A Study on Uterine Leiomyoma with Clinicopathological Spectrum

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Leiomyoma is the commonest benign neoplasm affecting uterus of females in the reproductive age group. They are noted clinically in 20-30% of women over 30 years of age and have a tendency to regress after the menopause. Their gross appearances are often altered by various secondary changes. Subtypes of leiomyoma are chiefly of interest as they may mimic malignancy in some cases. This study was conducted to analyze the clinicopathologic spectrum of uterine leiomyoma with regards to their clinical presentation, associated changes and variants and to compare these findings with similar studies from different parts of the world. All the hysterectomy and myomectomy specimens which were received in the department of pathology, Jahurul Islam Medical College, Kishoreganj over a period of two years with leiomyomas were included in the study. The specimens were properly labeled, fixed in formalin, examined grossly, processed, stained and examined microscopically. Age range of the patients with leiomyoma was 18-62 years. Majority of the patients were between 41-50 years (46.84% cases). Menorrhagia was the commonest symptom constituting 37.97% cases and fibroid uterus was the most common clinical diagnosis (44%). Most common location of leiomyoma was intramural (57.43%) followed by subserosal (30.69%). 56.96% leiomyoma were single and 43.04% were multiple. Degenerative changes were observed in 16.46% cases, amongst which hyaline change was the most common (6.33%). Nine types of leiomyoma variants were seen and cellular leiomyoma (6.33%) was the commonest. Adenomyosis was associated with leiomyoma in 19.23% cases.

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Introduction

Myometrium is the thick smooth muscle coat of the uterus which encases the endometrium and is lined by the peritoneum derived serosa.[1] Myometrial lesions form a diverse group of lesion in which leiomyoma (benign smooth muscle tumor) is the commonest. Leiomyoma 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 and are found in as many as 75% of uterus.[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 dependency.[4]

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The importance of leiomyoma lies as they cause pain, abnormal uterine bleeding and a sensation of pressure. Large tumors produce diffuse uterine enlargement or an irregular uterine contour, which may be associated with infertility.[4]

Grossly, they are well-circumscribed, firm, gray-white bulging masses (varying in size from barely visible nodules to large tumors that fill the pelvis) and have a whorled appearance on cut surface with cells arranged in fascicles on microscopy. The gross appearances are often altered by secondary or degenerative changes, which are commonly seen.[5,6] Hyaline degeneration/necrosis is present in more than 60% cases, particularly in postmenopausal women, and cystic degeneration, myxoid change, fatty degeneration and calcification each occur in about 4% cases. After menopause or delivery leiomyomas can undergo atrophy with significant shrinkage and fibrosis. Red degeneration is associated with pregnancy and contraceptive use and is due to thrombosis in tumour.[5]

Most subtypes of leiomyoma are chiefly of interest in that they mimic malignancy in one or more respects. These subtypes are mitotically active leiomyoma, cellular leiomyoma, haemorrhagic cellular leiomyoma, leiomyoma with bizarre nuclei, epithelioid leiomyoma, and myxoid leiomyoma.[7-9]

In the histopathology laboratory of Department of Pathology, Jahurul Islam Medical College we examined a good number of specimen of leiomyoma. This study was conducted to analyze the clinicopathologic spectrum of uterine leiomyoma with regards to their clinical presentation, associated changes and variants and to compare these findings with similar studies from different parts of the world.

Methods

The study included all the hysterectomy and myomectomy specimens received in the department of Pathology, Jahurul Islam Medical College, Bajitpur, Kishoreganj over a period of two years from September 2015 to July 2017. A total of 79 cases diagnosed with leiomyoma were included in the study. The clinical information and the relevant investigations of the patients were obtained from the histopathological requisition forms and clinical record files. The specimens received in the department of pathology were properly labeled, numbered and fixed in 10% buffered formalin. After a detailed gross examination of the specimens, multiple sections were taken from representative sites, processed and paraffin blocks were made. The blocks were sectioned and stained routinely with haematoxylin and eosin. Special stains were used wherever required.

Results

Age of the patients with leiomyoma ranged from 18 to 62 years. Majority of the patients were between 41-50 years accounting for 46.84% cases (Table I).

Table I: Age wise distribution of patients with leiomyoma (n=79)

Age range (in years)	No. of cases	Percentage(%)
Below 20	01	1.27%
21-30	40	5.06%
31-40	16	20.25%
41-50	37	46.84%
51-60	19	24.05%
Above 60	02	2.53%
Total	79	100%

Menorrhagia was the commonest symptom constituting 37.97% cases, followed by pain in abdomen in 18.99% cases and dysmenorrhea in 17.72 cases (Table II).

Table II: Chief complaints of patients with uterine leiomyoma (n=79)

Chief complaint	No. of cases	Percentage(%)
Menorrhagia	30	37.97%
Pain in abdomen	15	18.99%
Dysmenorrhea	14	17.72%
Mass per vaginum	13	16.46%
Post-menopausal bleeding	04	5.06%
Leucorrhoea	02	2.53%
Infertility	01	1.27%
Total	79	100%

Clinical diagnoses were fibroid uterus in 44% cases, utero-vaginal prolapse in 20% cases, dysfunctional uterine bleeding in 19% cases and pelvic inflammatory disease in 17% cases. Most common site of leiomyomas was intramural (57.43%) followed by subserosal (30.69%), submucosal 8.91% cases while broad ligament leiomyomas constituted 2.97% cases.

In the present study, out of 79 cases of leiomyomas, 45(56.96%) were single and 34 (43.04%) were multiple. Number of leiomyomas observed in the present study varied from 1 to 10. Sub-serosal leiomyomas varied from few mm to 6 x 5 x 4 cm in size. Intramural leiomyomas varied from few mm to 12 x 10 x 8 mm in diameter. Sub-mucosal leiomyomas varied from few mm to 3.5 cm in diameter.

In this study, majority of leiomyomas were diagnosed in multiparous women. Out of 79 patients with leiomyomas, 78 (98.73%) were parous, which includes 10 cases of uniparous patients and only 1 was nulliparous (1.28%). We observed 42 cases of typical leiomyomas (53.16%), followed by leiomyoma variants in 24 cases (30.38%) and degenerative changes in 13 cases (16.46%) (Figure 1).

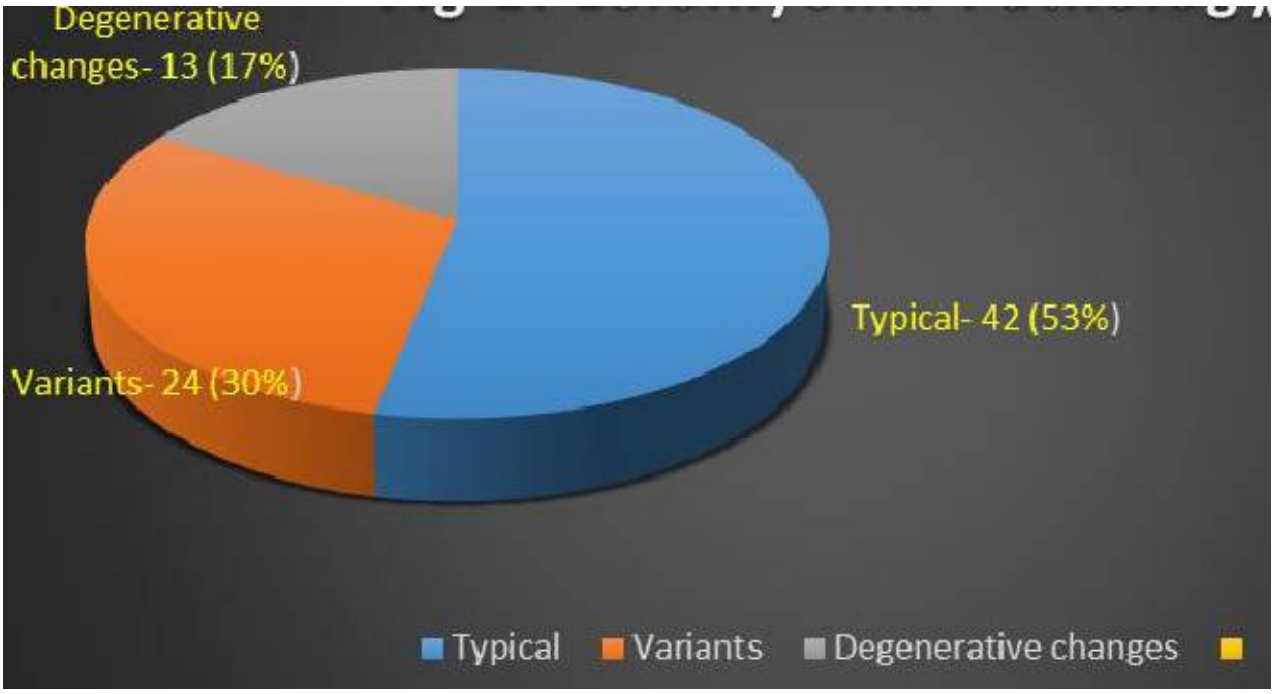

Figure 1. Various pathological changes seen in uterine leiomyomas (n=79)

Degenerative changes were observed in 13 leiomyomas (16.46%). Among these, 5 leiomyomas (6.33%) showed hyaline change which constituted the most common degenerative change observed in this study, 3 leiomyomas (3.8%) showed myxoid change, 3 cases (3.8%) showed calcification, 3 cases (3.8%) showed cystic and 2 cases (2.53%) demonstrated carneous (red) degeneration. We observed 9 types of variants of leiomyoma in the present study among the total 79 leiomyomas (Figure 2), which included cellular leiomyoma (6.33%), diffuse leiomyomatosis (5.05%), apoplectic leiomyoma (3.8%), cotyledonoid leiomyoma (3.8%), palisaded leiomyoma (2.53%), vascular leiomyoma (3.8%), intravascular leiomyoma (2.53%), mitotically active leiomyoma (1.27%) and atypical leiomyoma (1.27%). Adenomyosis was found associated with leiomyoma in 15 cases (19.23%).

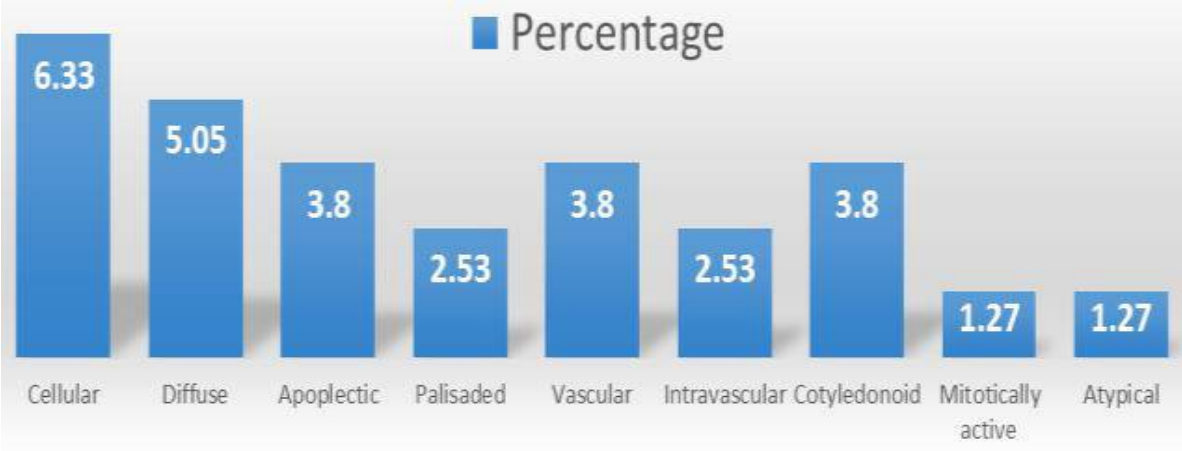

Figure 2. Variants of uterine leiomyoma observed in the present study (n=79)

Discussion

Leiomyomas continue to be a major cause of morbidity in perimenopausal women. Limited data is available from our community regarding clinicopathologic patterns of uterine leiomyomas. 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 from different parts of the world.

The ages of the patients ranged from 18-62 years. The average age of patients was 45.82 years. Highest numbers of patients included in this study were between 41-50 years (46.82%). 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%).[10-13] In this study, menorrhagia was the commonest presenting symptom seen in 37.97% cases, followed by dysmenorrhea in 18.99% cases. Menorrhagia was also the presenting complaint in studies by Sarfraz (68%), Karthikeyan (62.5%), Rather (35.43%), Gowri (49.03%) and Manjula K (35.4%).[11, 14-17]

The most common preoperative diagnosis was fibroid uterus in 44% cases followed by utero-vaginal prolapse in 20 % cases, dysfunctional uterine bleeding in 19% cases and pelvic inflammatory disease in 17 % cases. These findings are consistent with the data reported by Vaidya et al (42.96% and 18.95%), Siwatch et al (39% and 22.6%), utero-vaginal prolapse was the commonest indication in a study by Jha et al (37.1%), Gupta et al (40.0%).[10,12,18,19] In the present study, out of 79 cases of leiomyomas, 45 (56.96%) were single and 34 (43.04%) were multiple. In a study by Sarfraz et al (2010) multiple leiomyomas were seen in 60.87% cases.[16]

The most common site of leiomyomas in our study was intramural (57.43%) followed by subserosal leiomyomas (30.69%), submucosal leiomyomas (8.91%) and broad ligament leiomyomas (2.97%). Jung et al observed intramural fibroids in 55.7% cases, subserous fibroids in 16.3% cases, 15.6%, and submucosal fibroids in 12.4% cases respectively.[20] Intramural leiomyomas were also the commonest types in studies by Gowri et al (48%) and Rosario et al (52%).[15,21]

In the present study, degenerative changes were observed in 13 leiomyomas (16.46%). Among these, 6.33% showed hyaline change which constituted the most common degenerative change observed in this study, 6.33% showed myxoid change, 3.8% showed calcification, 3.8% showed cystic and 2.53% demonstrated red (carneous) degeneration. Jung at al found secondary (degenerative) changes in 9.2% cases and the most common change was hyaline degeneration (5.7%).[20] Abraham and Saldanha observed secondary changes in 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.[21]

In the present study, 9 variants of leiomyoma were seen in 24 cases out (30.38%) of the total 79 leiomyomas, which included following types of variants-cellular leiomyoma (6.33%), apoplectic leiomyoma (3.8%), diffuse leiomyomatosis (5.05%), cotyledonoid leiomyoma (3.8%), palisaded leiomyoma (2.53%), vascular leiomyoma (3.8%), intravascular leiomyoma (2.53%), mitotically active leiomyoma (1.27%) and atypical leiomyoma (1.27%). Abraham and Saldanha in their study encountered leiomyoma variants in 7.5% cases, of which 78% were cellular leiomyomas, 9.5% were lipoleiomyoma and 4.7% were bizarre (symplastic) leiomyomas and 2.3% were epithelioid leiomyomas.[21]

Conclusion

From our study we can conclude that leiomyoma is the most common benign tumor of the uterus in our community. They are commonly seen in perimenopausal females and present with menorrhagia, pain in abdomen or dysmenorrhea. Intramural site was the most common location, hyaline change was the most common degeneration and cellular variant was the most common subtype seen. The pathologist needs to be cautious while diagnosing cases of atypical, mitotically active or bizarre leiomyoma due to their morphologic homogeneity with leiomyosarcoma.

References

1. Christopher PC. The female genital tract in: Kumar, Abbas, Fauster eds. Robbins and Cottron Pathologic Basis of Disease. 8th Ed. India Elsevier; 2010:1036-8.
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. Cramer SF, Patel A. The frequency of uterine leiomyomas. Am J Clin Pathol, 1990; 94:435-8.
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. Persaud V, Arjoon PD. Uterine leiomyoma: incidence of degenerative change and a correlation of associated symptoms. Obstetrics and Gynaecology, 1970; 35(3):329-492.
6. Samaila Modupeola OA, Adesiyun AG, Agunbiade OA, Mohammed D. A clinicopathological assessment of hysterectomies in Zaria. Eur J Gen Med, 2009; 6(3):150-3.
7. Ojeda VJ. The pathology of hysterectomy specimens. NZ Med J, 1979; 89(631):169-71.
8. Adelusola KA, Ogunniyi SO. Hysterectomies in Nigerians: histopathological analy-

sis of cases seen in Ile-Ife. Niger Postgrad Med Journal, 2001; 8:37-40.
9. Smooth JS, Zaloudek C. Myometrial and stromal lesions of the uterus Gynaecologic pathology. Clinics in Lab Medicine, 1995; 15(3):545-73.
10. Gupta G, Kotasthane D, Kotasthane V. Hysterectomy: a clinico-pathological correlation of 500 cases. The Internet Journal of Gynecology and Obstetrics, 2009; 14(1):1-5.
11. Rather GM, Gupta Y, Bardhwaj S. Patterns of lesions in hysterectomy specimens: a prospective study. JK Science, 2013; 15(2):35-8.
12. Vaidya S, Vaidya SA. Patterns of lesions in hysterectomy specimens in a tertiary care hospital. J Nepal Med Assoc, 2015; 53(197):18-23.
13. 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.
14. 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.
15. 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.
16. Sarfraz R, Sarfraz MA, Kamal F, Afsar A. Pattern of benign morphological myometrial lesions in total abdominal hysterectomy specimens. Biomedica, 2010; 26:140-3.
17. 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.
18. Siwatch S, Kundu R, Mohan H, Huria A. Histopathologic audit of hysterectomy specimens in a tertiary care hospital. Sri Lanka J Obstet Gynaecol, 2012; 34(4):155-8.
19. Jha R, Pant AD, Jha A, Adhikari RC, Sayami G. Histopathological analysis of hysterectomy specimens. J Nep Med Assoc, 2006; 45:283-90.
20. 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.
21. Abraham J, Saldanha P. Morphological variants and secondary changes in uterine leiomyomas. Is it important to recognize them? Int J of Biomed Research, 2013; 4(12):254-64.