



## Fibroid in Pregnancy- Associated Factors

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### Abstract

**Introduction:** *Fibroids are the commonest pelvic tumors and account for major bulk of patients in gynecology. Around 40% of women in reproductive age have fibroids. The prevalence of fibroid in pregnancy ranges from 1.6 to 10.7%.*

**Aim:** *To assess the factors associated with pregnancies complicated by fibroids.*

**Materials & Methods:** *A case control study conducted in SAT Hospital, Trivandrum which is a tertiary care teaching Centre.*

**Results:** *Fibroid in pregnancy was seen to be associated with better socioeconomic status and associated better literacy, primigravidas, nonvegetarian diet, positive family history in a first degree relative and history of infertility.*

**Conclusion:** *It must be an association of a number of non-modifiable and modifiable risk factors that play together in the development of fibroid.*

**Keywords:** *Fibroid, associated factors, Leiomyoma.*

### Introduction

Fibroids or leiomyoma are benign tumors arising from the smooth muscle cells of the uterus. Uterine fibroids can be corporal which arise from the body of the uterus or cervical. Corporal fibroids can be intramural, sub mucous or sub serous. Though fibroids are the commonest tumors of female genital tract, its etiology is not clear. Several factors have been suggested as causative but except reproductive age, none of these are definite. The factors predisposing to occurrence of fibroid include non-modifiable factors and modifiable factors. The non-modifiable factors include race, genetics and age. Fibroids are more common and occur at a younger age in African – American women, while symptomatic fibroids are less common in Asian

women. Women with history of a close relative like mother or sister having fibroid are more predisposed. Fibroids mostly occurs in the fourth and fifth decade of life. This is mainly due to the effect of estrogen. Whatever be the causative factors, estrogen stimulates growth of a fibroid as is evidenced in pregnancy. Most fibroids are seen to shrink after menopause. The modifiable risk factors are associated with the life style of the patient. Obesity and hypertension have been suggested as a risk factors. Dietary factors like red meat ingestion and consumption of alcohol and coffee are thought to be risk factors while intake of green leafy vegetables are thought to be protective. Use of oral contraceptive have also been shown to increase the incidence of fibroid.

Pregnancy can affect a fibroid and vice versa. The estrogen increase in pregnancy is responsible for a significant increase in size of the fibroid especially in the first trimester. The shape of the tumor may be altered by the gravid uterus. Fibroid may undergo red degeneration or torsion in pregnancy. The fibroid in turn can affect the maternal and fetal outcome of the pregnancy.

### Aim

To assess factors associated with fibroid complicating pregnancy.

### Materials and Methods

A case control study was conducted in SAT hospital Trivandrum. Cases were 137 pregnant women of gestational age >28 weeks who had a fibroid > 3 cm in size diagnosed by ultrasound scan. Controls were 137 pregnant women of gestational age more than 28 weeks in whom ultrasound scan had confirmed the absence of a fibroid. A semi structured questionnaire was used to collect data after taking an informed consent. Information regarding age, religion, socioeconomic status, educational qualification, diet, family history, infertility and parity was noted.

The data was entered in excel sheet and statistical analysis done. Statistical constants like mean, percentage, Odds ratio etc. were computed using appropriate formulas to see the association between variables.

### Results

The mean age of pregnant women with fibroid is 30.7 while the mean age of pregnant women without fibroid is 28.7. There was no statistically

significant difference and so cases and controls were comparable with regard to age. Majority of women in either group were Hindus which reflect the proportion in the general population. There was no significant difference. 80.3% of cases belonged to middle socioeconomic status while only 62% of controls belonged to middle socioeconomic status. (Table 1). Better income was an associated factor of fibroid in pregnancy. This was found to be statistically significant. In this study 56.2% of pregnant women with fibroids were graduates while only 121.9% of women without fibroid were graduates (Table 2). The p value was <0.001 and this was highly significant. Hence high level education was an associated factor in this study. 55.5% of cases were primigravidas while 35.8% of controls were primigravidas. 9.5% of cases and 20.4% of controls had two children (Table 3). This was found to be statistically significant. 40.9% of women with fibroid followed a predominantly nonvegetarian diet while this was only 10.2% among women without fibroid. (Table 4) This was found to be significant. So more of nonvegetarian diet is an associated factor for fibroid. There was a relative risk of 3.73.

On assessing family history, no association was found with history of mother having fibroid (Table 5) while there was significant association with history of a sister having fibroid (Table 6). Positive history was present in 13.9% of cases compared to only 1.5% in controls. H/o infertility was more (39.4%) in cases compared to controls (8%) (Table 7). No association was noted between previous abortion and presence of fibroid.

**Table No.1** Distribution According to Socio Economic Status

SES	Exposed		Non Exposed	
	Number	%	Number	%
Middle	110	80.30	85	62.00
Low	27	19.90	52	38.00
Total	137	100	137	100

X<sup>2</sup> 91) = 10.24 p = 0.0014 OR = 2.49 (1.40 4.46) R.R. = 1.29 (1.11 1.51)

**Table No.2:** Distribution According to Educational Statue

Education	Exposed		Non Exposed	
	Number	%	Number	%
Degree	77	56.20	30	21.90
School	60	43.80	107	78.10
Total	137	100	137	100

$X^2(1) = 13.92$   $p = 0.00019$  OR= 2.78 (1.59 – 4.88) RR = 2.00 (1.38 – 2.89)

**Table No.3** Distribution According to Parity

	Exposed		Non Exposed	
	Number	%	Number	%
P0	76	55.5	49	35.8
P1	48	35	60	43.8
P2	13	9.5	28	20.4
Total	137	100	137	100

$X^2 = 12.563$   $p = 0.002$

**Table No.4** Distribution according to diet

Diet	Exposed		Non Exposed	
	Number	%	Number	%
Non Veg	56	40.90	15	10.90
Veg	81	59.10	122	89.10
Total	137	100	137	100

$x^2 = 30.42$   $p = 0.000000$  OR = 5.62 (2.86 -11.18) RR = 3.73 (2.22- 6.27)

**Table No.5** Family history in sisters

Previous History	Exposed		Non Exposed	
	Number	%	Number	%
Yes	19	13.9	2	1.5
None	118	86.1	135	98.5
Total	137	100	137	100

$\chi^2 = 14.904$   $p = 0.000$  OR = 10.86 CI (2.480 – 47.641) RR = 9.500 CI (2.256 – 40.002)

**Table No. 6** Distribution according to previous h/o abortion

Prev. h/o abortion	Exposed		Non Exposed	
	Number	%	Number	%
Yes	49	35.8	39	28.5
No	88	64.2	98	91.5
Total	137	100	137	100

$\chi^2 = 1.674$   $p = 0.196$

**Table No.7** Distribution according to history of infertility

h/o infertility	Exposed		Not exposed	
	Number	%	Number	%
Yes	54	39.4	11	8
No	83	60.6	126	92
Total	137	100	137	100

$X^2=35.58$   $P=0.000$  OR=7.45 CI(3.52-16.10) RR=4.91 CI(2.68-8.98)

**Discussion**

Reproductive age group is a definite risk factor for fibroid. Several studies have shown increased prevalence as age increase<sup>1,2</sup>. In this study though the pregnant women with fibroid had a higher mean age, this was not statistically significant. We also found that the association with fibroid is less

as parity increases and it is more in women with infertility. This has been in consistence with findings of several previous studies<sup>3,4,5</sup>. This may be because pregnancy reduces the time of exposure to unopposed estrogen. Another explanations may be that fibroids are the actual cause of infertility, rather than the cause.

Though some studies have shown associations between fibroid and previous history of abortions<sup>6</sup> our study did not shown any such association. This study identified a predominantly nonvegetarian diet as an associated factor in fibroid complicating pregnancy. Chiafferino et al<sup>7</sup> has showed a positive relation between high intake of red meat and fatty foods as increasing the risk of fibroids. This study showed significant association of family history of fibroids in sister while not in mother. A Japanese study also showed increased risk of fibroids in women with history of fibroids in first degree relatives of 31.5% versus 15.2% in controls<sup>8</sup>. VanVoorhis et al found maternal history to be a significant risk factor<sup>9</sup>. Recent cytogenetic and genetic studies have shed some light on the etiology of fibroids. According to latest studies 40% have some chromosomal abnormalities, the most common association being with chromosomes 6, 7, 12, and 14. It has been linked to mutations of fumartatehydralase gene<sup>10</sup>.

### Conclusion

In spite of its high prevalence and multitude of studies in the field, the exact etiology of fibroid remains elusive. Its origin and growth may be attributed to a combination of genetic, hormonal and environmental factors. Further research is needed in this field to understand a definite etiology and association.

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