



COMPARING PRE-OPERATIVE FIBROID MAPPING BY TRANSABDOMINAL ULTRASONOGRAPHY TO INTRAOPERATIVE FINDINGS-A COMPARATIVE STUDY

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ABSTRACT

Introduction- Uterine fibroids are the most common benign tumours of the uterus in women of child bearing age. Two important considerations involved in the decision to undertake surgery are the location of fibroid and whether or not uterine cavity distorted. **Objectives-** To determine accuracy of transabdominal ultrasonography in detecting the number of fibroids and to determine the correlation between transabdominal ultrasonography fibroid mapping and intra operative findings. **Methods-** A retrospective observational study conducted in a tertiary care center. 38 women who were diagnosed with fibroid uterus and underwent laparoscopic or abdominal or hysteroscopic myomectomy during study period from 1st January 2022 to 30th June 2023, meeting inclusion and exclusion criteria were considered as study subjects. Transabdominal ultrasonography was reviewed for number of fibroids, location, type and the same was correlated with intraoperative findings. Relevant statistical tests were applied. p value of <0.05 was considered as statistically significant after assuming all the rules of statistical tests. **Result-**The study found that 38 women met the eligibility criteria. The results showed that preoperative transabdominal ultrasonography accurately predicted the exact number of fibroids in 57.9% of cases ($p < 0.001$). There was significant difference between ultrasonography and intra operative findings. However, it detected fundal fibroids in 86.8% of cases ($p = 0.157$), anterior wall fibroids in 73.7% of cases ($p = 0.206$), posterior wall fibroids in 65.8% of cases ($p = 0.052$) and subserosal fibroids in 78.9% of cases ($p = 0.132$) accurately. There was no significant difference in the number of fibroids between the preoperative ultrasonography and intraoperative findings. **Conclusion-** Ultrasonography is an effective initial investigation tool for mapping fibroids for myomectomy. While it may not provide the exact number of fibroids, it does reasonably indicate their location. This information can be valuable in reducing the time required during surgery, planning uterine incision and planning route of surgery.

KEYWORDS : Fibroid mapping, ultrasonography, myomectomy

INTRODUCTION

Uterine fibroids are the most common benign tumours of the uterus in women of child bearing age¹. They are monoclonal smooth muscle tumors arising from the myometrium. While benign, their growth is dependent on estrogen and progesterone levels and thus fibroids may enlarge with pregnancy and use of oral contraceptives and regress during menopause². Most women with fibroids are asymptomatic and nearly a third of patients have significant symptoms such as dysmenorrhea, menorrhagia, abnormal uterine bleeding, secondary anaemia, pelvic pain, and infertility^{3,4}.

The standard treatment for symptomatic leiomyoma is surgical treatment, which is either hysterectomy in whose age is above child bearing age or myomectomy in women who wish to preserve fertility and their uterus⁵. Two important considerations involved in the decision to undertake surgery are the location of fibroid and whether or not uterine cavity distorted⁶. Ultrasound is the preferred method for evaluating fibroids because of its simplicity, non-invasiveness, dependability, immediate availability in the outpatient clinic and lower cost^{7,8}. A structured, accurately illustrated ultrasound report of fibroids aids in proposing the optimal treatment approach, be it hysteroscopy, laparoscopy, laparotomy or embolization^{9,10}.

The aim of this study is to compare the transabdominal ultrasonography with intra operative findings in detecting the number of fibroids, type and location.

Objectives

- To determine accuracy of transabdominal ultrasono-

graphy in detecting the number of fibroid.

- To correlate the findings of transabdominal ultrasonography fibroid mapping with intra operative findings with respect to number of fibroids, type and location.

Methodology

- A retrospective observational study conducted in KVG Medical College and Hospital, Sullia during study period of 18 months from 1st January 2022 to 30th June 2023. All the patients who were diagnosed with fibroid uterus in the above mentioned period fulfilling the following criteria were included in this study.
- Inclusion Criteria:** Fibroid uterus patient who underwent laparoscopic or abdominal or hysteroscopic myomectomy from 1st January 2022 to 30th June 2023
- Exclusion Criteria:** Patient with other coexisting disease like endometriosis, adenomyosis and severe pelvic adhesions.

Data was collected regarding age of the patient and indication for the surgery.

Findings of transabdominal ultrasonography was reviewed for number of fibroids, location, type and the same was correlated with intraoperative findings.

Data was entered into Microsoft excel data sheet and was analysed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Chi-square test was used as test of significance for qualitative data. Continuous data was represented as mean and standard deviation. Normality of the continuous data, was

tested by Kolmogorov–Smirnov test and the Shapiro–Wilk test.

Wilcoxon Signed rank test is the test of significance for paired data such as before and after surgery for quantitative data with skewed distribution.

Graphical representation of data- MS Excel and MS word were used to obtain various types of graphs such as bar diagram, Pie diagram.

p value (Probability that the result is true) of <0.05 was considered as statistically significant after assuming all the rules of statistical tests.

RESULT

In our study, most of the patients belonged to the age group of 31-35 years followed by 26-30 years and least was in age group of <21 years.

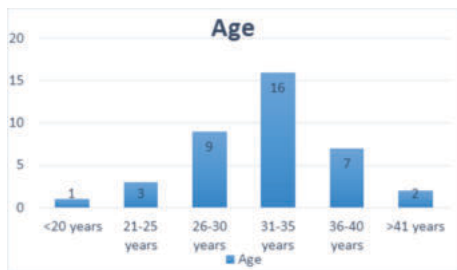


Figure 1: Age Distribution

Most of the patient had primary infertility followed by secondary infertility and only 3 had abnormal uterine bleeding as an indication for myomectomy. 26 patients underwent laparoscopic myomectomy, 5 underwent combined laparoscopic and hysteroscopic myomectomy and 7 underwent open myomectomy.

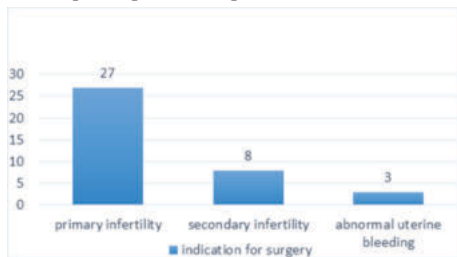


Figure 2: Indication For The Surgery

- The Preoperative USG predicted exact number of fibroids in 57.9% of cases but in 42.1% cases more number of fibroids were found intraoperatively (p value= < 0.001). There was significant difference between ultrasonography and intra operative findings.
- With reference to location of the fibroid-The ultrasonography detected exactly same number of fibroids as intra operative findings in 73.7% of anterior wall fibroids (p value=0.206), 65.8% of posterior wall fibroids (p value=0.052), 86.8% of fundal fibroids (p value= 0.157). There was no significant difference in number of fibroid between preoperative ultrasonography and intra operative findings.
- But in right Lateral fibroid and left lateral fibroid (p value=<0.001) and there was significant difference between ultrasonography and intra operative findings.
- With reference to type of fibroid - sub serosal fibroids were detected exactly same as intra operative findings in 78.9% (p value=0.132). There was no significant difference in number of fibroid between preoperative ultrasonography and intra operative findings.
- But in submucosal fibroids (p value= <0.001) and intramural fibroids (p value=0.005), there was significant

difference between ultrasonography and intra operative findings and ultrasonography was unable to detect exact number of fibroids as intra operative findings

Table 1: Ultrasound Findings In Comparison With Intra Operative Findings

	Same (%)	less (%)	more (%)	p value	Significant difference (yes/no)
Total	57.9	42.1	-	<0.001	YES
Anterior wall	73.7	18.4	7.9	0.206	NO
Posterior wall	65.8	26.3	7.9	0.052	NO
Fundal	86.8	10.5	2.6	0.157	NO
Right lateral wall	66.7	33.7	11.5	<0.001	YES
Left lateral wall	72.7	27.3	3.7	<0.001	YES
Submucosal	88.9	11.1	3.4	<0.001	YES
Intramural	68.4	29	2.6	0.005	YES
Subserosal	78.9	18.4	2.6	0.132	NO

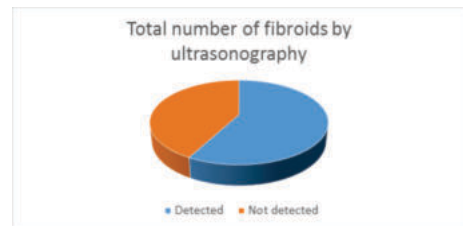


Figure 3: Detection Of Total Number Of Fibroids By Ultrasonography In Comparison With Intra Operative Findings

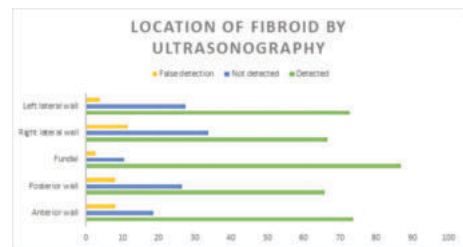


Figure 4: Detection Of Location Fibroid By Ultrasonography In Comparison With Intra Operative Findings

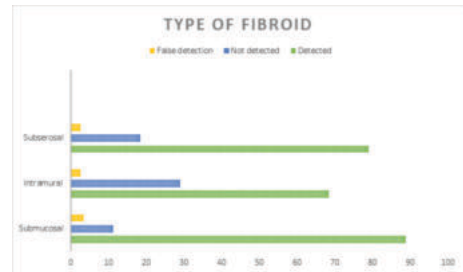


Figure 5: Detection Of Type Fibroid By Ultrasonography In Comparison With Intra Operative Findings

DISCUSSION

- In our study, most of the patients had primary infertility, few had secondary infertility and abnormal uterine bleeding.
- In this study, myoma mapping detected exact number of fibroids in 57.9% and could not detect in 42.2% of cases. In the study conducted by Chitkara et al¹¹, they reported that out of 42 patients, magnetic resonance imaging accurately predicted the number of fibroids in 26 patients (61.9% of cases).

CONCLUSION

- Ultrasonography is an effective initial investigation tool for mapping fibroids for myomectomy. While it may not provide the exact number of fibroids, it does reasonably indicate their location.

- This information can be valuable in reducing the time required during surgery, planning uterine incision and planning route of surgery.

REFERENCES

- 1) Omole – Ohonsi A, Belga F. Surgical management of uterine fibroids at Aminu Kano Teaching Hospital. *Obstet Gynecol Intl.* 2012; 702325: 1 – 6.
- 2) Bulun, S. E. (2013). Uterine fibroids. *New England Journal of Medicine*, 369(14), 1344–1355.
- 3) Gomez, E., Nguyen, M. L. T., Fursevich, D., Macura, K., & Gupta, A. (2021). MRI-based pictorial review of the FIGO classification system for uterine fibroids. *Abdominal Radiology*, 46, 2146–2155.
- 4) Keizer, A. L., Van Kesteren, P. J., Terwee, C., De Lange, M. E., Hehenkamp, W. J., & Kok, H. S. (2021). Uterine fibroid symptom and quality of life questionnaire (UFS-QOL NL) in the Dutch population: a validation study. *BMJ open*, 11(11), e052664.
- 5) TaS, demir N, Çelik C, Abalı R, Kayalı A, Gül A, Özdamar Ö. Laparoscopic versus abdominal myomectomy postoperative outcomes. *Gynecol Obstet Reprod Med.* 2014;20(1):48-52.
- 6) Li TC, Mortimer R, Cooke ID. Myomectomy: a retrospective study to examine reproductive performance before and after surgery. *Hum Reprod.* 1999 Jul;14(7):1735-40.
- 7) Nusair, B., Al-Gudah, M., Chodankar, R., Abdelazim, I. A., & Faza, M. A. (2016). Uterine fibroid mapping. *Current Obstetrics and Gynecology Reports*, 5, 73-80.
- 8) Palheta, M. S., Medeiros, F. D. C., & Severiano, A. R. G. (2023). Reporting of uterine fibroids on ultrasound examinations: an illustrated report template focused on surgical planning. *Radiologia Brasileira*, 56, 86-94.
- 9) Van den Bosch, T., Dueholm, M., Leone, F. P. G., Valentin, L., Rasmussen, C. K., Votino, A., ... & Timmerman, D. (2015). Terms, definitions and measurements to describe sonographic features of myometrium and uterine masses: a consensus opinion from the Morphological Uterus Sonographic Assessment (MUSA) group. *Ultrasound in Obstetrics & Gynecology*, 46(3), 284-298.
- 10) Wu, X. J., Guo, Q., Cao, B. S., Tan, L. X., Zhang, H. Y., Cai, Y. R., & Gao, B. L. (2016). Uterine leiomyomas: safety and efficacy of US-guided suprapubic transvaginal radiofrequency ablation at 1-year follow-up. *Radiology*, 279(3), 952-960.
- 11) Chitkara A, Kriplani A, Lata K, Kriplani I. The true fibroid map: Correlating preoperative MRI and intraoperative findings. *Journal of Minimally Invasive Gynecology.* 2021;28(11).