

Ovarian Cyst Accidents Diagnosed at Laparotomy, experience from a Third-level Health Facility in Port Harcourt, Nigeria

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Abstract

Background: Ovarian cyst accidents affect different age groups and usually present as acute abdomen, often requiring surgical intervention. Prompt diagnosis is necessary to maintain reproductive function and avoid mortality.

Objectives: To determine the sociodemographic characteristics, clinical management, and histological patterns of surgically identified ovarian cyst accidents at the University of Port Harcourt Teaching Hospital.

Methods: A retrospective review of all cases of accidented ovarian cyst at laparotomy was undertaken over an Eight-year period. Information on the socio-demographics, symptomatology, operative findings and histology was extracted and collated in a pre-structured spreadsheet. Analysis of data collated was done using IBM SPSS version 22. Results of the analysis were presented using descriptive statistics, figures and tables. Chi-square test was used to determine the association between categorical variables with P-value ≤ 0.05 as significant

Results: Ovarian cyst accidents constituted 123(6.1%) of 2,019 major Gynaecological surgeries (2,019). The age range was 10 –70 years with a mean age of 24.6 ± 0.85 years. The majority of patients were in the age group of 21 – 30 years 64(52.0%), and Seventy patients (56.9%) were nulliparous. Abdominal pain was the commonest presentation 105(85.4%), while torsion 105(84.6%) was the most frequent accident. Most cases of accidents were in non-gravid patients 98(95.1%). Fifty-six (45.5%) of ovarian cyst accidents involved the right ovary. There was no significant relationship between age, laterality, parity, gravidity and ovarian accidents. All accidented ovarian cysts were histologically benign.

Conclusion: Accidented ovarian cysts were benign on histology and commonly seen in nulliparous women in their reproductive age group. Torsion is predominant; thus prompt intervention is essential to conserve fertility and hormonal milieu.

Keywords: Ovary, Cyst, Accident, Port Harcourt

Introduction

The ovaries undergo physiological changes influenced by hormonal and local factors. These changes can result in the formation of physiological cyst which resolves spontaneously, most of the time, in line with the hormonal milieu or can persist with the possibility of resultant accidents of the cyst.

The accidents of ovarian cyst are one of the common Gynaecological emergencies presenting as acute abdomen and could be infection, rupture, torsion or haemorrhage or a combination of these.²⁻⁴ Patients presentation differ ranging from sudden onset of abdominal pain, fever in the presence of an ovaritis, with abscess collection, to life-threatening hypovolaemic shock in the event of a rupture.¹

In patients with accidented ovaries requiring surgical intervention, it is important to have a high index of suspicion to ensure prompt diagnosis and institution of appropriate management. This is to guarantee the maintenance of reproductive ability, hormonal environment and reduce mortality.⁵ Ultrasound evaluation of these patients will provide a lead to differentiating the various accidents of the ovary. Colour Doppler ultrasound scan findings of the "whirlpool" sign of a twisted pedicle and coiling of the ovarian vessels increases the diagnostic potential for torsion while features such as evidence of free peritoneal fluid may suggest rupture of a cyst.⁶⁻⁸ Also, a haemorrhagic cyst may present as irregular echogenic area with scalloped edges along the inner walls, spherical cysts with many lobes and multiple septations within the cyst.^{6,7} Traditionally, patients presenting with ovarian cyst accidents requiring surgical intervention have exploratory laparotomy

performed and based on findings are offered surgical options ranging from detorting of a viable ovarian cyst, cystectomy, ovariectomy or oophorectomy.⁹ These options are dependent on the age, reproductive wish of the patient, viability of the tissue, nature of accident and the nature of the tissue whether benign or malignant.¹⁰ Laparoscopic surgical options are now readily utilized in centers with the requisite equipment and technical expertise hence reducing surgical trauma and ensuring recovery time for patient.¹¹

Gynaecological emergencies such as ovarian cyst accidents thus can affect a patient's quality of life and even threaten survival. There had been no previous institutional review of the characteristics of patients with this condition; hence, the need to undertake this review to improve the management of patients and generate institutional/regional data of women affected by this condition at the University of Port Harcourt Teaching Hospital, Port Harcourt.

Materials and Methods

A descriptive study of ovarian cysts accidents at the University of Port Harcourt Teaching Hospital was conducted. The gynecological theatre register of the hospital was carried out from the 1st of January 2008 to 31st December 2015. The folder numbers of patients diagnosed with ovarian cyst accidents at laparotomy were extracted. This was used to retrieve the folders from the Medical records Department of the Teaching Hospital. Relevant information on age, parity, marital status, religion, pregnancy status, clinical presentations, findings at laparotomy, and histopathological diagnosis of tissue extracted during laparotomy were obtained and entered into a pre-structured

spreadsheet and analyzed using SPSS version 22 (IBM Armond, NY, USA) Windows software. Patients information with incomplete data were excluded from the study. Results were presented as percentages, figures and tables. Chi-square test was used to determine the association between categorical variables with P-value ≤ 0.05 as significant.

Ethical clearance and approval for the study were obtained from the University of

Port Harcourt Teaching Hospital Research and Ethics committee.

Results

A total 130 cases of ovarian cyst accidents were recorded in the theatre records of the hospital with 123 cases retrieved, giving a retrieval rate of 94.6% reviewed. The incidence of ovarian cyst accidents was 6.1% (123) of 2,019 major gynaecological surgeries in the period under review.

Table 1: Sociodemographic characteristics of patients with Ovarian Cyst Accidents

Characteristics	Variable	Frequency	Percentage
Age	10 – 20	9	7.3
	21 – 30	64	52.0
	31 – 40	37	30.1
	41 – 50	11	8.9
	51 – 60	1	0.8
	61 – 70	1	0.8
Parity	Nulliparous	70	56.9
	Primiparous	20	16.3
	Multiparous	26	21.1
	Grand multiparous	7	5.7
Marital Status	Single	58	47.2
	Married	65	52.8
Religion	Christianity	120	97.6
	Islam	3	2.4
Pregnancy Status	Gravid	6	4.9
	Non-Gravid	117	95.1

range of patients studied was 10 – 70 years; the mean age was 24.6 ± 0.85 years. The majority, 64 (52%) of the patients were in the 21 – 30 years age group followed by the 37(30.1%) in the 31 – 40 years old age group, others are as listed in table 1. Seventy (56.9%) patients were nulliparous, 20(16.3%) were primiparous, 26(21.1%) multiparous and 7(5.7%) were grandmultiparous. The majority were married 65 (52.8%) while 58 (47.2%) were single. Most of the women were non-gravid 117 (95.1%) while 6 (4.9%) were gravid. The majority of the patients were Christians 120 (97.6%), while only 3 (2.4%) were Muslims. (Table 1).

Table 2: Distribution of Demographic Variables, Pregnancy Status, Side of Cyst and Ovarian Cyst Accidents.

Characteristics	Variables	Intraoperative findings of ovarian cyst				Chi-Square (x ²) (p-value)
		Torsion	Rupture	Haemorrhage	Infection	
Age (years)	10-40	92	7	6	5	0.18
	41- 70	12	1	0	0	(0.981)
Parity	0					
	1>	58	4	4	4	1.53
		46	4	2	1	(0.675)
Location of cyst						
	Right	48	4	2	2	1.47
	Left	40	3	4	3	(0.961)
	Both	16	1	0	0	
Laterality						
	Unilateral	88	7	6	5	0.06
	Bilateral	16	1	0	0	(0.996)
Pregnancy status						
	Gravid	6	0	0	0	1.87
	Non-Gravid	98	8	6	5	(0.600)

The majority had a unilateral cyst 106 (86.2%) while 17 (13.8%) had bilateral cyst. The right ovary was the most frequent side involved 56 (45.5%), while 50 (40.7%) had the cyst on the left side. (Table 2)

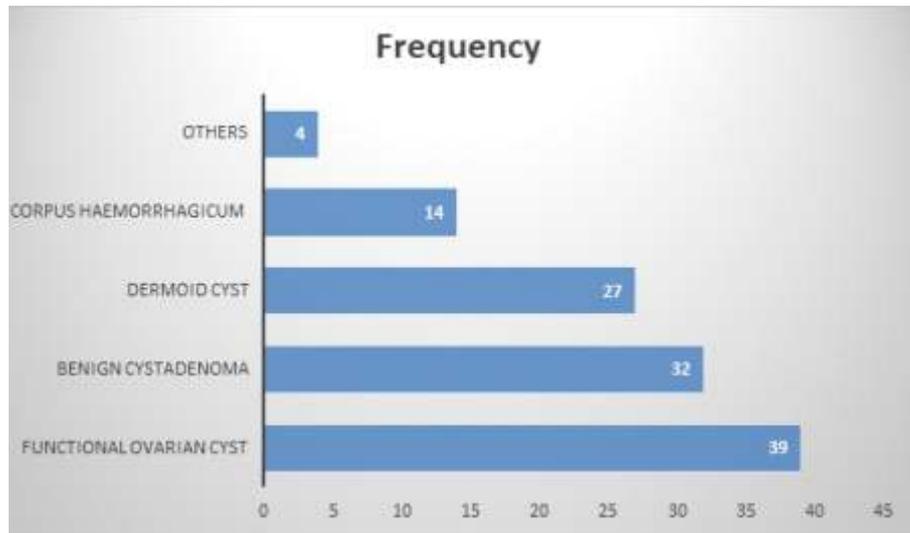
Table 3: Histological Diagnosis in relation to intraoperative finding

Histological diagnosis	Torsion	Intraoperative findings			Total (%)
		Rupture	Haemorrhage	Infection	
Functional Cyst	33	4	2	0	39(31.7)
Benign Cystadenoma	26	1	3	2	32(25.2)
Dermoid Cyst	24	2	0	1	27(22.0)
Endometrioma	4	1	0	2	7(5.7)
Haemorrhagic cyst	13	0	1	0	14(11.4)
others	4	0	0	0	4(3.3)
Total	104	8	6	5	123(100)

The most common ovarian cyst accident was Torsion in 104(84.6%) of patients,8(6.50%) had rupture, 6(4.88%) had haemorrhage and (4.07%) had infected cyst (Table 3)

The most frequent presenting complaint was abdominal pain 105 (85.4%), 11 (8.9%) presented with abdominal swelling, 5 (4.1%) with vaginal bleeding, and 2 (1.6%) with infertility

Fig 1:



Histological diagnosis of accidented cyst diagnosed at laparotomy

The histology was benign in 100% of the cases: Functional ovarian cyst 39 (31.7%) was the commonest type observed, benign cystadenoma 32 (26.0%), Dermoid cyst 27 (22.0%), endometrioma 7 (5.7%) and haemorrhagic ovarian cyst 14 (11.4%) while 4 (3.3%) for other varieties (Fig 1).

Discussion

This study indicated that ovarian cyst accidents were common amongst women in the reproductive age. This could be explained by the roles played by sex hormones and pregnancy during this critical phase of life. Findings in this study are similar to previous studies¹²⁻¹⁵ which identified women of reproductive age and pregnancy as co-factors associated with cyst accidents. In women outside the reproductive bracket there is a higher rate of malignancy and increased accidents of the ovary. The torsion variety is however, rare because malignancy stimulate adhesion formation involving the ovary and contiguous structures. These adhesions prevent mobility of the supports of the ovary and hence reduced risk of torsion.¹¹

All the women reviewed presented with

complaints that led to surgical intervention, with majority of them presenting with severe lower abdominal pain. This finding is similar to previous studies that stated abdominal pain as the most common presenting symptom of ovarian cyst accidents^{16,17}. These occur when there is occlusion of vascular supply to the ovaries resulting in ischaemic changes with the release of pain mediators or peritoneal irritation secondary to rupture or distension of the ovarian capsule as a result of haemorrhage.

Nulliparous patients were noticed to have more accidents of the ovary compared to other groups as also observed by an earlier study by Bayer and Wiskind (1994)¹⁷ Whereas, in a contrasting study in North-western Nigeria, ovarian cyst accidents were commoner in multiparous women¹¹. This could be explained by the incessant

ovulation among nulliparous patients, compared to multiparous ones, with recurrent follicular rupture among other occurrences. The decreasing incidence of ovarian cyst with parity has been highlighted by Mandiwa et al.¹⁸ and reasons adduced for this is the relatively lower levels of circulating oestrogens among multiparous patients as a result of higher levels of sex hormone-binding globulins.¹⁹

The commonest ovarian accident noted intra-operatively in this study was torsion, and this agrees with findings from previous studies^{17,20}. Elongated infundibulopelvic ligaments could occur in the presence of an ovarian mass. Lying free in the peritoneal cavity the ovarian mass with such a pedicle is prone to rotation and thus to torsion of its pedicle, with consequent vascular occlusion.¹ Since Torsion of the ovary was noted as the most frequent accident noted among nulliparous patients in the reproductive age group, the need for prompt intervention to preserve ovarian function is thus crucial.

The majority of the patients studied had unilateral involvement of the right ovary more than the left ovary though not statistically significant. Previous studies corroborate this finding^{21,22} and in contrast, a study conducted in Scandinavia observed left ovarian cyst accidents to be more frequent than right ovarian cyst²², while another study by Baker et al²³, found no dominance in the side involved.

Emergency operative treatment for ovarian cyst accidents can be done by laparoscopy or laparotomy. However, the choice of method used will depend significantly on the size of the tumour and the availability of skill in performing laparoscopy^{24,25}. However, in this study, the entire patients reviewed had emergency laparotomy. With the improvement in gynecological practice, various centres have shifted from open

surgery to minimally invasive surgery, which is associated with shorter recovery, reduced hospital stay and better cosmesis.²⁶ Histological diagnosis is paramount to rule out malignancy, diagnose the histological subtypes of ovarian cyst, aid in counseling and management of the affected patient²⁷. In this study, the entire cases were benign, and in agreement with findings from the previous studies^{12,14,15}. Thus management of the primary ovarian accident was sufficient without additional procedures as may be expected in malignancy cases. However, cases of malignant transformation of accidented ovarian cyst had been documented⁹

Functional ovarian cysts were observed in this study as the most common histological variant in women of reproductive age group. This finding is similar to previous studies^{12,21,25}. Also, a North-Western Nigerian study observed corpus luteum cyst haemorrhagicum which is a functional ovarian cyst, as the commonest ovarian cyst accident¹⁰. In contrast to these findings, other previous Nigerian studies recorded mature cystic teratoma as the most common ovarian cyst involved in accidents^{12,15,28}.

The study encountered a limitation in the following areas: It was a retrospective single hospital-based study and with some missing information from the records. There were seven cases excluded because of missing data. Thus, a prospective multihospital based research can improve the power of the study.

In conclusion, ovarian cyst accidents, especially of the torsion variety, are common in our environment, the need for prompt diagnosis and intervention is essential since most affected women are in the reproductive age group. Knowledge that all cysts observed were benign will reduce anxiety related to the possibility of malignancy.

Conflict of interest: Nil

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