

CLINICOPATHOLOGICAL STUDY OF UTERINE LEIOMYOMAS IN HYSTERECTOMY SPECIMENS

Mangala Gowri¹, Geetha Mala², Srinivasa Murthy³, Vedavathy Nayak⁴

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ABSTRACT: OBJECTIVE: Leiomyomas are the most common benign uterine neoplasms in women of reproductive age group. This study is undertaken to analyse various gamut of clinical and histopathological changes in hysterectomy specimens with uterine leiomyomas. **MATERIAL & METHODS:** A 3 year retrospective study conducted in the Dept. of Pathology and Obstetrics & Gynecology ESIC Medical College & PGIMSR, where in 259 hysterectomy specimens clinically diagnosed as uterine leiomyomas were subjected to histopathological examination and relevant clinical data analyzed. **RESULTS:** Leiomyomas occurred mostly in multiparous women aged 31-50 years (90.3%). Menorrhagia (49.03%) and pain abdomen (30.5%) were the chief clinical manifestations. Endometrial pattern commonly seen were proliferative and hyperplastic endometrium together accounting for 69.1% and associated adenomyosis (29%). One case each of tuberculosis and granulosa cell tumor of ovary was noted. **CONCLUSION:** Though hysterectomy is a routine procedure in the management of uterine leiomyomas, occasional cases of tumor or infective pathology may be missed. Therefore histopathology is mandatory for confirmed diagnosis and ensuring optimal management.

KEYWORDS: Leiomyomas, endometrial changes, hysterectomy.

INTRODUCTION: Leiomyomas synonymously called as fibromyomas, fibroids or myomas are the commonly encountered benign uterine neoplasms in women of reproductive age group accounting for 5-20% [1,2,3]. Leiomyomas need hormonal milieu for their growth and maintenance as evidenced by the molecular studies that leiomyomas exhibit more estrogen receptors than normal myometrium [3,4,5]. Unopposed estrogenic stimulation manifests commonly as endometrial proliferative phase or hyperplasia [3,4,5]. Leiomyomas are usually asymptomatic, however depending on their size, location and hormonal effects, the commonest clinical manifestations are menorrhagia, dysmenorrhoea, pain abdomen, mass abdomen and mass effects [6]. Symptomatic leiomyomas need urgent attention either by myomectomy in younger women desirous of retaining the childbearing function. In elderly women hysterectomy still remains the traditional modality of treatment [7,8]. Leiomyomas undergo secondary changes so also adjacent tissue due to estrogenic stimulation [3,4,5]. However there are very few studies to elaborate on these pathological changes, hence in this context the present study was taken up.

OBJECTIVE: This study is undertaken to analyse various gamut of clinical and histopathological changes in hysterectomy specimens with uterine leiomyomas.

MATERIAL AND METHODS: The present study was conducted in the Dept. of Pathology and Obstetrics & Gynaecology ESIC Medical College & PGIMSR, Rajajinagar, Bangalore, India over a period

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of three years from Jan 2010 to Jan 2013. A total of 259 hysterectomy specimens with or without salphingo-oophorectomy diagnosed clinical and radiologically as uterine leiomyomas were subjected to examination. Brief patients clinical data was retrieved with respect to age, parity, clinical manifestation, sonographic findings and basis of diagnosis. On receipt of surgical specimen, they were fixed in 10% neutral buffered formalin for 24-48 hours. A detailed gross examination of uterus, cervix with or without bilateral adnexae were carried out. Well circumscribed grey to tan lesions with whorled appearance was considered as leiomyoma and details related to its location, number and secondary changes noted. A minimum of two sections from cervix, endomyometrium and one section each of fallopian tubes and ovaries were taken. And representative additional sections from leiomyomas and other abnormal areas were also taken, processed and paraffin embedded. The blocks were sectioned and stained with hematoxylin eosin (H&E). A detailed microscopic histopathological examination pertaining to endometrial glandular and stromal changes, myometrial and leiomyomatous secondary changes, tubal and ovarian findings were noted to arrive at final diagnosis. Diagnosis of adenomyosis was considered when endometrial gland and stroma was noted within one low power field from endomyometrial junction. Specimens having more than one pathological change, all findings were cumulatively considered and included for further appropriate diagnosis.

RESULTS: 259 hysterectomy specimens with uterine leiomyomas were studied. Of which 221(85.3%) were abdominal hysterectomy with bilateral salphingo-oophorectomy specimens remaining 38(14.7%) were only hysterectomy specimens (Table 1). Patients with leiomyomas were aged between 2nd and 5th decade of life. The youngest was 26 years and oldest was 59 years. The majority were multiparous women (246 cases 94.9 %) in 3rd and 4th decade of life (234 cases 90.3%). 1.3% were nulliparous women (Table 2& 3). Menorrhagia was the commonest clinical manifestation accounting to 49.03% followed by pain abdomen (30.5%), dysmenorrhea (20.07%), and retention of urine (0.4%). Diagnosis of uterine leiomyomas was made exclusively on clinical examination (54.1%). In the remaining 45.9% cases both clinical and ultrasonogram (USG) findings were needed for diagnosis (Table 5). However USG was done on all cases and diagnosis on clinical findings was confirmed.

Type of Hysterectomy	Number	Percentage
Abdominal hysterectomy with bilateral salphingo-oophorectomy specimens	221	85.3
Only hysterectomy specimens	38	14.7
Total	259	100

Table 1: Type of hysterectomy

Age in years	Number	Percentage
20-30	12	4.6
31-40	107	41.3
41-50	127	49
51-60	13	5.1
Total	259	100

Table 2: Age wise distribution of patients with leiomyoma

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Parity	Number	Percentage
Nulliparous	3	1.3
Primipara	10	3.8
Multipara	246	94.9
Total	259	100

Table 3: Parity of patients with leiomyoma

Clinical manifestations	Number	Percentage
Menorrhagia	127	49.03
Pain abdomen	79	30.50
dysmenorrhea	52	20.07
Retention of urine	01	0.4
Total	259	100

Table 4: Clinical manifestations in patients with leiomyomas

Basis for diagnosis	Number	Percentage
Clinical diagnosis only	140	54.1
Clinical + USG	119	45.9
Total	259	100

Table 5: Basis of diagnosis in patients with leiomyoma

Most of the uteri showed 71% of unitary leiomyomas accounting for (184 cases) in the remaining 29% (75) the number varied from 2-10. In the present study 48%(124) of cases had intramural fibroid whereas subserosal (41 cases 16%) submucosal (8 cases 3%) and 33%(86) had leiomyomas in more than one location (Table 6).

Location of leiomyomas	Number	Percentage
Intramural	124	48
Subserosal	41	16
Submucosal	08	03
More than one location	86	33
Total	259	100

Table 6: Location leiomyomas in hysterectomy specimens

Grossly 5.7% (15 cases) of leiomyomas showed secondary changes. Microscopically secondary changes occurring within leiomyomas were present in 23.6% (61 cases) (table 7). Hyalinisation (16.9%) was the commonest secondary degenerative change followed by cystic (9%) and myxoid (1.6%) change.

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Secondary changes	Number	Percentage
Absent	198	76.4
Present	61	23.6
Hyalinisation	44	16.9
Cystic change	09	3.5
Myxoid change	04	1.6
Haemorrhage	02	0.8
Red degeneration	01	0.4
Calcification	01	0.4
Total	259	100

Table 7: Secondary changes within leiomyomas

Microscopic examination of endometrium revealed 46.3% (120) of proliferative phase and 22.8% (59) of endometrial hyperplasia. Other endometrial stromal changes were haemorrhage, chronic endometritis and tubercular endometritis (Table 8&9). Dual pathology of leiomyoma and adenomyosis was noted in 29 % (75 cases).

Endometrial changes	Number	Percentage
Proliferative phase	120	46.3
Simple hyperplasia	59	22.8
Secretory phase	36	13.9
Senile cystic atrophy	20	7.7
Atrophic endometrium	13	5.1
Proliferative with adenomyomatous polyp	11	4.2
Total	259	100

Table 8: Endometrial changes with uterine leiomyomas

Endometrial stromal changes	Number	Percentage
Haemorrhage	23	8.8
Chronic endometritis	04	1.5
Tubercular endometritis	01	0.4
Absent	231	89.43
Total	259	100

Table 9: Endometrial stromal changes in association with uterine leiomyomas

Other coincidental pathologies with uterine leiomyomas are depicted in the table 10 below.

Other pathologies	Number	Percentage
Absent	238	91.6
Cervical fibroid	05	2
Broad ligament fibroid	03	1.2
Mucinous cystadenoma of ovary	02	0.8

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Serous cystadenoma of ovary	02	0.8
Chocolate cyst of ovary	02	0.8
Granulosa cell tumour of ovary	01	0.4
Total	259	100

Table 10: Other pathologies associated with uterine leiomyomas

DISCUSSION: The major gynaecological surgery done throughout the world is hysterectomy. Charles Clay was the first to perform subtotal and total hysterectomy in Manchester, England in 1843 and 1929 respectively [9,10]. It is a successful procedure done in terms of symptom relief, patient satisfaction and definitive cure in many disease. Benign conditions like leiomyoma, dysfunction uterine bleeding, adenomyosis, pelvis inflammatory disease, endometriosis, pelvic organ prolapse which account for major hysterectomies and rest for malignancy [11,12]. Of these benign lesions, leiomyoma followed by adenomyosis are the commonest indication for hysterectomy [13].

Leiomyomas are benign neoplasm composed of smooth muscle with variable amount of connective tissue [1,2,3]. Leiomyomas are commonly seen in the women of reproductive age [1-3, 7]. Present study had greater frequency between 31-50 years (90.3%) age group similar to studies by Ashraf T et al [14], and Begum S et al [7] whereas in contrast Hafiz R et al [15] observed that affected females were a decade lesser 20-40 years of age possibly since they included only menorrhagic patients with fibroid. Multiparous women (94.9%) were found to have leiomyomas more frequently than nulliparous (1.3%) analogous to study by Begum S et al [7], in contrast to a study by Derek LJ et al [16] who observed fibroids are more common in nulliparous or infertile patients since he included more of asymptomatic infertile patients with fibroids.

Most of the leiomyomas are asymptomatic but if symptomatic, commonest clinical manifestation is menorrhagia due to increased vascularity, endometrial surface and altered uterine contractility which was 49.03% in present study followed by pain abdomen 30.5% possibly due to degenerative changes in leiomyomas similar to study by Begum S et al [7], and Jaiswal C et al [17], 54.1% of patients were diagnosis with uterine leiomyomas only on clinical findings alone whereas USG was needed as additional examination equally (45.9%) similar to a study by Begum R et al [7] and also concluded that USG is confirmatory with 80% accuracy. Abraham et al in his study stated that diagnosis of fibroid is usually done on clinical findings but USG is helpful in ruling out that these tumours are not extrauterine masses or they have an extrauterine extension [18]. In the present study number of leiomyomas in uterus varied from 1-10 of which 71% of patients had unitary leiomyomas in concordance with Rosario et al [19], in contrast study by Begum S et al [6], had majority of multiple fibroids. Most of the leiomyomas were intramural leiomyomas 48% similar to a study by Chhabra S et al [20], Begum S et al [7], and Rosario et al [19].

In present study secondary degenerative changes were noted grossly in 5.7% of cases and 22.6% microscopically. Among them hyalinisation was the commonly encountered secondary changes similar to the study by Begum S et al [7], and Persaud et al [21]. The degenerative changes in leiomyomas occur due to inadequate blood supply which may result in hyalinisation most commonest followed by cystic, myomatous, haemorrhage, hydropic or calcification and very rarely malignant degeneration or leiomyosarcoma. The types of secondary change depend on the rapidity and degree of vascular insufficiency [7, 21, 22]. Red degeneration occurs predominantly during pregnancy [21, 22], one of our cases was diagnosed during pregnancy and hysterectomy was done after

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elective caesarean section. Also these secondary changes usually occur in old mature lesions and hence careful conscientious histopathological sampling should be done to rule out malignant changes [21,22].

In the present study proliferative phase and simple hyperplastic endometrium together accounted for 69.1% were the commonest endometrial changes seen in association with uterine leiomyomas possibly due to hyper-estrogenic status in accordance with the study by Rosario et al^[19], Purandare et al^[23], Sanyal et al^[24], Chethana M et al^[25]. In the present study atrophic endometrium were 5.1% similar to studies by Denlignish et al^[26], Chethana M et al^[25] and Rosario YP^[19] and described these endometrial changes of normal, hyperplasia and atrophy may be possible due to irregular secretion of estrogens and mechanical effects of fibroid on endometrium.

Dual pathology of adenomyosis and leiomyomas were noted in 29% of patients in present study similar to studies by Denlignish et al^[26], Rizvi et al^[27], and Rani S et al^[13]., coexistence of these lesions are also due to unopposed estrogen and entrapment of glands within hypertrophied myometrium. Diagnosis of adenomyosis remains an incidental histopathological finding in uterine tissues examined for other clinically suspected pathology.

Extensive literature search showed no studies who reported on the various associated pathologies with uterine leiomyomas. In the present study, though the causative factor for hysterectomy was leiomyoma, there were varied incidental concurrent preoperatively undiagnosed lesions like granulosa cell tumour of ovary (0.4%), tubercular endometritis (0.4%), dermoid and chocolate cyst of ovary (0.8%), mucinous and serous cystadenoma of ovary (1.6%).

CONCLUSION: Leiomyomas are found frequently in multiparous women in reproductive and perimenopausal age group. Though hysterectomy is a routine procedure in the management of uterine leiomyomas, occasional cases of tumor or infective pathology may be missed. Therefore histopathology is mandatory for confirmed diagnosis and ensuring optimal management.

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AUTHORS:

1. Mangala Gowri
2. Geetha Mala
3. Srinivasa Murthy
4. Vedavathy Nayak

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Obstetrics & Gynaecology, ESIC MC & PGIMSR, Rajajinagar, Bangalore.
2. Junior Resident, Department of Pathology, ESIC MC & PGIMSR, Rajajinagar, Bangalore.
3. Professor & Head, Department of Pathology, ESIC MC & PGIMSR, Rajajinagar, Bangalore.

4. Assistant Professor, Department of Obstetrics & Gynaecology, ESIC MC & PGIMSR, Rajajinagar, Bangalore.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Mangala Gowri,
172/A, 8th Main, 4th Block,
Rajajinagar, Bangalore - 10.
Email - vedavathynayak@yahoo.in

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