

RESEARCH ARTICLE

Pattern of benign ovarian cysts in Qatari women

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ABSTRACT

Objective: To study the age distribution, histopathological types, lateral distribution and surgical interventions performed for benign ovarian cysts in Qatari women undergoing surgical intervention for an ovarian cyst.

Design: A retrospective descriptive study.

Setting: Obstetrics and Gynecology Department, Al-Ahli Hospital, Doha, Qatar.

Patients and methods: Data were collected retrospectively from clinical records of Qatari women who underwent surgical intervention from 1 January 2013 to 31 December 2015 at Al-Ahli Hospital for an ovarian or paraovarian cyst. The age distribution, frequencies and percentages were calculated for each type of ovarian cyst and the side of the ovary involved was recorded. Results were statistically analysed by IBM SPSS, version 23.

Results: A total of 81 women had an ovarian or paraovarian cyst. Age ranged from 16 to 58 years. The maximum number of women were in the 21 – 30-year-old age group. Benign epithelial cysts were found to be most common (32; 39.5%), of which the majority were for endometriotic cysts (15; 18.5%), serous cystadenoma (13; 16%) and mucinous cystadenoma (4; 4.9%). This was followed by physiological cysts (26; 32.1%), which included corpus luteal cysts (15; 18.5%) and simple follicular cysts (11; 13.6%). The other categories of ovarian tumours were for mature cystic teratoma (14; 17.3%), benign sex cord–stromal tumours (1; 1.2%) which included stromal cell tumours (1; 1.2%), borderline ovarian tumour (1; 1.2%) and paraovarian cysts (7; 8.6%). There was bilateral ovarian involvement in 9 cases (11.1%) and unilateral involvement in 72 (88.9%). The right ovary was involved in more cases (39; 48.1%), than for the left ovary (33; 40.7%).

Conclusion: Benign epithelial tumours were found to be the most common type of ovarian tumour in Qatari women. Endometriotic cysts followed by serous cystadenomas were the most common types of benign epithelial tumours. The right ovary was found to be involved in more cases than the left ovary.

Keywords: benign ovarian cysts, ovarian tumours, adnexal mass, ovarian mass

INTRODUCTION

The ovaries are the source of a great variety of tumours due to their complex embryologic and histogenetic development.¹ Ovarian tumours may be physiological or pathological and may arise from any tissue of the ovary.² Pathological tumours are further classified into benign and malignant. Of all ovarian tumours, 90% are benign, although this varies with age.³ In the case of operated cysts, 75% are organic, 25% are functional and 1–4% of the supposed benign cysts are found to be malignant.⁴

Benign ovarian cysts present asymptotically or with pain, abdominal swelling, pressure effects, menstrual disturbances, hormonal effects or an abnormal cervical smear.⁵ Ultrasonography plays the most important role in the diagnosis and management of women with benign ovarian tumours.⁶ A serum CA-125 assay is not required in all premenopausal women if the presence of a simple ovarian cyst is detected on ultrasound. Lactate dehydrogenase (LDH), alpha fetoprotein and human chorionic gonadotrophin (HCG) levels should be measured in all women who are under 40 years of age with a complex ovarian mass due to the possibility of germ cell tumours.⁷ In postmenopausal women, ovarian cysts are initially assessed by measuring CA-125 levels and by performing transvaginal ultrasound.⁸

Management of ovarian cysts depends on the severity of symptoms, the size and ultrasound characteristics of the cyst, the CA-125 results, the age of the patient, her risk of malignancy index and the desire for further children. Over 50% of simple cysts will resolve spontaneously and almost 30% will remain static.⁹ In premenopausal women, asymptomatic simple ovarian cysts less than 50 mm in diameter are very likely to be physiological and likely to resolve in three menstrual cycles. Those with cysts of 50–70 mm in diameter should have a yearly

ultrasound follow-up and those with larger cysts should be considered for further imaging (MRI) or surgical intervention. Ovarian cysts that persist or increase in size are unlikely to be functional and may warrant surgical management.⁷ In postmenopausal women, simple cysts of less than 5 cm in the presence of normal CA-125 levels may be managed conservatively with repeated evaluation in 4–6 months. A woman with a suspicious or persistent complex adnexal mass needs surgical evaluation.⁸ If surgery is indicated, a laparoscopic approach is considered the gold standard for the management of benign ovarian masses. Laparoscopic surgery offers significant advantages such as reduced hospital stay, less adverse effects, better quality of life and superior vision especially on surgical treatment of cases like endometriosis.¹⁰

Complications of benign ovarian cysts include ovarian cyst accidents (torsion, rupture and haemorrhage). Malignant transformation of an ovarian cyst is very rare.¹¹

Benign ovarian cysts are rarely life-threatening, but they can cause patients considerable physical and psychological distress. This study was carried out to determine the frequencies of different types of benign ovarian masses and their different characteristics including age distribution and side of the ovary involved in Qatari women at Al-Ahli Hospital. There are no studies available on the pattern of benign ovarian cysts, specifically in Qatari women. This study will help to understand the distribution of benign ovarian cysts in Qatari women in comparison with the distribution of ovarian cysts in other women from around the world by comparing the findings with different international studies. Some benign ovarian cysts can require surgical intervention even at a smaller size like endometriotic cysts and others like physiological cysts can resolve by themselves even when larger in size. The characterisation of ovarian masses in the concerned population will enable decision-making regarding optimal treatment especially in deciding the amount of investigation, duration of follow-up and need for surgical intervention or conservative management. This will help in patient counselling and should decrease any unnecessary anxiety and can have a major impact on cutting healthcare costs in terms of avoiding unnecessary investigations, surgical interventions and hospital stay.

PATIENTS AND METHODS

This was a retrospective descriptive study carried out on 81 Qatari women who underwent a surgical intervention due to suspected ovarian or paraovarian cysts at Al-Ahli Hospital, Doha, Qatar between 1 January 2013 and 31 December 2015. All Qatari women who had undergone surgical intervention and were discovered to have ovarian and paraovarian cysts were included in the study. Women with asymptomatic, simple, echo-free, unilocular, and unilateral ovarian cysts without solid parts or papillary formations and normal CA-125 levels that did not undergo surgical intervention, and ovarian cysts that had a high suspicion of being malignant, were not included in the study according to the exclusion criteria, as these patients do not undergo surgery at Al-Ahli Hospital but are referred to the Women's Hospital.

Clinicopathological data were retrospectively collected from the patient's hospital medical records. The operating theatre registers were manually searched for all women who had undergone a surgical intervention including laparoscopy, laparotomy and caesarean section where an ovarian cyst was observed, removed and sent for histopathological analysis. The electronic medical records for these women were then searched for within the hospitals' electronic records database by their file number obtained from operating theatre manual record registers. A total of 230 women of all nationalities were identified, 81 of which were Qatari nationals. Only Qatari nationals were included in this study, as this study was specifically carried out to investigate the pattern of ovarian cysts in the Qatari population as no such study has been previously carried out. All women from other nationalities were excluded from the study.

The records were analysed in terms of demographic characteristics, age distribution, surgical interventions carried out, laterality of the ovarian cyst and histological diagnosis. The women were divided into the age groups 11–20, 21–30, 31–40, 41–50, 51–60 and 61+ years. This study was approved by the hospital research committee which is also responsible for ethical approval.

All statistical analyses were performed using IBM SPSS, version 23. Variables included age in years, age group, laterality of cysts, involved side and histopathological type. Frequencies and percentages were

calculated for each type of ovarian cyst, age groups involved and their distribution as unilateral, bilateral and the involvement of the left or right ovary.

RESULTS

A total of 81 Qatari women were found to have ovarian or paraovarian cysts. Their ages ranged between 16 to 58 years. The mean \pm standard deviation (SD) was 33.44 ± 9.300 years. The median age was 32 years. The majority of the women were in the 21–30 year old age group (34; 42%) followed by the 31–40 year old age group (24; 29.6%), 41–50 years (16; 19.8%), 51–60 years (4) and 11–20 year old age group (3) (Figure 1). The most common presenting complaint was lower abdominal pain in 51 (63%) women. An ovarian cyst was discovered as an incidental finding in 13 (16%) women where ultrasound was performed as part of the well woman checkup. Subfertility was a presenting complaint in 5 (6.2%), abnormal uterine bleeding in 3 (3.7%), dysmenorrhea in 4 (4.9%) and it was discovered as an incidental finding during a surgical procedure like caesarean section and laparotomy in 5 (6.2%) women. The ovarian cysts were managed by operative laparoscopy in 75 (92.6%) of the women, laparotomy in 2 (2.5%) and during caesarean section in 4 (4.9%) women.

Benign epithelial tumours were the most common finding (32; 39.5%), followed by physiological cysts (26; 32.1%), benign germ cell tumours (14; 17.3%), benign sex cord–stromal tumours (1; 1.2%) and paraovarian cysts (7; 8.6%) and borderline ovarian tumour (1; 1.2%). In the case of benign epithelial tumours, the majority of cases were for endometrioid cystadenomas (15; 18.5%), followed by serous

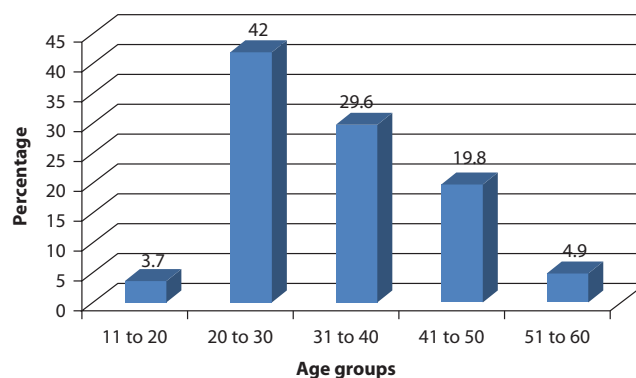


Figure 1. Age distribution of Qatari women with ovarian cysts ($n = 81$).

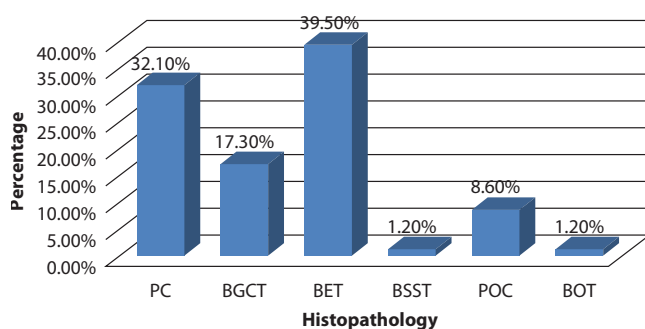


Figure 2. Histopathological distribution of ovarian tumours in Qatari women (n = 81). PC, physiological cysts; BGCT, benign germ cell tumours; BET, benign epithelial tumours; BSST, benign sex cord–stromal tumours; POC, paraovarian cysts; BOT, borderline ovarian tumours.

cystadenomas (13; 16%) and mucinous cystadenomas (4; 4.9%). For physiological cysts, corpus luteal cysts were most commonly observed (15; 18.5%) followed by simple follicular cysts (11; 13.6%) (Figure 2).

There was bilateral ovarian involvement in 9 (11.1%) patients and unilateral ovarian involvement in 72 (88.9%) patients. In the case of unilateral cysts, the right ovary was involved in 39 (48.1%) cases and the left ovary was involved in 33 (40.7%).

DISCUSSION

Benign ovarian masses consist of one of the most common issues which the gynecologist has to treat.¹⁰ Accurate classification of benign masses facilitates the selection of patients with ovarian pathology that may either not require intervention or be suitable for minimal access surgery if intervention is required. Knowing the specific histology of a mass is becoming increasingly important as management options have become more tailored to the individual patient. For example, predicting the presence of an endometrioma and possible deeply infiltrating endometriosis is important when considering both who should perform the surgery and the extent of this.¹²

In our study, benign epithelial tumours were most common (32; 39.5%), followed by physiological cysts (26; 32.1%), benign germ cell tumours (14; 17.3%) and benign sex cord–stromal tumours (1; 1.2%). There was one (1.2%) case of borderline ovarian tumour and 7 (8.6%) cases of paraovarian cysts. Among the benign epithelial tumours, endometriotic cysts were most common (15; 18.5%), followed by serous cystadenoma (13; 16%) and mucinous

cystadenoma (4; 4.9%). For physiological cysts, corpus luteal cysts were most common (15; 23%) followed by simple follicular cysts (11; 13.6%).

Physiological cysts are the large versions of the cysts which are formed in the ovary during the normal ovarian cycle. Most are asymptomatic. Follicular cysts are the most common and these occur due to non-rupture of the dominant follicle.³ Corpora lutea are considered to be luteal cysts when they are greater than 3 cm in diameter; these mostly present with intraperitoneal bleeding. Mature cystic teratomas occur due to abnormal differentiation of fetal germ cells that arise from the yolk sac and ectodermal features are usually predominant. Benign epithelial tumours arise from the ovarian surface epithelium and are mesothelial in nature. They may undergo development along endocervical (mucinous cystadenoma), endometrial (endometrioid), tubal (serous) or uroepithelial (Brenner) lines, respectively. Many of the benign sex cord–stromal tumours secrete hormones.³ Paraovarian cysts originate from embryologic remnants of the urogenital system or from the invagination of tubal serosa thereby creating a mesothelial cyst.¹³

In our study, benign epithelial tumours were most commonly observed in 39.5% patients followed by physiological cysts in 32.1% patients. In a Saudi Arabian study, physiological cysts were most commonly observed in 33.2% patients while benign epithelial tumours were observed in 19.3% of patients.¹⁴ The frequency of physiological cysts in the Saudi study was almost the same as the frequency reported in this study, although their frequency was less for benign epithelial tumours. This shows that Qatari women have a similar frequency of physiological cysts to other Arab women, but when compared to Saudi women, their percentage of epithelial tumours was greater. An Italian and Greek study reported physiological cysts to be 18 and 12.5%, respectively.^{10,15} Qatari women showed a higher percentage of physiological cysts than European women.

In two Indian studies, serous cystadenomas were most commonly observed in 59.5 and 67% of patients, respectively.^{16,17} There was similarity in terms of benign epithelial tumours being the greatest in number as in our study, but serous cystadenomas were observed much less (only 19%), which shows that there is a lower incidence of serous cystadenomas in Qatari women than in Indian women.

In a study from Nepal, mature cystic teratomas were most commonly observed in 48.2% of patients.¹⁸ In a Nigerian study, it was most commonly observed in 60.1% of patients.¹⁹ A much lower frequency (17.3%) of mature cystic teratoma was observed in Qatari women. The frequency was similar to studies from Saudi Arabia (12.3%) and India (14 and 11.6%).^{14,16,17} The frequency of mature cystic teratomas is much greater in Qatari women than that observed in a Greek study (2.9%).¹⁰

The percentage of patients with endometriotic cysts in our study was 18.5% which was almost similar to the percentage observed in the Italian study (19%), but much less than that reported from the Greek study (80.6%).^{10,15}

Our percentage of patients with paraovarian cysts was 8.6%, which was almost similar to what was observed in a study from India (10.7%), while it was greater than that reported in the study from Greece (2.2%) and much less than that obtained in the study from Saudi Arabia (17.5%).^{10,14,16}

There was bilateral ovarian involvement in 9 (11.1%) patients and unilateral ovarian involvement in 72 (88.9%). In the case of patients with unilateral cysts, the right ovary was involved in 39 (48.1%) cases and the left ovary was involved in 33 (40.7%). In a study from Saudi Arabia, right ovaries were found to be involved in 63.1% of cases and ovaries were bilaterally affected in 18.9%.¹⁴ In contrast, a study carried out in Scandinavia found that left ovarian involvement (62.8%) was more frequent than right ovarian involvement.²⁰

The majority of the women (59; 72.8%) had presenting complaints that resulted in a planned elective surgical intervention. A total of 22 (27.2%) women presented to emergency with severe abdominal pain with minimal improvement on analgesia and required emergency surgical intervention due to the suspicion of an ovarian cyst accident such as torsion or haemorrhage in the ovarian cyst. Of the women who presented with abdominal pain, benign epithelial tumour was the most common occurrence (19; 37.3%), while the patients who had severe abdominal pain and needed emergency surgical intervention exhibited physiological cysts (9; 40.9%) as the most commonly observed type of ovarian cyst.

Our study shows some similarities and differences in the distribution of different histopathological types of

ovarian cysts in Qatari women when compared to women in other regions of the world.

Limitations of this study included its retrospective design, management of women by different consultants with variation in practice, not strictly following a protocol and a relatively low number of subjects due to the small population of Qatari women. Further studies should be carried out with a prospective design for a longer duration and based on a protocol with consensus of all the managing consultants as to when and how they will investigate and when to intervene surgically.

The current study adds to the literature the distribution of different types of benign ovarian masses in Qatari women. It shows some similarities and differences with women around the world. The findings of this study will help in counselling Qatari women regarding the expected type of ovarian cyst. Benign epithelial cysts were most common followed by physiological cysts. Simple cysts of any size are unlikely to be malignant. From findings of this study, we recommend that simple cysts of less than 5 cm in premenopausal women can be ignored. Simple cysts less than 5 cm in postmenopausal women with a normal CA-125 level should be managed conservatively with repeat ultrasound in 4 to 6 months. In premenopausal women, simple cysts of 5 to 7 cm require a yearly ultrasound. If findings are static, follow up can be discontinued. If the cyst increases in size or becomes symptomatic further investigations are required. Laparoscopy is the preferred surgical intervention.

CONCLUSION

Benign epithelial tumours were the most commonly observed category of tumours in which endometriotic cysts were the most common sub-category followed by serous cystadenomas. These were followed by physiological cysts and mature cystic teratomas. Right ovarian involvement was greater than in the left ovary. This study gives insight into the pattern of ovarian cysts in Qatari women. Abdominal pain was the most commonly observed presentation. In women with severe abdominal pain requiring emergency intervention, physiological cysts were most commonly observed. The distribution of ovarian cysts and their pattern observed in Qatari women has some similarities and differences with that of other women around the world. This prior knowledge of the nature of ovarian cysts will help in counselling the patient

with regard to the expected type of ovarian cyst to decrease anxiety. It will also help in organising clinical services in terms of planning costs and management of women with ovarian cysts.

AUTHOR'S CONTRIBUTIONS

FZ was responsible for the conception and planning of the study, collection, analysis and interpretation of data, writing, critical revision and final submission of the manuscript.

CONFLICTS OF INTEREST

The author reports no conflict of interest.

ETHICS APPROVAL

Ethics approval was given by the Al-Ahli Hospital Ethical and Research Committee.

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