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Research Article

**Impact of the Uterine Fibroids on the Feminine Infertility
at the level of the Maternity of Sidi Bel Abbés (West
Algeria)**

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Abstract

Several epidemiological studies have demonstrated the relationship between the existence of fibroids and the occurrence of infertility; indeed fibroids have been reported in 25-30% of infertile women and are responsible for them alone to 2 to 3% of infertility cases when no other cause was found. The objective of this study was to investigate the probable association between the presence of a fibroid and the occurrence of infertility in the region of Sidi bel Abbès, west of Algeria.

In order to determine the correlation between uterine fibroids and female infertility, we performed a retrospective study including 83 patients operated for fibroids in the Maternity

Hospital of Sidi Bel Abbes during the period of May 2011-May 2012.

The study showed that the most affected groups of women are the ones aged between 40 and 49 years old, 51.81 % of them were nulliparous and we found a predominance of patients with early age of menarche (77.11 %), 3.71 % of the women affected had a family history of fibroids. 49.16 % (29 cases) suffered from sterility, which 33.89 % were primary infertility and 15.25% secondary infertility. We also found that the association between fibroids and infertility concerns more nulliparous women whose infertility is primary.

We also found an association with infertility and fibroids with age; the older the women become the more their fertility

potential decreases and the more increased risk for them to suffer from fibroids. Concerning spontaneous abortions, we found that they were more frequent in women with at least one fibroid associated with secondary infertility.

In our study, we found that 49.16% of the patients suffered from subfertility, so the association between fibroids and female infertility is not uncommon; it would be interesting to investigate the possible interactions between this disease and infertility and the various mechanisms by which uterine fibroids can cause infertility.

Keywords: female infertility, fibroids, Risk factor, Sidi Bel Abbes, Algeria.

Introduction

Uterine Fibroids are the most common benign (non-cancerous) tumor found in women. There seems to be a relationship between fibroids and infertility; in fact these benign tumors have been associated with subfertility in 5-10 as demonstrated by Buttram Jr et al(1981), and this relationship has become more obvious because of the fact that surgical intervention does actually increase pregnancy rates. For example, myomectomy for fibroid-associated infertility has been associated with 50 % of women conceiving after the intervention, as shown by Somigliana et al (2007), making it clearer that there is a relation between fibroids and infertility

But, despite the existence of many studies assessing the correlation between fibroids and infertility, the exact mechanisms by which these benign tumors affect the reproductive function is still unclear for both difficulty conceiving and early pregnancy loss; even if the exact way that fibroids interfere with fertility is not clear cut, there are several theories.

One of them published by Buttram et al (1981) incriminates the hyperestrogenic environment to be responsible for the anovulatory cycles. Other theories mentioned by Buttram et al (1981) and Deligdisch et al (1970) said that the pathological changes of the endometrium and myometrium caused by the presence of fibroids are responsible for implantation failure. And, Richards et al (1998) have said that infertility is caused by a problem in uterine contraction which makes it difficult for

spermatozoa to reach the ovocyte or make it difficult for the ovum to be able to accomplish nidation in normal way, and thus, creating infertility problem for women.

However, not only the presence of fibroids can cause infertility, but it is also related to the anatomical location; all fibroid do not cause infertility to the same extent. For example, it have been shown by Eldar-Geva et al (1998) that the submucosal fibroids are most associated with infertility followed by intramural fibroids and finally subserosal fibroids are the least associated with infertility.

The present retrospective study was performed to evaluate whether uterine fibroids may influence the reproductive function in women and cause decrease in fertility.

Methods

We did a retrospective study using the archived records of 83 patients who visited the Maternity and were treated with surgery to remove fibroids, for a period ranging from 2 May 2011 to 14 May 2012.

We have established an individual survey sheet containing the following variables: The Age of the women, The number of abortions they had in the past, the marital status, the Parity; the existence of Gyneco-obstetric history problems and family history of fibroids, the age of menarche; The reasons for consultation; The number of fibroids, their location and their size, the type of intervention; and the infertility problem.

Data of the questionnaire were analyzed using the software program stat-view (1998). Frequencies and percentages were calculated. ANOVA test was performed to investigate the significance in the association of the different variables and infertility. Correlations were considered significant with the observed significance level (P-value was <0.05).

Results

May 2, 2011 to may 14 2012, 2886 pregnant women attended the MCH center in Sidi Bel Abbes (west of Algeria). 83 women were recruited. The mean age was 41 ± 8.11 years (range 26-68 years).

Of the 83 women affected by uterine fibroid, 35 patients had subserosal fibroids (42, 17%), while 30 had submucosal fibroids (36.14%) and 18 had intramural fibroids (21.69%) (*Table 1*)

The majority of patients (47 cases /56.63%) had only one fibroid. 9 patients (10.83%) had 2 fibroids and 27 patients had more than 3 fibroids (32.53%),(*Table 2.*)

Table 1: The Distribution of Patients According to the Fibroid Location

Position of Fibroids	Effective	Percentage
subserosal	35	42,17
submucosal	30	36,14
intra mural	18	21,69

Table 2: The Distribution of Patients According to the Number of Fibroids

The Number of Fibroids	Effective	Percentage
One fibroid	47	56,63
Two fibroids	9	10,84
Three or more	27	32,53

The average age of women suffering from uterine fibroid in our study was 41 years; the number of cases gradually decreases in both younger women (9 cases for the group aged between 20-29 years), and in older women (1 case for the women with age above 59 years).

51.81% of the women affected by uterine fibroid were nulliparous and the percentage of multiparous women affected by fibroid was lower 31.33%,

Concerning infertility in our series, 14.46 % of consultations were done by women suffering from infertility problem; 29 patients (49.16%) had infertility problem, 33.89% had primary infertility, and 15.25% had secondary infertility (*Table 3*).

Table 3: The Distribution of Patients According to the Type of Infertility

Type of Infertility	Effective	Percentage
Primary infertility	20	33,29
Secondary infertility	9	15,25
No infertility	30	50,84

Concerting the relation between infertility age and the number of fibroids, we found that women with a median age of 47 and having more than 3 fibroids were the ones suffering the most from infertility (*Figure 1*)v.

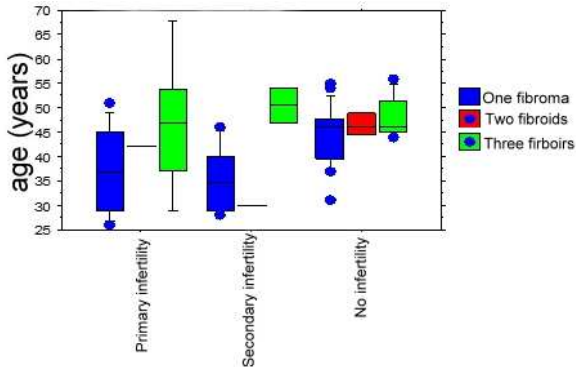


Figure 1: Comparison of the Distributions of the Type of Infertility Based on the Age and Number of Fibroids

The presence of submucosal fibroids was most associated with a decrease in fertility causing primary infertility in women with the median age of 35, followed by the subserosal fibroids (*Figure 2*).

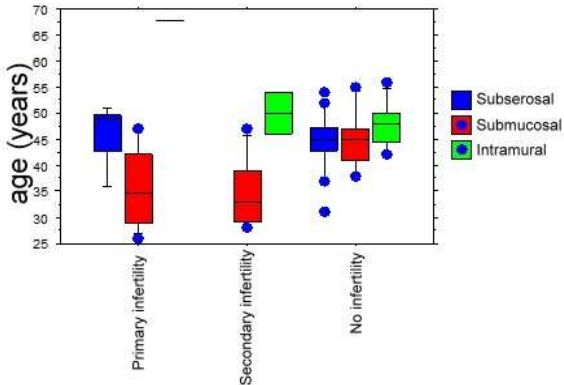


Figure 2: Comparison of the Distributions of Infertility in function of Age and Positions of the Fibroid

Submucosal fibroid was also found primary in women suffering from secondary infertility with a median age of 32.5, followed by intra mural fibroid (*Figure 2*).

Secondary infertility was also found in primiparous patients affected by uterine fibroid with a median age of 32.5, and multiparity was associated with a decrease in the incidence of fibroids. (*Figure 3*).

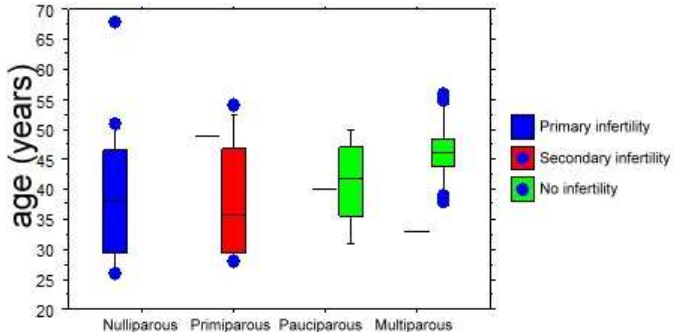


Figure 3: Comparison of Distributions of Parity According to the Age and the Type of Infertility

About miscarriage, we found that the large number of pregnancy loss occurred in women who were affected by one uterine fibroid associated with secondary infertility

Concerning the family history of the women suffering from fibroids, only 3.61% of women presented some family history of fibroids:

- 2 patients whose mothers had fibroids.
 - 1 patient whose sister has been affected by fibroids
- The age of menarche was also associated with fibroids, the proportion of patients whose age at menarche was early (11-13 years) is significantly higher (77.11%), with a peak at the age of 13 years, (50.60%), and only (22.89%) in women with age at menarche was ≥ 14 years suffered from fibroids .

Discussion

In our study, 49.16% of our patients complained about fertility problem. The association between fibroids and infertility was found by Elizabeth A et al (2009) in their systematic review of 347 articles. They showed that a presence of fibroids no matter their locations was always associated with a higher bad outcome for pregnancy when compared to control subjects.

Concerning the location of the fibroids and its relation to infertility in our study, we found this order: submucosal, subserosal and intramural.

But the information concerning the location of the fibroids and their relation to infertility seems to be conflicting and this is what

was found in a research study by Eldar-Geva et al (1998) and Dessolle et al (2001). However, concerning submucosal and intramural fibroids, some studies done by Garcia et al (1984) and Giatras et al (1999) have shown that they affect the installing and continuation of pregnancy because of the distortion of the uterine cavity that they are responsible for.

The research of Maria et al (2006) found that infertility can also be caused if the fibroids develop close to the tubaric ostium, making the transport of the spermatozoa or the embryo more difficult and therefore causing infertility.

In our study, uterine fibroids were associated with miscarriage that has been shown by a number of studies where they found that the number of miscarriages is higher in women with fibroids.

This can be due to the fact that if the fibroids are close to the placenta, this can eventually cause spontaneous miscarriage as demonstrated by Muram et al (1980) and Rosati et al (1989). However, according to Li TC et al (1999), the rate of miscarriage caused by fibroids is not exact and it is very high in the literature.

Multiparity was associated with a decreased incidence of fibroids compared with nulliparous women. The same results were reported by Bulletti et al (1999) and Richards et al (1998). Fibroids are believed to be common in nulliparous or relatively infertile women as mentioned by Howkins and Bourne (1989), and in another study, Howkins and Bourne (1985) showed that in fact 60% of myomata occurred in women who had no previous pregnancy or had given birth only once.

However, some studies done by Jyoti C et al (2012) and Ibrar et al (2010) have shown that Multiparous patients are found to have fibroids more frequently than nulliparous women.

Fibroids are usually found in reproductive age groups. These tumors are most frequently seen clinically between the ages of 30 and 45; although they may start developing in the early twenties as mentioned by Masani (1982). In the present study, the highest incidence (48.19%) was observed between 40-49 years. This finding correlates well with the observations made by the study of Shakira et Subhana (2008) and Reddy et Malathy (1963).

In our study, only 3.61% of patients had family history of fibroids. The relationship between family history of fibroids and the occurrence of infertility has been shown in other research

studies, like the study done by Alam et al (2001), Snieder et al (1998) and Reddy DB and Malathy PM (1963).

Conclusion

The relationship between fibroids and infertility is still subject to a large debate, and we still do not know exactly if they indeed cause infertility or it is a simple association. However, in our study, we found that 49.16% of our patients complained about fertility problem, showing that the association between fibroids and female infertility is not uncommon. For now, it would be interesting to investigate the different ways by which fibroids can cause fertility problems, either by creating problem in the fertilization processes or by being responsible for early pregnancy loss.

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