Ultrasound Features of Ovarian Cysts in married females

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ABSTRACT

Background: Out of all ovarian disorders, ovarian cyst is the most frequent disorder among females of reproductive age. Mostly females remain asymptomatic and the diagnosis of ovarian cyst can be made finally on radiological evaluation instead of clinical examination. Ultrasound can be a good opportunity for detection of ovarian cyst, instead of other invasive modalities or modalities involving harmful rays or contrast medium.
Aim: To determine the ultrasonographic features of ovarian cysts in married females
Methods: Cross sectional study conducted in the Department of Radiology in collaboration with Department of Obstetrics & Gynecology , Government Kot khawaja saeed teaching hospital , KEMU Lahore during 6 months i.e., from 1st feburary 2020 to 30th july 2020. Patients underwent transvaginal ultrasonography for assessment of ovarian cysts by a senior radiologist. Findings were recorded on proforma and pattern of ovarian cyst was noted. SPSS v. 22 was used to enter and analyses the collected data.
Results: In this study, we included 170 married females. The mean age of females was 23.48±9.41 years. The mean duration of their marriage was 8.32 ± 3.95 months. The main reason to present in the hospital for check-up was pelvic pain that was observed in 78(45.9%) patients, while 27(15.9%) had abnormal uterine bleeding and 65(38.2%) females had problem of infertility. The mean duration of symptoms was 3.61±2.84 months. The mean age at puberty was 13.62±2.58 years. On transvaginal ultrasonography, cyst was function in 58(34.1%) cases while dermoid in 31(18.2%) cases, endometriosis was note in 26(15.3%) females, benign cyst adenoma in 18(10.6%) cases, while malignancy was noted in 9 (5.3%) cases and 28(16.5%) had complicated cyst.
Conclusion: Thus the frequency of complicated frequency and different pathologies is high in married females with problem of not conceiving the pregnancy.
Key words: ultrasound, ovarian cysts, married females, cyst adenoma, endometriosis

INTRODUCTION

Ovarian cyst accidents include cyst rupture, haemorrhage and torsion. Torsion commonly occurs to the whole adnexa and is not necessarily associated with an ovarian cyst. Ovarian cyst rupture and haemorrhage usually occur in association with physiological (functional) cysts and are generally self-limiting[1]. Most adnexal masses are detected incidentally on physical examination or at the time of pelvic imaging. Less commonly, a mass may present with symptoms of acute or intermittent pain[2].

The characterization of ovarian masses and distinguishing between benign and malignant pathology is important both to decrease unnecessary anxiety and enable decisions regarding optimal treatment[3]. Benign pathology may be best treated conservatively or in a general gynecology unit using a minimal access approach. Conversely, suspected malignant masses should be referred to specialized units for further management[4]. Thus prior knowledge of the nature of ovarian masses is essential not only for the patient but in order to organize clinical services in terms of planning, costs and overall management.[5]

Transvaginal ultrasonography is one of the most applicable and accessible modality to detect and diagnose the ovarian cysts. With advancement in radiological techniques, update versions of ultrasonography have been generated to maximize the predictive accuracy of ultrasound.[6] In experienced radiologists, the transvaginal ultrasonography may show high sensitivity i.e. ranged from 77-86% and specificity of 94-100% to confirm the presence of "teratomas / dermoid cysts, endometrioma, hydrosalpinges and peritoneal pseudocysts.[7]"

The rationale of the study, role of transvaginal ultrasonography for assessment of features of ovarian cysts. This would help us to determine the benefits of ultrasound and helps the gynecologists to rule out the cause of infertility in married females. But there is a need to discover the extent of problem in local population.

The objective of the study was to determine the ultrasonographic features of ovarian cysts in married females

MATERIAL AND METHODS

This cross sectional study was conducted in the Department of Radiology in collaboration with Department of Obstetrics & Gynecology , Government Kot khawaja saeed teaching hospital, KEMU Lahore during a period of six months i.e., from 1st feburary 2020 to 30th july 2020. Sample size of 170 patients is estimated using 95% confidence level, 3% margin of error and taking expected frequency of malignant cyst i.e., 4.1% in married females. Sampling technique used was simple random sampling. Married females of aged between 18-30 years presenting within one year of marriage for check-up were included in the study. Females with secondary infertility, taken in-vitro fertilization, abortion were not included.

Data Collection Procedure: 170 patients, fulfilled the selection criteria was included in the study. Informed consent was obtained. Demographic details of patients (name, age, duration of marriage, BMI, any menstrual

irregularity before marriage, menstrual abnormality after marriage) were obtained. Patients underwent transvaginal ultrasonography for assessment of ovarian cysts by a senior radiologist. On ultrasound, features of ovarian cyst were recorded as functional cyst, dermoid, endometriosis, benign cyst adenoma, malignant, complicated cyst. All the data was recorded in proforma. SPSS version 21.0 was used to enter and analyzed the data.

RESULTS

In this study, we included 170 married females. The mean age of females was 23.48±9.41 years. There were 102(60%) females of age 18–24 years and 68(40%) were of age 25–30 years. The mean BMI of females was 28.59±17.23 kg/m^2. The mean duration of their marriage was 8.32±3.95 months. The main reason to present in the hospital for check-up was pelvic pain that was observed in 78(45.9%) patients, while 27(15.9%) had abnormal uterine bleeding and 65(38.2%) females had problem of infertility. The mean duration of symptoms was 3.61±2.84 months. The mean age at puberty was 13.62±2.58 years. Table 1

On transvaginal ultrasonography, cyst was function in 58(34.1%) cases while dermoid in 31(18.2%) cases, endometriosis was note in 26(15.3%) females, benign cyst adenoma in 18(10.6%) cases, while malignancy was noted in 9(5.3%) cases and 28(16.5%) had complicated cyst (Table 2).

Table 1: Demographic characteristics of patients

	F (%), mean±SD
n	170
Age (years)	23.48 ± 9.41
18-24 years	102 (60.0%)
25-30 years	68 (40.0%)
BMI	28.59 ± 17.23
Duration of marriage (months)	8.32 ± 3.95
Reason for hospital visit	
Pelvic Pain	78 (45.9%)
Abnormal uterine bleeding	27 (15.9%)
Infertility	65 (38.2%)
Duration of symptoms (months)	3.61 ± 2.84
Age at puberty (years)	13.62 ± 2.58

Table 2: Features of ovarian cyst on ultrasound

Characteristics	F (%)
Functional cysts	58 (34.1%)
Dermoid	31 (18.2%)
Endometriosis	26 (15.3%)
Benign cyst adenoma	18 (10.6%)
Malignant	9 (5.3%)
Complicated cysts	28 (16.5%)

DISCUSSION

The incidence of ovarian masses in females of reproductive age group is increasing. Mostly such pathologies are found to be benign in nature. The ability of a diagnostic modality to different precisely between malignant and benign lesion of ovary before undergoing surgery, can helps to decide more suitable treatment protocol, whether conservative, under the care of an oncologist or applying the least invasive surgical tool.[8] Transvaginal ultrasonography is found be the non-invasive modality. It has established a

major role for precise examination of ovarian masses or cysts. It can provide the exact measurement of ovarian morphology[9]. Immense literature is available which proved that transvaginal ultrasonography can distinguish around 90% ovarian masses accurately. The sensitivity and specificity of transvaginal ultrasonography were reported as 88-96% and 90-96%, respectively for detection of malignancy in ovarian masses[10].

There are different types of ovarian cysts, which can be diagnosed on the basis of morphological features of the cyst. Endometrioma and dermoid cyst are two most common types. These can be detected in more than two-third of persistent ovarian cysts in pre-menopausal females.[8] When an ovarian cyst is benign in nature, the female can be re-assured of having low risk of ovarian carcinoma. Usually simple cysts have probability of carcinoma n around 0-1% case of ovarian masses, while distinctive hemorrhagic, endometrioma or dermoid cyst may have high risk of carcinoma i.e., 1-2% cases[11-14].

In this study, we included 170 married females with the mean age of 23.48±9.41 years. The mean duration of their marriage was 8.32±3.95 months. The main reason to present in the hospital for check-up was pelvic pain that was observed in 78(45.9%) patients, while 27(15.9%) had abnormal uterine bleeding and 65(38.2%) females had problem of infertility. On transvaginal ultrasonography, cyst was function in 58(34.1%) cases while dermoid in 31(18.2%) cases, endometriosis was note in 26(15.3%) females, benign cyst adenoma in 18 (10.6%) cases, while malignancy was noted in 9 (5.3%) cases and 28(16.5%) had complicated cyst.

One study also found that on transvaginal ultrasound, the functional cysts was detected in 81(33.2%) cases, dermoid in 30 (12.3%) cases, endometriosis in 26(10.7%) cases, benign cyst adenoma in 47(19.3%) cases, malignancy in 10 (4.1%) cases while complicated cysts in 22(9.0%) cases[15].

The prevalence of ovarian carcinoma is not exactly known in Pakistan. But it is the 4th most common carcinoma in Pakistan and normally detected in advanced stage. The annual incidence of ovarian cyst is 2-6.5 cases in 100,000 females in Asian countries. The ovarian carcinoma represents the sixth most common females' carcinoma and the 4th most prominent cause of mortality in females.[16, 17] Mostly these cysts are benign in nature and many of them develop into cancerous lesions / malignancy. It is still unknown whether some of these benign cysts develop into malignant cysts[18].

A large number of benign cysts may perform normal functions and if patient is asymptomatic, then cyst can be managed conservatively, evading the requirements of surgery. When surgery is compulsory, the maximum number of cases can be managed by least invasive surgical procedures.[19] Drainage through excision of giant ovarian cyst under ultrasound guidance is found to be a harmless and suitable technique for treatment of ovarian cyst[20].

Generally, around four percent of ovarian cysts have been reported to lead to clinical manifestations in females, specifically in females aged more than 65 years. Around eighteen percent of simple ovarian cysts can be detected in post-menopausal females and ovarian mass of any type in

around twenty one females of older age. Benign cysts can be detected at any age.[1] But the rate of ovarian cysts in the reproductive age is around 7%[21,22].

In an Iranian study, the most common benign ovarian cyst was functional cysts that was present in 57% females, followed by serous cyst adenoma which was present in 13% females while dermoid cyst was noted in 10%[23]. But in a study conducted in Ireland, the most common type of ovarian cyst was endometrioma that was detected in 29% females, followed by dermoid cyst in 24% females and functional cyst was least common i.e. in 19% females[24]. While in a study conducted in Italy, the most common cyst was endometrioma (19% cases), followed by functional cyst i.e., 18% cases.[25]

CONCLUSION

Thus the frequency of complicated frequency and different pathologies is high in married females with problem of not conceiving the pregnancy. So there is a need to further explore the cause of ovarian pathologies in such females in order to improve the fertility of married females.

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