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Histomorphological spectrum of Leiomyoma – a one year retrospective study

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ABSTRACT

Aims: To analyze the histomorphology of leiomyoma in specimens received in the Department of Pathology.

Methods: This is a retrospective descriptive study of histopathology database of histomorphologic spectrum of leiomyoma at Pathology Laboratory of Nobel Medical College Teaching Hospital, Biratnagar, Nepal from April 2020 to April 2021. Data for the leiomyoma were analyzed descriptively. Ethical approval was obtained from the Institutional review committee.

Results: A total of 1705 histopathology specimens were received in one year from April 2020 to April 2021 out of which 620 (37%) were from the Department of Gynecology and Obstetrics for histopathological analysis of various specimens. Total of 106 specimens of hysterectomy and myomectomy were included. Maximum number of leiomyoma was seen in the body 48 (45%) followed by fundus 34 (32%) and one from the lateral wall of the vagina 1 (0.9%). Mean age was 42 (24-70) years. Maximum size was 35 cm and minimum was 0.5 cm in diameter. Out of the rare ones one case of STUMP, Lipoleiomyoma and Mitotically active leiomyoma each were seen. Degenerative change was in 40 cases with hyaline type as the commonest one (33%); 61% were intramural; and 12% were multiple. Presentation was lower abdominal pain and abnormal uterine bleeding in 39.6%.

Conclusions: Cases of leiomyoma may present with abdominal mass, pain and bleeding but the degenerative changes and malignant transformation can't be identified without histopathological examination.

Keywords: abnormal uterine bleeding, degenerative changes, leiomyoma, myomectomy

INTRODUCTION

Leiomyoma (fibroid) are benign tumors which arise from the smooth muscle cells of the myometrium.¹ These are the most common benign tumors of uterus affecting 20-40% women of reproductive age group.²⁻⁴ The diagnosis is easily established by complete history and radiological findings. The histopathological examination analyses are the important tool to qualify and quantify the tumor according to the histopathological parameters that enable differential diagnosis of the neoplasm. The histomorphological changes subsequent to increased angiogenesis rate and proliferation of myomatous and fibroblast cells results in homoge-

nous appearance consisting of large bundles of smooth muscle cells, which are crisscrossed and arranged in fascicles mimicking the normal myometrial appearance. Various types of degenerative changes like hyaline, myxoid, cystic as well as dystrophic calcifications can be discerned.

Leiomyomas are the common findings in women with AUB. The abnormal bleeding in fibroids is due to increased size of uterine cavity thereby increasing the surface area of the endometrium, hyperestrogenemia causing endometrial hyperplasia, vascular alterations of the endometrium and obstructive effect of fibroid on uterine vasculature leading to en-

ometrial venule ectasia which causes proximal congestion in the myometrium and endometrium. Majority of the women having uterine fibroid with AUB are treated by hysterectomy.⁵⁻⁸

The aim of our study is to analyze various histopathological changes within the uterine leiomyoma in both hysterectomy and myomectomy specimens. And also, to analyze the site, size, degenerative changes, number and clinical manifestations associated with it.

METHODS

This is a retrospective descriptive study of pathology lab database analysis of histopathology specimens for Leiomyoma. The data were searched by primary search key “leiomyoma” and secondary search keys like “hyaline”, “myoma”, “abnormal uterine bleeding” and “fibroid”. The data from April 2020 to April 2021 were searched for the study. These data were entered and exported from Microsoft Excel to SPSS 20 Window to analyze. Results are presented in charts and tables by descriptive parameters.

RESULTS

Out of 1705 histopathology specimens received from April 2020 to April 2021, 620 (37%) specimens were from Department of Gynecology and Obstetrics. In this study a total of 106 specimens were included which consisted of hysterectomies, both abdominal and vaginal as well as laparoscopic myomectomy specimens. Hysterectomy specimens were 91 (85.8%) and myomectomy specimen were 15 (14.2%). In the present study, patients with leiomyomas were aged between 24 and 70 years with both mean and median age of 43 years. Majority 60 (56.6%) were in the age group of 40-49 years. [Figure-1]

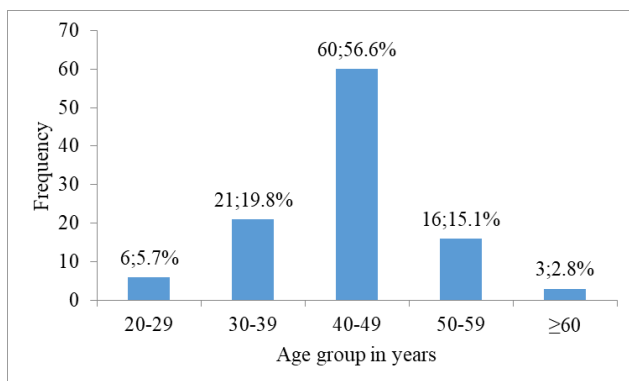


Figure-1: Age group distribution (N=106)

Abnormal uterine bleeding with lower abdominal pain was seen in 42 (39.6%), other clinical manifestations like pain abdomen 36 (34%), mass in the pelvic area 8 (8.4%) and uterovaginal prolapse 3 (2.8%) were also seen in the rest. Most common site for leiomyoma was the body 48 (45%) followed by fundus 34 (32%) of the uterus. Leiomyoma in the broad ligament was seen in 4 (3.8%) where the patients were all in their thirties. The least number was seen arising from the lateral wall of the vagina 1 (0.9%). Maximum size was 35 cm and minimum was 0.5 cm in diameter.

Most of the uteri leiomyoma were single accounting for 79 (74.5%) cases and in the remaining 27 (25.5%) cases the number varied from 2 to 10. In the present study, with respect to location, majority (67; 63.2%) were intramural leiomyoma followed by submucosal (14; 13.2%) and subserosal (7; 6.6%); and multiple location was seen in 13 (12.3%) cases.

Out of 106 specimens 54 (51%) were fibroid without any other microscopic changes. Adenomyosis was seen in 9 (8.4%) cases. The rare ones were STUMP (smooth muscle tumor of unknown malignant potential), Lipoleiomyoma and Mitotically active leiomyoma each. [Figure-2]

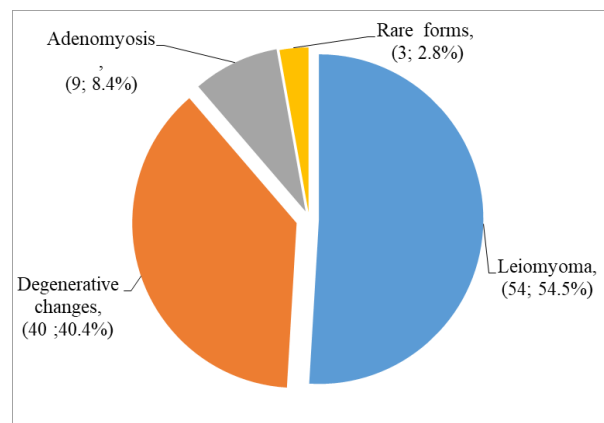


Figure-2: Histopathology of specimens (N=106)

Grossly, 10 (9.4%) showed degenerative changes. Microscopically, various histopathological changes occurring within leiomyomas were present in 40 (37.7%) of cases. Hyaline degeneration was the most common secondary degenerative changes. [Figure-3]

DISCUSSION

Leiomyomas are benign uterine neoplasm which account for one of the most common causes of

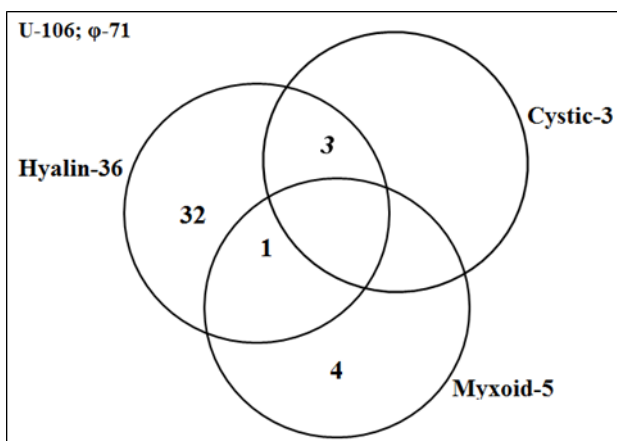


Figure-3: Venn diagram showing degenerative changes (N=40)

morbidity in the premenopausal age group. It is one of the most common indications for hysterectomy followed by Adenomyosis.⁸ In this study the mean age group is 42 years (24 to 70). This is similar to studies done by various researchers of the region.⁹⁻¹¹ Leiomyoma comprised of 17% of all gynecology samples received in one year which is a little less than other studies done.⁹⁻¹²

Literatures have shown that patients with uterine leiomyoma are asymptomatic, but if symptoms do appear it is usually manifested as lower abdominal pain and abnormal uterine bleeding (AUB). In the present study also it was seen in 42 (39.6%) cases followed by pain abdomen (36; 34%). The pain abdomen maybe due to the degenerative changes that occur within the leiomyoma.¹²⁻¹⁴

In the present study, number of leiomyoma in the uterus varied from 1-10, of which 79 (74.5%) were single which is in accordance with the study done by K Geethmala et al,¹² S Bhatta¹⁵ as well as Rosario.¹⁶ Most of the leiomyomas were intramural in location 67 (63.2%) which is similar to studies done by different researchers.¹²⁻¹⁶

In the current study, secondary degenerative changes were noted grossly in 10 (9.4%) cases. Microscopically histopathological degenerative changes were seen in 40 (37.7%). The degenerative changes in leiomyomas occur due to inadequate blood supply which may result in hyalinization, followed by cystic, myxoid, hydropic, hemorrhagic and calcification. The type of secondary changes depends on the rapidity and degree of vascular insufficiency.^{12,17,18} These secondary changes usually occur in old matured lesions and hence careful histopathological sampling should be carried out.

Lipoleiomyoma is a rarer variant of uterine leiomyoma showing histological features of varying amount of mature adipocytes amidst smooth muscle cells. In our study we had one case which is similar to studies done by Abraham and Saldanha where the frequency was 4 (0.7%).¹⁹

STUMP is defined by WHO as smooth muscle tumor that cannot be histologically diagnosed as unequivocally benign or malignant. Microscopy reveals minimal atypical smooth muscle neoplasm with low mitotic index <10/10 high power field but uncertainty about tumor necrosis.²⁰ Ip et al studied 16 cases of STUMP and concluded saying that these are usually benign but should be considered tumors of low malignant potential since they recur after years of hysterectomy.²⁰ In the present study we had one case only over the one year period.

CONCLUSIONS

Leiomyomas are benign tumors of the smooth muscle cells frequently seen in perimenopausal women. The present study highlights the different histomorphology of the lesion which explains the different clinical manifestations. Therefore, a complete histopathological examination should be made mandatory for confirm diagnosis, further management and complete treatment of the concerned patients.

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