

Uterine fibroids: the most common symptomatic type and associated risk factors, a retrospective cohort study.

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Abstract

Objective:

The aim of our study is to identify the most common symptomatic type and associated risk factors of uterine fibroids.

Design:

A retrospective cohort study of 142 women in reproductive age (26-42 years) that referred as a uterine fibroid to Prince Hamza hospital in Amman, Jordan over a period of 3 years from January 2017- February 2020. The presence of uterine fibroid confirmed by ultrasound examination and MRI for fibroid mapping. Myomectomy was performed as per institutional protocol. Intra-operative findings were documented using a computerized system.

Results

Primary Outcome

Our cohort included 142 women who referred to PHH as a known case of UF and met the requirements of the inclusion and exclusion criteria. Among 142 patients: 106 (74.6%) had intramural fibroid, 21 (14.8%) had subserosal fibroid, 8 (5.7%) had broad ligament fibroid, 5 (3.5%) had cervical fibroid and 2 (1.4%) had submucosal fibroid; with mean age 31.5 years.

Secondary outcome

Clinical evaluation demonstrates most presented complain: 69% with abnormal uterine bleeding, 49.3% with infertility (primary and secondary) and 39.4% with congestive dysmenorrhea. Whereas, associated risk factors: Obesity 44.4%, PCOS 31.7%, nulliparous 2.2% with mean age of menarche 12.

Conclusion:

The results of our retrospective study showed that the most common symptomatic type of uterine fibroids is intramural fibroid followed by the subserosal type and the most common indications of surgical management are abnormal uterine bleeding and infertility. Regarding the most common associated risk factors with uterine fibroid is obesity followed by polycystic ovarian syndrome. We advise women in reproductive age to keep an ideal BMI (19-29) to reduce the risk of having uterine fibroid.

Key words: Anatomical location, associated factors and uterine fibroid.

Background

Uterine Fibroids (UF) or leiomyomas are the most common gynecologic benign tumors(1). They originate from connective tissue and smooth muscle in the uterus(2). They mainly affect women of childbearing age, but not often may affect old women(3). Afro-American women have three times risk to develop UF rather than Asian or White women(4). Nulliparous, early menarche, late menopause, and Obese females have greater chance to develop UF(5). Rarely, UF convert into leiomyosarcomas and become aggressive. Usually, leiomyosarcomas arises de novo(6).

UF develop in 70% of females by the age 50 years(4). They are categorized into three major types according to their locations: intramural, submucosal and subserosal. Accordingly, symptomatic UF also vary depending on their location despite the majority are asymptomatic(7). Symptomatic UF include abnormal uterine bleeding, pelvic pain, urinary dysfunction, secondary infertility and miscarriages(8). Submucosal fibroids considered the most symptomatic one and may protrude into cervical canal or vagina which are more frequently associated with menorrhagia. Intramural fibroids and subserosal fibroids are usually asymptomatic; however, pedunculated subserosal or parasitic fibroids may undergo twisted and ultimately lead into infarction which can cause severe pelvic pain(9).

Management of UF consist of various modalities: expectant, medical and surgical; nevertheless, UF are the most prevalent indication of hysterectomy. These modalities depend upon clinical and radiological presentation of UF and assessment of patient status(10). Thus, building a good background about anatomical location of UF playing a crucial role in managing patients appropriately. Epidemiological data on UF are restricted and insufficient in Jordan. We conduct this study to identify the most prevalent symptomatic type of UF in Jordanian women.

Subjects and Methods

Study design and setting

We conducted a retrospective observational study at tertiary referral center Prince Hamza Hospital (PHH); department of Gynecology between January 2017 and February 2020 Amman, Jordan. The institutional research ethics committee approved the study design and research permission was donated. The secrecy of data was maintained according to the Helsinki Declaration of bioethics (as revised in 2008). We followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement guidelines during the preparation of this study(11).

Participants and data collection

One hundred and forty patients, aged between 26 to 42 years, referred to PHH as known case of UF for surgical management were included in this study. All information about patients was documented in computerized system. Aim was to find out clinical presentation, prevalence and relevant risk factors of UF among Jordanian women. Baseline assessment was done by taking detailed history about age, main complain, parity, weight, menstrual history, desire to preserve fertility and the treatment taken prior to this hospital visit. As well as, measuring their body mass index (BMI) along with pelvic ultrasound for the location and magnetic resonance imaging (MRI) for UF mapping. Surgical options (myomectomy, uterine artery embolization and total abdominal hysterectomy). Post-operative assessment was done by comparing histology of operative specimens and clinical, ultrasound findings for precision of diagnosis, prevalence, anatomical location and clinical presentation of UF.

Statistical methods

We were used SPSS version 25 software for the analysis. All data were categorical reported as frequencies and percentage.

Results

Primary Outcome

Our cohort included 142 women who referred to PHH as a known case of UF and met the requirements of the inclusion and exclusion criteria. Patients' characteristics are shown in Table I. Among 142 patients: 106 (74.6%) had intramural fibroid, 21 (14.8%) had subserosal fibroid, 8 (5.7%) had broad ligament fibroid, 5 (3.5%) had cervical fibroid and 2 (1.4%) had submucosal fibroid; with mean age 31.5 years. 99 patients (69.7%) were diagnosed by abdominal ultrasound, 41 patients (28.9%) were diagnosed by transvaginal ultrasound, and 28 patients (19.7%) underwent additionally into MRI for mapping.

Secondary outcome

Clinical evaluation demonstrates most presented complain: 69% with abnormal uterine fibroid, 49.3% with infertility (primary and secondary) and 39.4% with congestive dysmenorrhea. Whereas, associated risk factors: Obesity 44.4%, PCOS 31.7%, nulliparous 2.2% with mean age of menarche 12. All patients underwent surgical management; 135 (95%) myomectomy (all myomectomies were abdominal except two cases were by hysteroscopy), 4 (2.8%) uterine artery embolization and 3 (2.2%) total abdominal hysterectomy.

Discussion

This retrospective study is the first national study that measures prevalence of anatomical location of UF among Jordanian women. Thus, our aims were to assess symptomatic types of UF and related risk factors for patients who undergoing surgical management. However, as expected, intramural fibroid is the most common symptomatic type (74.6%) and least one is submucosal fibroid (1.4%). There is agreement between Jordan and international prevalence of

UF about types of UF, clinical presentation and risk factors. Most common clinical presentation of our participants is abnormal uterine bleeding (69%), with mean age 31.5 years. Other presentations involve congestive dysmenorrhea (39.4%) and infertility (primary and secondary) (49.3%). Accordingly, surgical management of presented complains was vary depending upon it. Majority of cases treated conservatively (myomectomy) (95%), and remaining cases treated with total abdominal hysterectomy and uterine artery embolization. Management decision also affected by patient's desire to preserve their fertility status and long-term outcome of selected surgeries(12).

Risk factors reported as secondary outcomes, most common prevalent factor in this study was obesity (44.4%) and range of BMI was 28-32. Other significant risk factor was polycystic ovarian syndrome(PCOS) (31.7%), diagnosis was based on the Rotterdam ESHRE/ASRM-sponsored PCOS consensus workshop group criteria, namely, the ultrasonographic morphological criteria of the polycystic ovaries plus at least one clinical or biochemical evidence of hyperandrogenism and/or signs of ovulatory dysfunction(13). Hence, obesity consider a major risk factor for both UF and PCOS. Therefore, if we need to reduce incidence of UF and PCOS we should encourage our community to decrease weight and establish community awareness about obesity co-morbidity and its effect upon quality of life(14). The age of menarche represents within normal range 11-13, early menarche not consider as significant risk factor among Jordanian women. Only three cases of our cohort presented as nulliparous, as we know, nulliparous women exposed more to estrogen hormone comparing with multiparous women and that stimulate growing of UF(10).

Strength points versus limitations of this study

The strength of this study is that patients were included they referred to our tertiary center from different regions in Jordan, thus, we can imply this study into all Jordanian women. On the other side, the main limitation is all patients included in the study were symptomatic and treated surgically, there are another patient treated by other modalities and have different risk factors not included in our study that not give our study a comprehensive image about UF in Jordan. As well as, the total number of patients relatively low and non-exposed women is lacking in this study. Therefore, we recommend future studies to broaden their selected criteria and assess protective factors among Jordanian women. AS well as, assessing asymptomatic through regular visit or incidentally for another reason, because majority of patients with UF are asymptomatic(7).

Conclusion

The results of our retrospective study showed that the most common symptomatic type of uterine fibroid is intramural fibroid followed by the subserosal type and the most common indication of surgical management is abnormal uterine bleeding. Regarding the most common associated risk factors with uterine fibroid is obesity followed by polycystic ovarian syndrome. We advise women in reproductive age to keep on ideal BMI (19-29) to reduce the risk of having uterine fibroid.

Declarations:

- Ethics approval and consent to participate: Not applicable
- Consent for publication: Not applicable
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Authors' Contributions

FR: Research question, data collection, manuscript writing, final editing and supervised the research team work, RK: Results section, data analysis and statistics, F.A, M.A, E.A: Manuscript writing and Editing the final draft and D.B: research question and final editing. All authors read and approved the final manuscript.

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Table I

Characteristics	n (%)
Uterine Fibroid location	
Intramural fibroid	106 (74.6%)
Subserosal fibroid	21 (14.8%)
Broad ligament fibroid	8 (5.7%)
Cervical fibroid	5 (3.5%)
Submucosal fibroid	2 (1.4%)
Main clinical presentation	
Abnormal uterine fibroid	98 (69%)
Congestive dysmenorrhea	56 (39.4%)
Infertility	70 (49.3%)
Associated risk factors	
Obesity	63 (44.4%)
PCOS	45 (31.7%)
Nulliparous	3 (2.2%)
Surgical management method	
Myomectomy	135 (95%)
Uterine artery embolization	4 (2.8%)
Total abdominal hysterectomy	3 (2.2%)