Frequency and Histopathological variants of Leiomyoma in Uterine Specimens in a Tertiary Care Hospital.

Tabbassam Naheed Kauser¹, Abdul Ghafoor², Mohammad Sajjad³, Zubaida Khanum⁴, Bushra Nabi⁵, Hina Khan⁶

ABSTRACT

Background: Leiomyoma is the commonest benign smooth muscle tumor of uterus. It also occur in other organs like gall bladder, skin, gastrointestinal tract etc. Leiomyosarcoma is a rare malignant counter part of leiomyoma. 

Objective: To see the frequency of histopathological variants of leiomyomas in uterine specimens in Southern District of Khyber Pakhtunkhwa Pakistan. 

Material and Methods: This descriptive study was conducted in Department of Pathology, Bannu Medical College Bannu in collaboration with Government and Private Hospitals of the Southern District of KPK. The duration of study was seven years from January 2011 to December 2017. A total of 210 specimen of leiomyoma were included in this study. Inclusion criteria was all biopsies of uterine leiomyomas of any age. Exclusion criteria was all biopsies were fixed over night in 10% buffered formalin, processed for histopathological slides preparation. Finally slides were prepared, labeled and reported by Histopathologist. All the data was analysed in Statistical Package for Social Sciences (SPSS) version 20 for frequency with percentages and mean with standard deviation.

Results: In this study of 210 leiomyoma cases, the age range was from 25-65 years. The commonest age group was 36-45 years followed by 25-35 years. The frequency of leiomyoma was 21.5% amongst the total uterine biopsy specimen. Histologically the usual leiomyoma was comprising of 176(83.80%) followed by hyalinised leiomyoma 11 (5.23%), myxoid leiomyoma 09(4.28%), lipoleiomyoma 05 (2.38%), cellular leiomyoma 04 (1.90%), shwannian leiomyoma 03 (1.42%) and one each of symplastic and angioleiomyoma 01 (0.47%).

Conclusion: Leiomyoma which is the commonest benign smooth muscle tumor of uterus have a number of histological variants. In this study usuall leiomyoma was the commonest variant followed by hyalinated leiomyoma, myoid leiomyoma and lipoleiomyoma. It is important to separate various types of leiomyoma on histology to avoid confusion of misdiagnosis.


INTRODUCTION

Leiomyoma is the commonest benign tumor of the uterus, usually no clinical symptoms are there when small, when large may causes abnormal uterine bleeding, pressure sensation in perineum, lower abdominal pain and sometimes associated with missed abortion or infertility.

The exact aetiology of leiomyoma is not known, these are considered as monoclonal tumors and runs in families with approximately 40 to 50% reveals karyotypic abnormalities.

Leiomyoma typically occurs during the reproductive years of ages. An average about 50% of women develop uterine leiomyomas by the age of 50 years. They are clinically noted in 20-30% of women over the age of 30 years. In 2013 it was estimated that about 171 million of women were suffering from uterine leiomyoma.

Leiomyoma is one of the common cause of gynaecological surgery in form of hysterectomy or myomectomy worldwide. The reason for hysterectomy and myomectomy is clinical symptomatology which the patient suffers in their clinical course.

Leiomyomas of uterus are commonly located intramurally (within the myometrium) followed by subserosal (perimetrium)and submucosal location (beneath the endometrium). Also liomyoma can occur in broad ligament, separate from uterus as well in the vicinity of uterus.

There are different histological variants of leiomyomas. These are usual leiomyoma, cellular leiomyoma, epithelioid leiomyoma, myoid leiomyoma, angioleiomyoma, lipoleiomyoma, atypical/symphlastic leiomyoma etc. Grossly leiomyomas are well circumscribed solid, firm tumors usually solitary or may be multiple in 2/3 cases. Microscopically usual leiomyoma is composed of whorl anastomosing fasicles of...
uniform smooth muscles cells, cellular leiomyoma is more cellular as compared to usual leiomyoma, epithelial like muscles fibres, myxoid leiomyoma have myxoid background with interspersed smooth muscle cells, angioleiomyoma contain predominant blood vessels in background, lipoleiomyoma contain entrapped foci of adipocytes in between where as atypical/symplastic leiomyoma contain scattered large cells with ancient changes. The objective of this study was to see the frequency histopathological variants of uterine leiomyoma in the southern districts of KPK, Pakistan.

MATERIALS AND METHODS
This descriptive study was conducted in Department of Pathology, Bannu Medical College Bannu in collaboration of Government and Private Hospitals of the Southern Districts Bannu, Karak, Lakki Marwat, FR Bannu etc. The biopsies were carried out and reported in a private Shah Noor laboratory at Bannu by a qualified Histopathologist. The duration of study was seven years from January 2011 to December 2017. A total of 210 specimen of leiomyoma were included in this study. Inclusion criteria was all biopsies of uterine leiomyomas from hysterectomy or myomectomy specimen of any age. Exclusion criteria was autolysed and insufficient biopsy specimen. All biopsies were fixed over night in 10% buffered formalin, processed for histopathological slides preparation. Finally slides were prepared, labeled and reported by Histopathologist.

All biopsies were collected with relevant clinical information, registered, labeled and fixed in 10% buffered formalin overnight. Next day gross performed, sections taken, processed in various concentrations of ethonal, xylol, solid paraffin wax. Blocks prepared freezeed in refrigerator, 5 micron thin microtome sections taken, slides prepared, and processed for Hematoxylin and Eosin staining. Lastly slides mounted with DPX and reported by Histopathologist. All the data was analysed in Statistical Package for Social Sciences (SPSS) version 20 for frequency with percentages and mean with standard deviation.

RESULTS
In this study of 210 leiomyoma the age range was from 25-60 years with mean age of 37.55±12.8 years. The frequency of leiomyoma was 21.5% amongst total uterine biopsy specimen. The number of total uterine biopsies were 974 amongst which 210 were leiomyoma. On gross examination intramural leiomyomas were 136 (64.76%) followed by subserosal leiomyomas 59 (28.09%), 12 (5.71%) and broad ligament leiomyoma 03 (1.42%). Histologically the usual leiomyoma was comprising of 176(83.80%) followed by hyalinised leiomyoma 11 (5.23%), myxoid leiomyoma 09(4.28%), lipoleiomyoma 05 (2.38%), cellular leiomyoma 04 (1.90%), schwannian leiomyoma 03 (1.42%) and one each of symplastic and angioleiomyoma leiomyoma 01 (0.47%).

Table 1. Different age groups distribution of uterine leiomyomas (n=210).

<table>
<thead>
<tr>
<th>Age group in years</th>
<th>Number of cases</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-35</td>
<td>57</td>
<td>27.14%</td>
</tr>
<tr>
<td>36-45</td>
<td>104</td>
<td>49.52%</td>
</tr>
<tr>
<td>46-55</td>
<td>42</td>
<td>20.00%</td>
</tr>
<tr>
<td>&gt;55</td>
<td>07</td>
<td>3.33%</td>
</tr>
<tr>
<td>Total</td>
<td>210</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2. Histological variants of uterine leiomyomas (n=210).

<table>
<thead>
<tr>
<th>Type of leiomyoma</th>
<th>Number of cases</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual leiomyoma</td>
<td>176</td>
<td>83.80%</td>
</tr>
<tr>
<td>Hyaline leiomyoma</td>
<td>11</td>
<td>5.23%</td>
</tr>
<tr>
<td>Myxoid leiomyoma</td>
<td>09</td>
<td>4.28%</td>
</tr>
<tr>
<td>Liopleiomyoma</td>
<td>5</td>
<td>2.38%</td>
</tr>
<tr>
<td>Cellular leiomyoma</td>
<td>4</td>
<td>1.90%</td>
</tr>
<tr>
<td>Schwannian leiomyoma</td>
<td>3</td>
<td>1.42%</td>
</tr>
<tr>
<td>Symplicity leiomyoma</td>
<td>1</td>
<td>0.47%</td>
</tr>
<tr>
<td>Angioleiomyoma</td>
<td>1</td>
<td>0.47%</td>
</tr>
</tbody>
</table>
Histopathological variants of Leiomyoma in Uterine Specimens in a Tertiary Care Hospital.

Figure: I. Usual leiomyoma. 4x10 view.

Figure: II. Cellular leiomyoma. 4x10 view.

Figure: III. Angioleiomyoma. 4x10 view.

Figure: IV. Schwannian leiomyoma. 10x10 view.

Figure: V. Hyalinized leiomyoma. 10x10 view.

Figure: VI. Myxoid leiomyoma. 10X10 view.
DISCUSSION

Leiomyoma also called fibroid or myoma are common uterine neoplasm occurring in 20-25% in women of reproductive age. Although benign, may cause problem like menorrhagia, dysmenorrhea, infertility etc. They may need hormone for their growth and maintenance as they have increased estrogen receptors than normal uterine myometrium. Leiomyoma may undergo secondary changes, such as hyalinization, calcification as well as myxoid changes.  

In this study the age range was from 25-60 years with mean age of 37.55±12.8 years. In a study conducted by Abraham et al in India in 2013 the age range was from 20-72 years. Other studies conducted by Lahori and Gowri et al in India in 2016 and 2013 the age range was from 18-62 years and 25-59 years respectively.

In this study the majority of the patients were in the age group of 36-45 years 49.52% followed by 26-35 years 27.14%, 46-55 years 20.00% and above 55 years 3.33%. In a study conducted by Abraham et al the common age group was from 41-50 years 46.5%. Other studies conducted by Lahori and Gowri et al in 2016 and 2013 the common age groups were 41-50 years 46.84% and 49% respectively.

In this study the frequency of leiomyoma was 21.5%. Other studies conducted by Zaid et al, Adelusola et al, Talukdar et al and Borgfeldt et al show frequency of leiomyoma 26%, 17%, 13% and 8% respectively. These studies show their frequencies near to this study, where as other studies conducted by Pitty et al, Naheed et al and Sobande et al show frequencies of leiomyomas as 36%, 40% and 48% respectively, which are slightly higher than this study.

In this study intramural leiomyomas were 136 (64.76%) followed by subserosal leiomyomas 59 (28.09%), submucosal leiomyoma 12 (5.71%) and leiomyoma of broad ligament were 03 (1.42%).

In a study conducted by Lahori et al intramural leiomyomas were 56.86% followed by subserosal leiomyomas 31.37%, submucosal leiomyoma 8.83%) and leiomyoma of broad ligament were 2.94%). Another study conducted by Gowri et al intramural leiomyomas were 48% followed by subserosal leiomyomas 16%, submucosal leiomyoma 03%) and leiomyoma of other locations were 33%. Another study conducted by Priyadarshini et al in 2018 in India the intramural leiomyomas were 67% followed by subserosal leiomyomas 20%, submucosal leiomyoma 11%) and leiomyoma of broad ligament were 2%.

In this study usual leiomyomas was 83.80% followed by hyalinised leiomyoma 5.23%, myxoid leiomyoma 4.28%, lipoleiomyoma 2.38%, cellular leiomyoma 1.90%, shwannian leiomyoma 1.42% and both symplastic and angioleiomyoma leiomyoma as 0.47%.

In a study conducted by Lahori et al the usual leiomyoma was 53.16% followed by hyalinised leiomyoma 6.33%, myxoid leiomyoma 3.8%, cellular leiomyoma 6.3%, angioleiomyoma 3.8%. Another study conducted by Kokila et al in 2017 in India the usual leiomyoma was 88.6% followed by hyalinized leiomyoma 6.34%, cellular leiomyoma 0.48% symplastic leiomyoma 0.28% and shwannian leiomyoma 0.142%. Another study conducted by Manjula et al in 2011 the usual leiomyoma was 95.45%, lipoleiomyoma 2.05%, myxoid leiomyoma 0.45%, cellular leiomyoma 0.45% and shwannian and symplastice leiomyoma as 0.22%.

CONCLUSION

Leiomyoma which is the commonest benign smooth muscle tumor of uterus have a number of histological variants. In this study usual leiomyoma was the commonest variant followed by hyalinized leiomyoma, myxoid leiomyoma, lipoleiomyoma etc. It is important to separate various types of leiomyoma on histology to avoid confusion of misdiagnosis.

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DATA SHARING STATEMENT: The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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AUTHOR’S CONTRIBUTION Following authors have made substantial contributions to the manuscript as under

Kausar TN: Concept and design of study, Collection of data, statistical analysis

Ghafoor A, Sajjad M: Writing of manuscript, critical review of manuscript

Khanum Z: Analysis and interpretation of data, statistical analysis

Nabi B, Khan H: Data collection, bibliography

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.