several adult series have thoroughly established its benefits.[6] In young girls, there has also been a noticeable change from open surgery to laparoscopic procedures.[7] For future fertility, less invasive surgery is particularly crucial in this age range. The effectiveness and safety of laparoscopy for ovarian lesions in adolescents and young adults are, nonetheless, described in a few limited studies.[8]

The goal of the current study was to examine our experience with laparoscopic treatment of ovarian tumors in Adolescents.

Materials and methods:

It's a retrospective study, adolescent age group women who underwent laparoscopic surgery in the department of obstetrics and gynaecology at SVIMS were the study population. It was conducted over a one year period from 2022 july to 2024 july.

All women below 20 years with abdominal pain and ultrasonographic findings indicative of cysts/adnexal mass were included. Patients with suspected pregnancy, suspected pelvic inflammatory disease, married and above 20 years of age were excluded from the study.. Institutional review board approval will be sought for the study. Informed consent was obtained from all the patients before the procedure, and consent was also obtained for surgical intervention.

Preoperatively, careful evaluation of the patients and a precise definition of the cysts with pelvic ultrasound were performed. Indications for laparoscopic surgery included the following: persistent ovarian cysts after the period of observation or oral contraceptive use, or become symptomatic. Patients with adverse features such as the existence of solid components, papillomatous structures, and elevated serum tumour markers were not selected for laparoscopic treatment, according to hospital policy.

Results:

A total of 31 adolescents were included in the analysis. The age of the study participants ranged from 13 to 19 years, with a Mean age of 17.258±1.7121 years. It is shown in Table 1.

Table No. 1 Age Age-wise distribution of study participants

Age	Frequency	Percentage
13.0	1	3.2
14.0	2	6.5
15.0	2	6.5
16.0	4	12.9
17.0	5	16.1
18.0	8	25.8
19.0	9	29.0

The preoperative USG showed a simple ovarian cyst in 29% of cases, a Haemorrhagic cyst in 16.1% cases, and a paraovarian cyst in 12.9% of cases.

Table No:2 Preoperative Scan Findings of study participants

Preoperative Scan Findings	Frequency	Percentage
Bulky Ovaries	2	6.5
Complex ovarian cyst	2	6.5
Complex Ovarian cyst	1	3.2
Dermoid cyst	3	9.7
Endometriotic cyst	1	3.2
Haemorrhagic cyst	5	16.1
Ovarian abscess with salpingitis	1	3.2
Ovarian torsion	2	6.5

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Paraovarian cyst	4	12.9
Serous Cystadenoma	1	3.2
Simple Ovarian cyst	9	29.0
Total	31	100.0

At the laproscopic surgery, the Intra-operative examination showed the most common finding as a paraovarian cyst and a Haemorrhagic cyst as the most common finding. The intraoperative findings of the study participants are shown in Table 3.

Table No:3 Intraoperative Findings of Study Participants

Intraoperative Findings	Frequency	Percentage
Dermoid cyst	3	9.7
Endometriotic cyst	2	6.5
Haemorrhagic cyst	4	12.9
Haemorrhagic cyst with torsion	3	9.7
Multiloculated cyst	2	6.5
Multiple cysts with torsion	1	3.2
Ovarian cyst with torsion	1	3.2
Paraovarian cyst	8	25.8
Serous cystadenoma	2	6.5
Simple ovarian cyst	3	9.7
Simple Ovarian cyst with torsion	2	6.5
Total	31	100.0

The most common histopathological findings in our study are serous cystadenoma(19.4%), Haemorrhagic cyst(16.1%), and Ovarian cyst with torsion(12.9%). It is shown in Table 4.

Table No. 4 Postoperative Histopathological Findings

Postoperative Histopathological Findings	Frequency	Percentage
Benign cystic teratoma	1	3.2
Chocolate cyst	1	3.2
Corpus luteal cyst	1	3.2
Dermoid cyst	2	6.5
Endometriotic cyst	2	6.5
Follicular cyst	1	3.2
Haemorrhagic cyst	5	16.1
Haemorrhagic cyst with torsion	1	3.2
Ovarian cyst with torsion	4	12.9
Paraovarian cyst	3	9.7
Peritoneal inclusion cyst	1	3.2
Serous cystadenoma	6	19.4
Serous cystadenoma with torsion	2	6.5
Simple ovarian cyst	1	3.2
Total	31	100.0

In our study, 64.5% of the patients underwent cystectomy, Puncture + cystectomy(12.9%), Cystectomy + oophorectomy(9.7%), Cystectomy with detorsion(3.2%), Cystectomy with salpingectomy(3.2%), Detorsion + cystectomy(3.2%), and Oophorectomy(3.2%).

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Table No. 5 Surgery Done

Surgery Done	Frequency	Percentage
Cystectomy	20	64.5
Cystectomy + oophorectomy	3	9.7
Cystectomy with detorsion	1	3.2
Cystectomy with salpingectomy	1	3.2
Detorsion + cystectomy	1	3.2
Oophorectomy	1	3.2
Puncture + cystectomy	4	12.9
Total	31	100.0

Discussion:

Laparoscopy is now the standard procedure for surgically treating ovarian lesions in adults, and previous research has shown how beneficial it is.[9–11] Nowadays, laparotomies are typically saved for suspected cancer cases.[9] The majority of modern authorities support a conservative strategy that involves laparoscopic surgery for adnexal masses in young girls and teenagers.[6-7]

When treating an ovarian tumor, surgical laparoscopy offers benefits such as less blood loss, less tissue damage, less perioperative pain, fewer hospital stays, and lower total healthcare costs.[11].Laparotomy and laparoscopy have a similar incidence of complications.[12]

The post-operative cosmetic outcome is an additional benefit of the laparoscopic technique, particularly for young females. In this age range, this needs to be regarded as the choice for an operational intervention.[6] Laparoscopic surgery is also often linked to decreased adhesion development, which may have a detrimental effect on fertility, according to certain studies looking at ovarian surgery for different causes.[13–14].

The establishment of normal puberty in adolescents and young girls depends critically on avoiding too aggressive surgical care of benign ovarian masses, and procedures should be planned to maximize future fertility [15]. According to Lass et al. [16], women who have had a unilateral oophorectomy in the past are more likely than those who have not to seek infertility consultation. The potential for bilateral oophorectomy in the future due to the development of a cyst in the other ovary makes the preservation of these ovaries even more crucial [17]. According to reports, young individuals who have a unilateral oophorectomy for benign reasons nevertheless run a 3–15% chance of developing contralateral ovarian torsion or cancer.

However, even though ovarian cancers are uncommon in this age range, any young patient who presents with an adnexal tumor should have the diagnosis taken into consideration. A rigorous policy of thorough preoperative examination is required due to the danger of missing an early cancer diagnosis.

Because of its resolution and capacity to evaluate vascular flow patterns, ultrasound is the recommended imaging modality.

Before choosing a treatment strategy, tumor markers in conjunction with imaging evaluations like magnetic resonance imaging, computed tomography, or Doppler sonography can assist in identifying the kind of ovarian cysts. The risk of malignancy is extremely minimal when the cyst is unilocular, has a smooth surface, and has a thin wall.[18] When possible, ovarian-preserving treatment should be carried out in young girls by the use of preoperative diagnostic testing and cautious patient selection [17].

In our case study, paraovarian cysts and hemorrhagic cysts in young girls were the most frequent causes of ovarian enlargement. This result is consistent with previous research [19–20]. The majority of cases (72.7%) involved ovarian cystectomy with a tissue-sparing technique, and 99.3% of patients could have ovarian-conserving surgery. This aligns with Deligeoroglou et al.'s findings[21]. They said that in their series, laparoscopy was used for 68.2% of procedures on teenage patients, and in 88.6% of instances, conservative surgery was an option.

The possibility of upstaging malignant neoplasms has raised various concerns regarding the safe laparoscopic excision of ovarian tumors due to cyst contents spilling. It is uncertain, therefore, what effect intraoperative

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spread of cancerous cells will have. It is crucial to carefully examine the ovarian lesions during the procedure to avoid mistreating any malignant tumors. Management choices are based on this assessment.

Serous cystadenoma (19.4%), hemorrhagic cyst (16.1%), and ovarian cyst with torsion (12.9%) are the most frequent histological findings in our study. Ovarian torsions are more prevalent on the right side, according to Banlı-Cesur et al., and many individuals with severe abdominal pain in the right quadrant may be diagnosed with acute appendicitis. However, it is still up for discussion whether the sigmoid colon helps avoid left ovarian torsion. It might be challenging to distinguish between different ovarian diseases because the symptoms are nonspecific [22]. According to research by Cass et al., the ratio of ovarian torsion is 42%, 10% in Liu et al.'s series, and 23.5% in our series [23-24]. In summary, ovarian torsion is challenging to identify before surgery because the manifestation is vague. 97.5 percent of patients with ovarian torsion experienced nausea or vomiting-related stomach discomfort, according to research that evaluated the clinical data of these individuals. According to research by Seckin et al., postoperative pathologic examination revealed that 14 (5.0%) of the patients had serous cystadenomas and 11 (3.9%) had mucinous cystadenomas. Endometriomas were more common in young adults (34% vs. 7.6%), whereas adolescents had a higher frequency of dermoid cysts (20.3% vs. 15.3%) and simple ovarian cysts (60.7% vs. 40.9%). Two borderline tumors, one steroid cell tumor, and one sclerosing stromal tumor were among the four malignant (1.4%) cysts[25].

Cystectomy, puncture + cystectomy (12.9%), cystectomy + oophorectomy (9.7%), cystectomy with detorsion (3.2%), cystectomy with salpingectomy (3.2%), detorsion + cystectomy (3.2%), and oophorectomy (3.2%) were performed on 64.5% of the patients in our research. By Seckin et al., 205 (72.7%) instances had cystectomy, 53 (18.8%) underwent cyst wall fenestration, and 22 (7.8%) underwent cyst fluid aspiration [25].

No surgical or postoperative problems, including bleeding, fever, or wound infection, were seen.

However, this study's retrospective approach is its primary drawback. To elucidate the results, more prospective, randomized studies with a greater number of patients are required. The second limitation is less sample size.

Conclusion:

In conclusion, the majority of ovarian masses in teens will be deemed benign based on a thorough preoperative assessment.When a benign tumor is detected, ovary-preserving surgical treatments should be taken into consideration; when malignancy is suspected, an open approach was commonly employed. Laparoscopic procedures should be offered to adolescents. Surgical laparoscopy offers benefits such as less blood loss, less tissue damage, less perioperative pain, fewer hospital stays, and lower total healthcare costs.

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