



DIAGNOSTIC DILEMMAS IN PARA OVARIAN CYSTS - A CASE SERIES AND REVIEW OF LITERATURE

Obstetrics & Gynaecology

Dr. Akshitha Senior Resident, Dept Of Obg & Gynec Mams+, Hyderabad

Dr. Nibeditha Assistant Professor, Dept Of Obg & Gynec Mams+, Hyderabad

Dr. Manoghna Senior Resident, Dept Of Obg & Gynec Mams+, Hyderabad

Dr. Sangeetha Professor, Dept Of Obg & Gynec Mams+, Hyderabad

Dr. Maitri Professor, Dept Of Obg & Gynec Mams+, Hyderabad

ABSTRACT

Introduction: A paraovarian cyst (POC) is a cyst in the broad ligament or mesosalpinx. Paraovarian cysts have an estimated prevalence of 5–20% amongst the adnexal masses. Despite the high prevalence and availability of advanced imaging modalities, an accurate pre-operative diagnosis of POC is still made in less than 50% of patients. **Case Reports:** 8 females of para ovarian cysts are included in the study (retrospective study), all being in the reproductive age group, one female of age 16 yrs was presented. Most of them have been presented with pain abdomen on and off. All the patients preop diagnosis was ovarian cyst or hydrosalpinx but found to be paraovarian intraoperatively. **Results:** Optimal management of an adnexal mass depends on the knowledge of the origin and the exact nature of the mass. No clear-cut guidelines exist for the management of POCs despite their high prevalence. There is a need for further research on this topic to formulate clear-cut guidelines for their management. **Conclusions:** Radiologists and gynaecologists need to keep them in mind as differentials for patients with adnexal masses to ensure a correct pre-operative diagnosis in order to achieve an optimal outcome for these females. Gynaecologists need to be aware of the cases which can be managed conservatively and those that need surgery, along with the extent of the surgery required, taking care to protect the ovary at all costs, particularly in benign cases.

KEYWORDS

Paraovarian Cyst, Ovarian Cyst, Malignancy.

INTRODUCTION

A paraovarian cyst (POC) is defined as a cystic mass located in the broad ligament or the mesosalpinx^(1,2). They are labelled as paraovarian or paratubal depending on the proximity to the respective structure, though the two terms are generally interchangeable⁽¹⁾. Their prevalence has been estimated to be as high as 5–20% amongst the adnexal masses^(1,3).

Despite the high prevalence and the availability of advanced imaging modalities in modern-day medicine, it is estimated that an accurate diagnosis of POC prior to surgery is still made in less than 50% of patients⁽¹⁾. Here, we describe a case series of eight patients with POCs, their varied clinical presentations and management done at a tertiary care centre.

Paraovarian cysts or paratubal cysts are epithelium-lined fluid-filled cysts in the adnexa adjacent to the fallopian tube and ovary. The terms are used interchangeably, and depend on the location of the cyst. PTCs originate from the mesothelium and are presumed to be remnants of the Müllerian duct and Wolffian duct. On histopathology, paraovarian cysts are generally lined by simple cuboidal epithelium as shown. However, they may have fallopian tubal epithelium or focal papillary projections.

Most cysts are small and asymptomatic. Typical sizes reported are 1 to 8 cm in diameter. PTCs may be found at surgery or during an imaging examination that is performed for another reason.

Larger lesions may reach 20 or more cm in diameter and become symptomatic exerting pressure and pain symptoms in the lower abdomen. Large cysts can lead to torsion of the adnexa inflicting acute pain.

Given the high prevalence of paraovarian cysts in the female population and the rare possibility of a malignant transformation, it is crucial to define their specific sonographic features in order to differentiate them from ovarian cysts and to point out the correct indications for surgery.

Age	Complaints	USG findings	Intraop findings
38yrs	mass per abdomen	left ovarian complex cyst (21*12*9.3cm), no solid components within, ovary not made out separately	left 2 paraovarian cysts 16*10cm, 12*10cm size noted, cystectomy done

29yrs	pain abdomen on and off since 2 months	right paraovarian cyst vs hydrosalpinx	right paraovarian cyst 8*3cm noted, cystectomy done.
31yrs	pain abdomen on and off since 3 months	right hydrosalpinx	right 5cm paratubal cyst at fimbrial end noted, cystectomy done
26yrs	no complaints	simple cyst 5.4*5.8*6.2cm arising from left ovary	left fimbrial cyst noted, cystectomy done
30yrs	lower abdominal pain on and off since 6 months	anechoic cyst of 8.4*7.7cm arising from right ovary	right paraovarian cyst of size 9*7 cm seen, cystectomy done
27yrs	secondary subfertility	left ovarian simple cyst of size 10*8cm with no solid component	large paraovarian cyst of size 12*8 cm in left adnexa
16yr old un married	pain abdomen on and off for 2 months	left ovarian simple cyst of size 16*15*10cm with no solid components	large paraovarian cyst of size 20*18cm, cystectomy done
33yrs	pain abdomen since 1 day associated with vomiting	right ovarian cyst 7*6cm with possibility of torsion of right ovarian pedicle	3 rounds of torsion of right ovarian pedicle with paraovarian cyst of size 7*8cm. detorsion done, cystectomy done.

DISCUSSION

Paraovarian cysts are said to originate from the mesothelium of the broad ligament in 68% of cases, remnants of the paramesonephric duct in 30% of cases, and from the mesonephric duct remnants in the remaining 2% of cases [1, 3].

Paraovarian cysts have been reported in females of all age groups from neonates to post-menopausal [3], though the reported incidence is higher in reproductive-age females [3, 4]. In our case series also, all patients were in the reproductive age group. It is hypothesized that the

alteration of the hormonal milieu in the reproductive age may be a contributing factor in the development of POCs. This is also supported by the fact that POCs have been found to increase in size during pregnancy [5]. Since POCs are affected by hormonal changes, whether oral contraceptive pills could be used for their management is worth exploring.

Traditionally, adnexal cysts are called 'large' when their size is more than five centimetres and 'giant' when they are larger than 15 centimetres [6].

Giant POCs are an uncommon entity [6]. It is notable that three of our patients had giant POCs.

One of our patient was diagnosed intra-operatively as torsion which is only case done in emergent of findings mentioned (case no 8).

Torsion has been more commonly reported on the right side, likely due to the sigmoid colon limiting the cyst mobility on the left [7]. These cases are usually misdiagnosed as appendicitis and diagnosed during surgery for the same [7].

Paraovarian cysts are also associated with an increased incidence of ectopic pregnancy and infertility as they can cause tubal narrowing and disturbed tubal motility [3].

No certain risk factors have been found with their formation, although some have reported them to be more common following in-utero exposure to DES[diethyl stilbestrol][8].

Most cysts have thin smooth walls and anechoic centers. Eccentrically located cysts may resemble hydrosalpinx.

An effort should be made to conserve the ovary and fallopian tube of these females at all costs, though at times excision of large POCs may necessitate removal of the tube or even the ovary [2]. There is no consensus on the management of borderline or malignant POCs [3].

To date, the management has been done on similar lines as borderline or malignant ovarian cysts by doing either unilateral adnexectomy or complete surgical staging depending on the female's desire for future fertility [9].

CONCLUSION

More than half of POCs are misdiagnosed as ovarian cysts, tubal cysts, peritoneal inclusion cysts and even mesenteric cysts [1].

The correct diagnosis prior to surgery can be made by ultrasound features such as the split sign (separation of the cyst from the ovary on applying probe pressure) [1] and the absence of the rim sign (normal ovarian follicles surrounding the cyst). It is vital to differentiate POCs from ovarian cysts as these behave differently both clinically and biologically [3]. Magnetic resonance imaging and CECT can also be used as modalities to better delineate the origin and nature of an adnexal mass [6].

Paraovarian cysts usually remain asymptomatic and are mostly visualized incidentally either on imaging or during surgery. At times, they can become symptomatic and present with acute abdominal pain in the event of cyst torsion, cyst rupture or haemorrhage [1].

Optimal management of an adnexal mass depends on the knowledge of the origin and the exact nature of the mass. Paraovarian cysts should be kept in mind as a differential diagnosis for patients with adnexal masses both by gynaecologists and radiologists.

In view of the high prevalence of POCs, there is an increasing need for further research on this topic so as to formulate clear-cut guidelines for their management. Whether hormonal treatment might be successful in these cases needs further research.

Gynaecologists need to be aware of the cases which can be managed conservatively and those that need surgery, along with the extent of the surgery required, taking care to protect the ovary at all costs, particularly in benign cases.

Prior to surgery, POCs are usually seen on ultrasonography. However, because of the proximity of the ovary that may display follicle cysts, it may be a challenge to identify a cyst as paratubal or paraovarian.

A more precise differential diagnosis could be achieved by magnetic resonance imaging (MRI) but the cost of this technique is very high and the diagnostic accuracy still uncertain^{10,11}.

For extraction of larger cysts in laparoscopy, techniques such as transvaginal extraction by culdotomy are being increasingly used as an effective and cheaper alternative^{12,13}.

REFERENCES

1. Tzur T, Tzur Y, Baruch S, Smorgick N, Melcer Y. Clinical presentation of paraovarian cysts. *Isr Med Assoc J* 2022; 24: 15-19.
2. Stefanopol IA, Baroiu L, Neagu AI, et al. Clinical, imaging, histological and surgical aspects regarding giant paraovarian cysts: a systematic review. *Ther Clin Risk Manag* 2022; 18: 513-522.
3. Durairaj A, Gandhiraman K. Complications and management of paraovarian cyst: a retrospective analysis. *J Obstet Gynecol India* 2019; 69: 180-184.
4. 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: e308.
5. Qian L, Wang X, Li D, Li S, Ding J. Isolated fallopian tube torsion with paraovarian cysts: a case report and literature review. *BMC Women's Health* 2021; 21: 1-7.
6. De Sanctis V, Soliman AT, Elsedfy H, et al. An adolescent with an asymptomatic adnexal cyst: to worry or not to worry? Medical versus surgical management options. *Acta Biomed* 2017; 88: 232-236.
7. Alon AS, Kerner R, Ginath S, Barda G, Sagiv R. Clinical characteristics of women with isolated fallopian tube torsion compared with adnexal torsion. *Isr Med Assoc J* 2019; 21: 575-579.
8. Charbel Salmon, Carmen Tornos et al: Borderline endometrioid tumor arising in a paratubal cyst, *Gynaecologic oncology*; April 2005; 97(1): 263-265.
9. Lee S, Ahn KH, Park HT, et al. Paratubal borderline malignancy: a case of a 17-year-old adolescent female treated with laparo-endoscopic single site surgery and a review of the literature. *J Pediatr Adolesc Gynecol* 2016; 29: 74-76.
10. Fujii T, Kozuma S, Kikuchi A, Hanada N, Sakamaki K, Yasugi T, Yamada M, Taketani Y. Paraovarian cystadenoma: sonographic features associated with magnetic resonance and histopathologic findings. *J Clin Ultrasound* 2004; 32: 149-153.
11. Kishimoto K, Ito K, Matsunaga N, Outwater EK, Siegelman ES. Paraovarian cyst: MR imaging features. *Abdom Imaging* 2002; 27: 685-689.
12. Laganà AS, Garzon S, Gisone B, Casarin J, Ghezzi F. Intraoperative ultrasound scan by culdotomy before laparoscopic ovarian resection: a novel approach. *Minim Invasive Ther Allied Technol* 2022; 31: 479-482.
13. Casarin J, Laganà AS, Pinelli C, Cromi A, Ghezzi F. Minimally laparoscopic single site bilateral salpingo-oophorectomy: a scarless prophylactic procedure. *Minim Invasive Ther Allied Technol* 2022; 31: 313-318.