

RESEARCH ARTICLE

LEIOMYOMA TYPES, INCIDENCE AND CLINICAL PRESENTATION - A STUDY AT A TERTIARY CARE HOSPITAL

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Manuscript Info

Abstract

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A cross sectional studywas conducted over a period of 15 months from 1st Jan 2020 to 31st March 2021 at Malla Reddy Hospital, a tertiary care hospital. To study the incidence of fibroids according to FIGO categorization and their clinical presentation. 38 confirmed cases of fibroid uterus in the age group 20 - 60 attending gynecology OPD were interviewed and subjected to regular gynecological examination, PAP smear, dilatation and curettage procedures. Based on the studies, 60% of these patients were subjected to total abdominal hysterectomy as a part of treatment and the intra operative findings of the specimens were noted. The leiomyomas were classified according to the histopathological and ultrasonographic findings based on FIGO categorization. Highest incidence was seen 41 to 45 years age (52.6%). Incidence of Leiomyoma types according to FIGO subclassification system were found to be Type0=5%, Type1=5%, Type2=5%, Type3=13%, Type4=30%, Type5=13%, Type6=18.6%, Type7=3.3% and Type8=5%. Multiple fibroids were more common than single fibroids. Posterior location fibroids were more common than anterior. Most common symptom was menorrhagia (73.6%) followed by spasmodic dysmenorrhea (47.3%) and metrorrhagia (26.3%), infertility and symptoms of anemia. Most common sign was pallor (58%) followed by mass per abdomen (18.4%). Incidence of associated pathology of adenomyosis (18%) ovarian cysts (8%), endometrial polyps (8%), myxoid degeneration (2.6%). The results of our study matched the existing studies.

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Introduction:-

Leiomyomas are the commonest benign monoclonal tumorsin women. Originating from the smooth muscle cells of the myometrium. They have a pseudo capsule. [Jonathan S Berek 2019]and a characteristic whorled appearance on cut section. On gross appearance they look well circumscribed and pale pink in color. The other name for uterine leiomyoma is uterine fibroid. In India, about 15 million people are affected by leiomyoma and are the most frequent (77%) indication for hysterectomy [Jonathan S Berek 2019]. This poses a major cause for work hour loss and economic burden to the women at individual level and community and the health care services at large.

Corresponding Author:- Dr. Ragoor Sujatha Address:- Malla Reddy Institute of Medical Sciences, Hyderabad. The precise cause of leiomyomas is unknown. Hormonal, genetic, growth factors has been implicated and advanced studies were undertaken I these areas.40% to 50% of leiomyomas display non-random tumor specific chromosomal rearrangements such as deletions duplications and translocations of chromosomes 6, 7, 12 and 14[Jonathan S Berek 2019]. Many of the growth factors (Tumor growth factor β , basic fibroblast growth factor, vascular endothelial growth factor, platelet derived growth factor, insulin like growth factor, epidermal growth factor and prolactin) are overexpressed in fibroids which cause smooth muscle proliferation, increased DNA synthesis and extracellular matrix, promote mitogenesis and angiogenesis [Jonathan S Berek 2019]Their increased incidence during child bearing years and rarity before puberty and regression after menopause shows their growth is directly related to the presence of estrogens and progesterone. High estrogenic states as obesity and low parity is related to their high incidence and low estrogenic states like exercise, smoking and increased parity are protective factors leading to lower incidence [Jonathan S Berek 2019]

The risk factors are reproductive age group, African American origin, early menarche, low parity, obesity, exposure to unopposed estrogens effect, diet rich in beef, other red meat ham, lack of exercise, menopausal hormonal therapy pregnancy, inflammation due to environmental agents, hypoxia. and infection [Jonathan S Berek 2019]

As many as 50% women are asymptomatic [Padubidri and daftary 2015]. Leiomyoma being detected as an incidental finding during ultrasound for other conditions [Padubidri and daftary 2015]. The clinical presentation are resulting in morbid states significantly affecting the quality of life ultimately resulting in hysterectomies. Most of them suffer from various presentations of abnormal uterine bleeding and its resulting consequences such as severe anemia with or without pelvic pain. Leiomyomas are one of the important causes for recurrent abortions, primary and secondary infertility. Huge leiomyomas present as abdominal masses at times occupying the entire cavity of the abdomen causing pressure symptoms of the adjacent organs. A cervical leiomyoma presents with urinary symptoms. Occasionally a vaginal discharge also can be a presenting feature in case of a leiomyomatous polyp. The clinical presentation is greatly influenced by the type and location of fibroid. Types of Leiomyomata according to FIGO categorization in 2011 keeping in view of ease of understanding and to maintain uniformity regarding the terminology FIGO has undertaken a major work up to classify Leiomyomas in to 8 types [Padubidri and daftary 2015].

Leiomyoma subclassification system	SM - Submucosal	0	Pedunculated intracavitary <50% intramural
	O - Other	3	Contacts endometrium; 100% intramural
		4	Intramural
		5	Subserosal ≥50% intramural
		6	Subserosal <50% intramural
6 5 2		7	Subserosal pedunculated
7		8	Other (specify e.g. cervical, parasitic)
	Hybrid leiomyomas (impact both endometrium and serosa)	Two numbers are listed separated by a hyphen. By convention, the first refers to the relationship with the endometrium while the second refers t the relationship to the seros. One example is below	
		2-5	Submucosal and subserosal, each with less than half the diameter in the endometrial and peritoneal cavities, respectively.

Figure 1:- Classification of leiomyomas (PadubidriandDaftary 2015).

Mohammad AaabdulsalamAbdelmotalab in his thesis concluded single intramural fibroids are commoner than other varieties, posterior fibroids are commoner than anterior and other locations, and back pain, menorrhagia and abdominal mass are the most common presenting features among Sudanese women.

lezabeth Kagan etal. 2012 done a study on clinical, imaging and pathological features of Leiomyoma variants. They categorized Leiomyomas as ordinary-benign, leiomyoma in between and Leiomyoma – malignant. Leiomyoma ordinary are – Nondegenerate and degenerated, in-between are mitotically active, cellular, atypical, smooth muscle tumors of uncertain malignant potential, and the malignant variety as leiomyosarcoma

A study done by Katherine E Hartmann 2012 reveals menorrhagia (70%) as the commonest presenting symptom followed by abdominal swelling (50%), infertility (24%) weight in the pelvis (38%), weakness dizziness and syncopal attack after menstrual periods (26%) and recurrent miscarriages (12%). The average uterine size is up to 15 plus or minus 9.7 weeks Majority (70) presented with multiple leiomyomata multiple and intramural (80%) as the commonest anatomical location. In a 5-year retrospective study conducted at Nnewi Nigeria by Ezeama Co etal 2012 showed the mean age of presentation was 35.7 years most are nulliparous, Commonest mode of presentation was lower abdominal mass (66.9%) least was recurrent abortions (1%). The symptom of the abdominal mass correlated with the late presentations which made the newer applications of treatment like laparoscopic myomectomy difficultUterine Leiomyoma tend to undergo atrophy, hyaline change, cystic, calcareous, red degeneration, sarcomatous change. [Padubidri and daftary 2015]. Huge fibroids, subserous pedunculated fibroids undergo torsion. Sometimes there will be hemorrhage in the cellular matrix of leiomyoma [Padubidri and daftary 2015]. A large vein over the subserous leiomyoma might rupture and cause massive intraperitoneal hemorrhage and shock. [Padubidri and daftary 2015]. A huge fundal fibroid might be the cause of uterine torsion. A polyp in the uterine cavity at the level of the fundus result in inversion of the uterus [Padubidrri and daftary 2015]. Red degeneration occurs in a pregnant woman. Sudden excruciating pain in a pregnancy complicated by a leiomyoma should give the suspicion of red degeneration. Development of pain in a patient with a history of long-standing leiomyoma should arise the suspicion of either haemorrhage or a sarcomatous change [Padubidri and daftary 2015]. A polyp projecting into the cervical canal or the vagina might get infected resulting in a blood-stained purulent discharge [Padubidrri and daftary 2015]. Endometrial carcinoma is associated with fibromyoma in women older than 40 years in 3% of cases explains hypoestrogenism to an important common factor [Padubidrri and daftary 2015]

A routine gynecological workup will give a provisional diagnosis in most of the cases which should be confirmed by an ultrasound. Huge fibroids need a Magnetic resonance imaging study to know the extent of the tumor and adjacentorgans [Padubidri and daftary 2015]. An intravenous pyelogram is required to exclude obstructive uropathy. 3-dimensional ultrasound for locating the site and type of the fibroid precisely may be required for management decision. Doppler ultrasound differentiates between a fibroid and an adenomyosis by seeing the blood flow surrounding the fibroid and diffuses through adenomyosis [Padubidri and daftary 2015]. Other investigations useful are hysterosalpingography and sonosalpingography to identify submucous leiomyoma [Padubidri and daftary 2015].

This Study on Leiomyoma

To know the incidence of fibroids according to FIGO categorization and their clinical presentation which helps in strategies of in early diagnosis and early intervention which reduce the morbidity and economic burden at the level of individual perse and health care systems at large. aiming at improved quality of life. This is a cross sectional study conducted over a period of 15 months from 1^{st} Jan 2020 to 31^{st} March 2021 at Malla Reddy Hospital, a tertiary care hospital, Suraram, Hyderabad. Materials methodology used were thirty-eight confirmed patients of fibroid uterus of age group 20 - 60 attending to Gynecology OPD were interviewed and subjected to regular general, physical, gynecological examination. and most of them were subjected to routine PAP smear and dilatation and curettage procedures. Patients having huge fibroids are subjected to MRI to know the size and location of fibroids and to Intra venous Pyelography to exclude obstructive uropathy. Accordingly, 60% were subjected to total abdominal hysterectomy as a part of treatment and the intra operative findings of the specimen noted. All the specimens are subjected to histopathological examination. The leiomyomas were classified according to the histopathological and ultrasonographic findings based on FIGO categorization and tallied with the clinical presentations. Fibroid complicating pregnancy were excluded from the study. Results were analyzed.

Results of the Study:-

Table 1:- The subjects by age group.

Age group	Number of cases	Percentage
30-35	2	5.3
36-40	9	23.7

41-45	20	52.6
46-50	5	13.2
51-55	0	0.0
56-60	2	5.3
TOTAL	38	

Table 2: The parity of the subjects.

Parity	Number of cases	Percentage
0	1	2.6
1	2	5.3
2	23	60.5
3	9	23.7
4	1	2.6
5	1	2.6
6	1	2.6
Total	38	

Table 3:- The symptoms of the subjects.

Symptoms	Number of cases	Percentage
Menorrhagia	26	68.4
Oligomenorrhea	5	13.2
Metrorrhagia	4	10.5
Menometrorrhagia	10	26.3
Hypomenorrhea	4	10.5
Post-menopausal bleeding	5	13.2
Spasmodic Dysmenorrhea	18	47.4
Congestive Dysmenorrhea	3	7.9

Table 4:- The signs presented by the subjects.

Signs	Number of cases	Percentage
Pallor	22	57.9
Mass per abdomen	5	13.2
Giddiness	4	10.5
Low back pain	3	7.9
Urinary symptoms	2	5.3

Table 5:- Associated Medical Conditions in the subjects.

Medical conditions	Number of Cases	Percentage
Hypertension	9	23.7
Diabetes	4	10.5
Thyroid	9	23.7
Obesity	4	10.5
Anemia	22	57.9

Table 6:- Single versus Multiple fibroids.

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Fibroids	Number of cases	Percentage
Single fibroids	27	71.1
Multiple fibroids	11	28.9

Table 7: - Single versus Multiple fibroids

Fibroids	Number of cases	Percentage
Broad lif Fibroids	1	2.6
Cervical Fibroids	2	5.3

Туре	Number of fibroids	Percentage
Type 0	3	5.1
Type 1	3	5.1
Type 2	3	5.1
Type 3	8	13.6
Type 4	18	30.5
Type 5	8	13.6
Туре б	11	18.6
Type 7	2	3.4
Type 8	3	5.1
TOTAL	59	

Table 8:- Types of total fibroids.

 Table 9: Associated pathological conditions.

Associated condition	Number of cases	Percentage
Adenomyosis	7	18.4
Endometrial Polyp	3	7.9
Ovarian Cyst	3	7.9
Simple endometrial Hyperplasia without atypia	7	18.4

Table 10:- Incidence of degeneration.

	Number of cases	Percentage
Focal myxoid degeneration of fibroid	1	2.6

Discussion of our Results:-

The incidence according to age shows an increasing trend towards 35 to 45 years age group and regression after that. This is because of the strong hormonal influence on their growth which is exploited in treating the condition medically. But in our condition due to the late presentation of cases no single case was amenable to medical treatment or other modalities like myomectomy, laparoscopic myomectomy etc. Again, coming to parity in our situation low parity para 2 showed highest incidence. There were no unmarried cases. The nulliparity may be the effect of fibroid rather than the cause. 13.2% presented with postmenopausal bleeding. It is rather to say early postmenopausal period the already existing asymptomatic fibroid presented with postmenopausal bleeding. We treated the cases with hysterectomy as the size were big enough not to wait for regression after menopause. Endometrial pathology was excluded before surgery. Most of them presented with menorrhagia. Endometrium was normal but there was myometrial hyperplasia in most of the cases and increased surface area of the endometrium leading to prolonged bleeding intermenstrual bleeding in case of leiomymatous polyps leading to anemia and its consequent symptoms and signs. So many were treated with blood transfusions before treating the exact cause. Very few patients complained of some mass growing in the lower abdomen. The submucous leiomyomata and leomyomatous polyps are the cause of infertility rather than intramural, sub serosal, serosal and parasitic types. The failure of implantation due to irregular uncoordinated uterine contractions, lack of decidua for nidation of the embryo and to establish blood circulation for growing fetus are the causes.

According to FIGO classification system the commonest is the multiple intramural leiomyoma which shows that Leiomyoma mostly arise in multiples rather than singles. They arise intramurally at 1st and was pushed by uterine contractions either submucosally or subserosally finally resulting in a leiomayomatous polyp and pedunculated or parasitic fibroids. They can arise from a smooth muscle existing anywhere such as cervix, broad ligament and adnexa. The incidence is low due to the less proportion of smooth muscle in these locations. Cervical fibroids presented with increased frequency of urination, and they were impacted in the pelvis causing difficulty while surgery. Their anatomical location poses problems to the adjacent structures most importantly the ureter. There were no cases of parasitic fibroids in the study group. The associated conditions such as Hypertension diabetes mellitus and hypothyroidism only proved incidental association. The association with diabetes obesity and fibroids needs further studies. Associated pathological conditions such as adenomyosis, ovarian cysts and pelvis inflammatory conditions may be correlated with common risk factors such as hormonal, nutritional, environmental aspects. The myxoid degeneration can be correlated with the longstanding fibroid growing into a huge size depriving the matrix of its blood supply.

Conclusions:-

The study results approximately goes in par with the other studies existing in the literature. Multiple AUB-L4 (completely intramural) are the commonest type of fibroid, Menorrhagia is the commonest presenting symptom and pallor is the commonest presenting sign followed by abdominal mass and anemia commonest associated medical condition. If the disease occurs at an early age it might lead to primary or secondary infertility 2.6% showed changes of degeneration. Some present with other associated pathologies most common being adenomyosis.

As it is said in literature that 50% of the cases are asymptomatic and such cases were only an incidental finding during ultrasound examination for other medical conditions We have considered here only the symptomatic patients it is to be kept in view that the theory of iceberg phenomenon exists and may be it is better to screen all the woman of reproductive age group with an ultrasound examination which facilitates early diagnosis and early intervention to prevent major surgical procedures and associated postoperative morbidity and economic burden.

The study includes lower socio economic and uneducated strata of the community so the statistics cannot be taken as to reflect the entire community.

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