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Clinicopathological assessment of leiomyoma uterus

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Abstract
Background: *Uterine Leiomyoma are benign neoplasm composed of smooth muscle with variable amount of connective tissue[1], is the commonest visceral neoplasm affecting females in reproductive age group[2]. They are noted clinically in 20-30% of women over 30 years of age.*
Aim: *To analyze the clinicopathologic spectrum of uterine leiomyomas with regards to their clinical and histopathological presentation, associated changes and variants.*
Methods: *All hysterectomy and myectomy specimen received at Nalanda Medical College, Patna over a period of one year from Dec. 2018 to Nov. 2019,provisionally diagnosed as leiyomyoma clinically or/and sonologically .Clinical data obtained on a proforma after informed consent to patients. Specimens were fixed in 10% formalin, processed and embedded in paraffin blocks. Sections of 4-6 micron thickness were taken and stained with routine H&E stain and studied.*
Results: *A total of 108 case of leiyomyoma were studied. Majority of the patients were between 41-50 years (45.37% cases). Menorrhagia was the commonest symptom constituting 38.88%. majority of cases were multiparous (87.03). Most common location of leiomyoma was intramural (57.40%) followed by subserosal (16.66%). 62.96% leiomyomas were single and 38.04% were multiple. Degenerative changes were observed in 15.74% cases, amongst which hyaline change was the most common (5.55%). Proliferative endometrium was most common endometrial finding (47.22%). Adenomyosis was associated with leiomyoma in 20.37% cases.*
Conclusions: *Uterine leiomyoma is associated with degenerative changes and coexistent patholologies. Histopathological examination of hysterectomy specimens should be done to confirm the diagnosis for its proper management and rule out other pathologies, especially malignant lesions.*
Keywords: *Leiomyoma, Myometrium, Hysterectomy, Myomectomy*

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I. Introduction

Uterine leiomyoma/ fibromyomas/ fibroids /myomas are the commonest benign mesenchymal neoplasms of uterus in women of reproductive age group. These tumors arise from smooth muscle cells of myometrium [1].

They are noted clinically in 20-30% of women over 30 years of age, and increases to 40% of women over 40 years of age. The prevalence is 70% when histopathological examination is done in all surgically excised uterus indicating that most cases of leiyomyoma is asymptomatic[3]. They are rare prior to the menarche, common in reproductive life, have a tendency to regress after the menopause and are associated with endometrial hyperplasia, all of which suggest their estrogen dependence. Also, the myometrium of leiomyomas expresses higher levels of estrogen receptors.[4] Majority of the patients are asymptomatic, however symptoms depend upon size and location of the tumor. Clinical manifestations of leiomyoma include menorrhagia, dysmenorrhea, lower abdominal pain, mass, infertility/subfertility and recurrent spontaneous abortion [5].

Grossly these tumors are well circumscribed, firm, grey white bulging masses that can be easily separated from the surrounding normal myometrium. Cut section shows whorled appearance. Smooth muscle cells arranged in interlacing fascicles are seen in microscopic examination. Degenerative changes such as hyaline degeneration, myxoid degeneration, cystic degeneration, fatty degeneration and calcific degeneration are observed. Red degeneration is associated with pregnancy and oral contraceptive use [6,7]

Objective: This study was conducted to analyze the clinicopathologic spectrum of uterine leiomyomas with regards to their presentation, location, associated changes and variants, and to compare our findings with those of other similar studies.

II. Materials And Methods

The study was done in the Department of Pathology, NMCH, Patna, on the provisionally diagnosed cases of leiomyoma clinically and/or radiologically. A total of 108 cases confirmed by histopathology were taken for study.

Inclusion Criteria: Hysterectomy and myomectomy specimen of leiyomyoma confirmed by histopathology examination.
Exclusion Criteria: Hysterectomy specimen of uterus in which leiyomyoma is not present.
The data were collected on a proforma, which consists of the relevant information about age, clinical presentation after informed consent to all patients. The hysterectomy specimens were fixed in 10% formalin. The gross specimens were examined for the location, number, size, degenerative changes in leiomyoma and associated pathologies. Representative sections were taken which were processed in automated tissue processor and embedded in paraffin wax. The sections were cut at 4-6µ with microtome, stained with Hematoxylin and Eosin stain, examined under light microscope and the results were obtained.

III. Results

A total of 108 hysterectomy and myomectomy specimens with uterine leiomyoma were studied. Age of the patients with leiomyoma ranged from 22-63 years. Majority of the patients were between 41-50 years accounting for 45.37% cases.

Table 1 : Age-wise distribution of patients with Leiomyoma

Age range (In Years)	No. of cases	Percentage
21-30	08	7.40
31-40	37	34.25
41-50	49	45.37
51-60	12	11.11
Above 60	02	1.85
Total	108	100

Clinical presentation

Menorrhagia was the commonest symptom constituting 38.88% cases, followed by pain in abdomen in 24.07% cases and dysmenorrhea in 18.51% cases.

Table 2: Chief complaints in patients with uterine leiomyoma.

Chief complaints	No. of cases	Percentage
Menorrhoea	42	38.88
Pain abdomen	26	24.07
Dysmenorrhoea	20	18.51
Leucorrhoea	16	14.81
Infertility	04	3.70
Total	108	100

The majority were multiparous women (94 cases 87.03 %) in 3rd and 4th decade of life.Primiparous women were (9 cases 8.33%) while 4.63% were nulliparous women

Table 3: Parity of patients with Leiomyoma

Parity	Number of cases	Percentage
Nulliparous	05	4.63%
Primipara	09	8.33%
Multipara	94	87.03%
Total	108	100

Gross features of leiyomyoma:
Number and location:
Most of the uterus showed single leiomyoma accounting for 68 cases (62.96%).Multiple leiyomyoma is present in the 40 cases (38.04%),and the number varied from 2-9.In the present study 57.40%(62 cases) had intramural fibroid whereas subserosal (18 cases 16.66%) submucosal (7 cases 6.48%) and 19.44%(21 cases) had leiomyomas in more than one location. (Table 4)
Size of leiyomyoma:
Intramural leiomyomas varied from few mm to 11 x 7x 7 in diameter. Sub-serosal leiomyomas varied from few mm to 7 x 5 x 4 cm in size. Sub-mucosal leiomyomas varied from few mm to 3 x 2.5 x 2 cm in diameter.

Table 4: Location of Leiomyoma in hysterectomy specimens

Location of leiomyomas	Number	Percentage
Intramural	62	57.40%
Subserosal	18	16.66%
Submucosal	07	06.48%
More than one location	21	19.44%
Total	108	100

Grossly 4.63% (5 cases) of leiomyomas showed secondary changes.
Histopathological findings:
Leiomyoma shows benign smooth muscle cells arrangement in interlacing fascicles.
Secondary degenerative changes:
Microscopically secondary changes occurring within leiomyomas were present in 15.74% (17 cases) (table 5). Hyalinisation (5.55%) was the commonest secondary degenerative change followed by cystic (3.70%) and myxoid (2.77%) change.

Table: 5 Secondary changes within Leiomyoma

Secondary changes	Number	Percentage
Absent	91	84.25
Present	17	15.74
Hyalinisation	06	5.55
Cystic change	04	3.70
Myxoid change	03	2.77
Haemorrhage	02	1.35
Red degeneration	00	00
Calcification	02	1.35
Total	108	100

Endometrial changes:
Microscopic examination of endometrium revealed 47.22% (51) of proliferative phase and 22.22% (24) of endometrial hyperplasia.

Table 6: Endometrial changes with uterine Leiomyoma

Endometrial changes	Number	Percentage
Proliferative phase	51	47.22
Simple hyperplasia	24	22.22
Secretory phase	18	16.66
Atrophic endometrium	12	11.11
Proliferative with adenomyomatous polyp	03	2.77
Total	108	100

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

Table 7:

Other pathologies	Number	Percentage
Absent	84	77.77
Adenomyosis	22	20.37
Endometrial polyp	02	1.35
Total no.	108	100

IV. Discussion

Leiomyoma is benign tumor of smooth muscle seen in women of reproductive age group. Leiomyomas continue to be a major cause of morbidity in perimenopausal women.

In our study age of the patient ranged from 22-63 years. Maxi- mum number of patients were in the age group of 41-50 years (45.37%)These findings were similar to that observed by Gupta et al (51.40%), Rather et al (47.27%), Vaidya et al (45.63%) and Rizvi et al (44.56%).[8-11] In other studies, 31-40 years age group was mainly affected- Karthikeyan et al (46.15%), Gowri et al (41.3%).[12,13]

In this study, menorrhagia was the commonest presenting symptom seen in 38.88% cases, followed by pain abdomen in 18.99% cases. Menorrhagia was also the presenting complaint in studies by Sarfraz (68%)[14], Karthikeyan (62.5%)[12], Rather (35.43%)[9], Gowri (49.03%)[13] and Manjula K (35.4%)[15].

Multiparous women (87.03%) were found to have leiomyomas more frequently then nulliparous (4.63%) analogous to study by Begum S et al [16].

In the present study, out of 108 cases of leiomyomas, 68 (62.96%) were single and 40 (38.04%) were multiple. In a study by Sarfraz et al (2010) multiple leiomyomas were seen in 60.87% cases.[14] Abraham and Saldanha [17] observed solitary leiomyoma in 42.5% cases and multiple leiomyomas in 57.5%.. Gowri M et al [13] found 71% single leiomyoma in hysterectomy specimens.

Uterine leiomyoma are classified as *intramural, submucosal or subserosal*. The most common location of leiomyoma was intramural (57.40%) in our study

Jung et al[18] observed intramural fibroids in 55.7% cases, subserous fibroids in 16.3% cases, 15.6%, and submucosal fibroids in 12.4% cases respectively.[21] Intramural leiomyomas were also the commonest types in studies by Gowri et al (48%) and Rosario et al (52%).[13,19] Abraham and Saldanha observed intramural fibroids in 61.5% cases, subserosal leiomyomas in 9% cases and submucosal leiomyomas in 5% cases.[17]

In the present study, degenerative changes were observed in 17 leiomyomas (15.74%). Among these, 5.55% showed hyaline change which constituted the most common degenerative change observed in this study, 2.77% showed myxoid change, 3.70% showed cystic and 1.35% shows calcification. Jung et al found secondary (degenerative) changes in 9.2% cases and the most common change was hyaline degeneration (5.7%).[18] Gowri et al reported secondary changes in 22.6% cases with hyalinization (16.9%) being the commonest secondary degenerative change followed by cystic (3.5%) and myxoid (1.6%) change.[13] Abraham and Saldanha observed secondary changes 22.2% cases; among these 49% showed hyaline change, 4.9% showed myxoid change, 4.9% showed calcification, 3.35 showed red degeneration and 4.9% showed hydropic change.[17]

In the present study proliferative phase(47.22%) and simple hyperplastic endometrium(22.22%) together accounted for 69.44% 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[20], Sanyal et al[21],Chethana M et al[22]. In the present study atrophic endometrium were 11.11% similar to studies by Denligdish et al[23] , Chethana M et al[22] 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 20.37% of patients in present study similar to studies by Denligdish et al[23], Rizvi et al[11]. Coexistence of these lesions are also due to unopposed estrogen and entrapmentof glands within hypertrophied myometrium. Diagnosis of adenomyosis remains an incidental histopathological finding in uterine tissues examined for other clinically suspected pathology.

V. Conclusion

Uterine leiomyoma is a most common benign tumor of reproductive age group. Most common age group is 30-50 years. Menorrhagia is commonest complaint, affecting multiparous women chiefly. Intramural leiomyoma is the most common location. Various degenerative changes occur in leiomyoma among which hyaline degeneration is most common. Associated adenomyosis and endometrial hyperplasia suggest hyperestrogenic state. Hence histopathological diagnosis is essential to identify various changes in leiomyoma and diagnose other pathologies associated with leiomyoma.

References

[1]. Crum C P. Body of uterus and Endometrium. In: Kumar V, Abbas A K, Fausto N, Eds. Robbins and Cotran Pathologic Basis of Disease. 7th ed. Philadelphia: Saunders, 2004:1089-90.

[2]. Silverberg SG, Tabbara SO. The uterine corpus. In: Silverberg SG, Delellis RA, Frable WJ, Eds. Principles and Practice of Surgical Pathology and Cytopathology. Vol 3 (3rd edition). New York: Churchill Livingstone; 1997:2459-516
[3]. Ackerman, Gull B, Karlsson B, Milsom I, Granberg S. Factors associated with endometrial thickness and uterine size in random sample of postmenopausal women. Am J Obstet Gynecol 2001;185(2):386-91.
[4]. Zaloudek CJ, Hendrickson MR, Soslow RA. Mesenchymal tumors of uterus. In: Blaustein Pathology of the female genital tract. 6th ed; 2011:459-466
[5]. HA Nggada, MIA Khalil, B Isa. A clinico-pathological analysis of uterine leiomyomata in Maiduguri, Nigeria. Kanem Journal of Medical Sciences 2007;1(1):1-4.
[6]. Sarfraz R, Sarfraz MA, Kamal F, Afsar A. Pattern of benign morphological myometrial lesions in total abdominal hysterectomy specimens. Biomedica 2010;26:140-3.
[7]. Zaloudek CJ, Hendrickson MR, Soslow RA. Mesenchymal tumors of uterus. In: Blaustein Pathology of the female genital tract. 6th ed; 2011:459-466.
[8]. Gupta G, Kotasthane D, Kotasthane V. Hysterectomy: a clinico-pathological correlation of 500 cases. The Internet Journal of Gynecology and Obstetrics. 2009;14(1).
[9]. Rather GM, Gupta Y, Bardhwaj S. Patterns of lesions in hysterectomy specimens: a prospective study. JK Science. 2013;15(2):35-8.
[10]. Vaidya S, Vaidya SA. Patterns of lesions in hysterectomy specimens in a tertiary care hospital. J Nepal Med Assoc. 2015;53(197):18-23.
[11]. Rizvi G, Pandey H, Pant H, Chufal SS, Pant P. Histopathological correlation of adenomyosis and leiomyoma in hysterectomy specimens as the cause of abnormal uterine bleeding in women in different age groups in the Kumaon region: a retro prospective study. J Midlife Health. 2013;4(1):27-30.
[12]. Karthikeyan TM, Veenaa NN, Ajeeth Kumar CR, Thomas E. Clinico-pathological study of hysterectomy among rural patients in a tertiary care center. IOSR Journal of Dental and Medical Sciences. 2015;14(5):25-7.
[13]. Gowri M, Mala G, Murthy S, Nayak V. Clinicopathological study of uterine leiomyomas in hysterectomy specimens. Journal of Evolution of Medical and Dental Sciences. 2013;2(46):9002-9.
[14]. Sarfraz R, Sarfraz MA, Kamal F, Afsar A. Pattern of benign morphological myometrial lesions in total abdominal hysterectomy specimens. Biomedica. 2010;26:140-3.
[15]. Manjula K, Rao KS, Chandrasekhar HR. Variants of Leiomyoma: histomorphological study of tumors of myometrium. Journal of South Asian Federation of Obstetrics and Gynecology. 2011;3(2):89-92.
[16]. Begum S, Khan S. Audit of leiomyoma uterus at Khyber Teaching Hospital, Peshawar. J Ayub Med Coll 2004;16(2):46–9.
[17]. Abraham J, Saldanha P. Morphological variants and secondary changes in uterine leiomyomas. Is it important to recognize them? Int J of Biomed Reseach. 2013;4(12):254-64
[18]. Jung JK, Koi MS, Jung BW, Lee HH, Choi HJ, Shin SK. A clinical analysis of uterine myoma. Korean J Obstet Gynecol. 1998;41(1):210-9
[19]. Rosario YP. Uterine fibromyomas. J of Obstet and Gynaecol of India. 1968;18:101-7
[20]. Purandare. S, Jhalam L. Pathological picture in hysterectomy done for abnormal uterine bleeding. J obstet & Gynacol of India .1993;43:418-21.
[21]. Sanyal MK, Sanyal S, Bhattacharjee KK, Choudari NNK. Clinicopathological study of endometrium. A review of three hundred and twenty cases in different gynaecological abnormalities. J obstet & Gynacol of India .1981;31:816-21.
[22]. Chethana M,Kumar HML, Munikrishna M. Endometrial Changes in Uterine Leiomyomas. J Clin Biomed Sci 2013 ; 3 (2).72-79.
[23]. Deligdish L, Loewenthel M. Endometrial changes associated with myomata of the uterus. J Clin Pathol 1970; 23: 676-80.

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