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Factors Affecting Pregnancy Rates in Infertile Women Performed Abdominal Myomectomy

Abdominal Myomektomi Operasyonu Geçiren Infertil Kadınlarda Gebelik Oranlarını Etkileyen Faktörler

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ABSTRACT

Purpose: To evaluate pregnancy outcomes in infertile women performed abdominal myomectomy at our clinic.

Materials and Methods: This retrospective study included 76 infertile women underwent abdominal myomectomy. The cases were divided into two groups according to postoperative pregnancy (Group 1, n=22), and cases with no postoperative pregnancy (Group 2, n=54). Risk factors recorded were; age, parity, size of the fibroids, body mass index (BMI), tumor markers and serum blood values.

Results: A total of 76 infertile women underwent abdominal myomectomy during the study period. Of all cases 22 (28.94 %) became pregnant. There was statically significant difference between the groups in terms of age, BMI, diameter of the fibroids ($p<0.05$) (Table 2). The receiver operator curve (ROC) analyses showed that diameter of the fibroid may be a prognostic factor in order to assess the probability of pregnancy following abdominal myomectomy in infertile women.

Conclusion: We think that in infertile women with intramural fibroids >5 cm the treatment modality should be abdominal myomectomy to increase the chance of postoperative pregnancy.

Key Words: Fibroids, infertility, abdominal myomectomy, pregnancy rate

ÖZET

Amaç: Kliniğimizde abdominal gebelik operasyonu geçiren infertil kadınlarda gebelik sonuçlarının irdelenmesidir

Materyal ve Metod: Bu retrospektif çalışma kliniğimizde abdominal myomektomi operasyonu geçiren 76 infertil kadın üzerinde yapılmıştır. Hastalar post-operatif gebelik oluşan (Grup 1;n:22) ve oluşmayan (Grup 2;n:54) olmak üzere iki gruba ayrılmıştır.Değerlendirilen klinik faktörler; yaş, parite,fibroid boyutu,vücut kitle indeksi,tümör markerları ve serum kan değerleridir.

Bulgular: Çalışma süresince 76 infertil hasta abdominal myomektomi operasyonu geçirmiştir. Tüm hastaların 22 'si (% 28.94) gebe kalmıştır. Gruplar arasında yaş, VKİ ve fibroid boyutu açısından istatistiksel olarak anlamlı fark saptanmıştır ($p<0.05$). ROC analizi, abdominal myomektomi operasyonu geçiren infertile kadınlarda fibroid boyutunun operasyon sonrası gebelik olasılığını tahmin etmede prognostic bir belirteç olabileceğini göstermiştir.

Sonuç: Bu çalışamaya göre 5 cm den büyük intramural myomu olan infertil kadınlarda abdominal myomektominin postoperatif gebelik şansını arttıracağını düşünmekteyiz

Anahtar Kelimeler: Fibroid, infertilite, abdominal myomektomi, gebelik oranı

INTRODUCTION

In the reproductive age group uterine fibroids are the most common detected benign tumors with a ratio of 25-30 %[1,2]. The management of fibroids depends on various factors such as; age of the women and symptoms, obstetrical history and future pregnancy plans, the size and location of the fibroids[3]. Fibroids is detected in 5-10 % of infertile cases and reported that intramural and submucosal fibroids are thought to reduce the effectiveness of assisted reproduction cycles[4,5]. Abdominal myomectomy is still a common modality of management for large and symptomatic uterine fibroids in women desire to secure their fertility and can also be performed vaginally, hysteroscopically or laparoscopically[6]. Postoperative pregnancy rate is reported to be between 9 and 76% depending on different types of fibroids[7]. Pritts et al[3] reported that place of the fibroid, not diameter, is the key point regarding fertility.

The aim of this study was to determine and compare the clinical characteristics of infertile women who conceived following abdominal myomectomy with who could not conceived.

MATERIALS and METHODS

This retrospective study included 76 infertile women underwent abdominal myomectomy at Dr. Zekai Tahir Burak Women Health Education and Reserarch Hospital, Department of Obstetrics and Gynecology, Division of Infertility and Gynecological Endocrinology, from January 2007 to December 2011. The study was designed according to the Helsinki declaration[8]. The study was also approved by the ethics research committee of hospital (Ankara, Turkey). The data were collected from hospital records and patients files, descriptively. Data was collected on the demographic and pre operative characteristics of the patients including the age, parity, BMI , indication for the myomectomy, fibroid size, pre-operative hemoglobin levels, tumor marker levels, post-operative hemoglobin levels and duration of hospital stay.

Standard operative techniques were used by consultant in all the abdominal myomectomy with pfannensteil incision. General anesthesia or regional anesthesia was preferred to perform myomectomy. Fibroid cavities were closed with delayed absorbable suture. Prophylactic antibiotics have given to all patients and postoperative management was the similar properties including postoperative hemoglobin level, incision area and vital finding of patents. After 2 years of clinical follow up, the cases conceived or not were re-evaluated.

Statistical analyses were carried out by using the statistical packages for SPSS 17.0 for Windows (SPSS Inc., Chicago, IL, USA).Independent sample T test, $\chi 2$ test and ROC curve was used to determine clinical factors associated with becoming pregnancy in the group. P value of <0.05 was considered significant.

RESULTS

A total of 272 patient underwent myomectomy during the study period.76 of these women were unexplained infertility for at least 1 year were included to the study. Of all cases 22 (28.94 %) became pregnant after 2 years of follow up. Table 1 depicted the clinical parameters of all cases. The mean age of the cases was 36.63±4.72 years and mean parity was 0.98 (min-max;0-4). The mean BMI was 27.61± 3.78 kg/m2.The main symptom of all the cases was subfertility. The mean diameter of fibroids was 5.11±1.24 cm (range; 3-9 cm). The mean Ca 125 and Ca 15-3 levels was 19.14±12.34 U/ml and 3.13±4.44 U/ml. The cases were hospitalized at the hospital in a mean time of 2.80±0.93 days.

The cases were divided into two groups according to conceive (Group 1, n=22) following abdominal myomectomy and not (Group 2, n=54). Table 2 showed the differences between the

clinical characteristics of two groups. The mean age of group 1 and 2 was 32.90±4.15 and 38,14±4,07 years old, respectively. The mean body mass index of the patients were 26.52±2.46 in group 1 and 29,01 ± 4.22 kg/m2 in group 2, respectively and the mean diameter of fibroids were 5.27±1.27 in group 1 and 4,62±1.23 cm in group 2, respectively. There was no statistically significant difference between the groups in terms of tumor markers. We also evaluated the place of the fibroid, in pregnant group; in 2 of the place fibroid was intramural and 20 subserous and in non pregnant group 10 of the cases the fibroid was intramural, 44 was subserous. There was also a statistically significant difference between groups in terms of place of fibroid (p=0.042).

Table1. The demographic and clinical characteristics of the cases

	n=76	SD	Range
Age (years)	36.63	4.72	26-45
Parity	0.98		0-4
Diameter of fibroid	5.11	1.24	3-9
Place of fibroid Intramural Subserous	 9 67		
BMI	27.61	3.78	20-35
CA 125	19.14	12.34	2.18-66.34
CA 15-3	3.13	4.44	0.20-26
Duration of hospital stay	2.80	0.93	2-9

BMI: Body mass index

Table 2. Comparison of the pregnant and non pregnant women in terms of clinical parameters

	Group 1 (Pregnant group) n:22	Group 2 (Non pregnant group) n:54	P
Age (years)	32.90±4.15	38.14±4.07	0.006
Parity* <1	17(77.27)	51(94.44)	0,008
Diameter of fibroid	5.27±1.27	4.62±1.23	<0.001
Place of fibroidα Intramural Subserous	 2 20	 10 44	0.042
BMI	26.52±2.46	29.01±4.22	0.001
CA 125	18.51±12.00	19.40±12.59	0.657
CA 15-3	4.30±7.11	2.65±2.67	0.07
Duration of hospital stay	2.63±0.90	2.87±0.95	0.005

BMI: Body mass index, *: Data was presented as n(%) and p was calculated by χ^2 test, α: p was calculated by χ^2 test

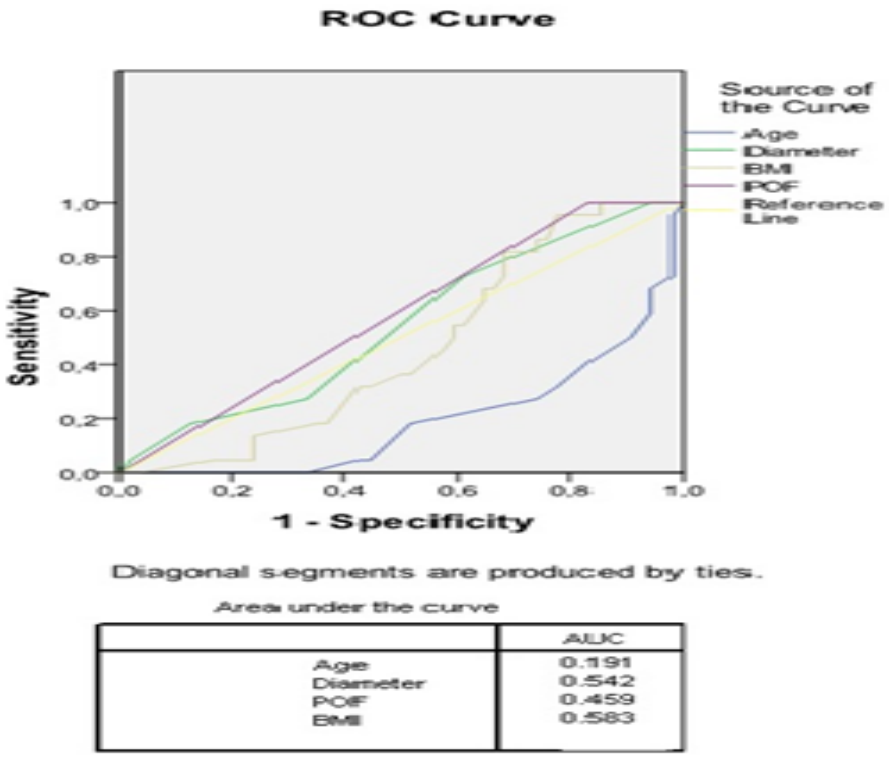

Figure1. ROC curve and AUC's of the age, diameter of fibroid, place of fibroid and BMI of the cases in the pregnant group.

DISCUSSION

In current study, we analyzed the postoperative clinical parameters of 76 infertile women underwent abdominal myomectomy for uterine fibroids at our clinic. We followed up the patients for 2 years and recorded data about the pregnancy rates. Of these cases, 22 cases conceived. The mean age, parity, diameter and place of the fibroids, BMI of the cases were statistically significantly different between patients conceived and not. Pre and post-operative blood haemoglobin values and tumor marker values showed no statistically significant difference between the groups. According to the ROC analysis diameter and place of the fibroids, but not age and BMI, was prognostic factor for conceiving after abdominal myomectomy.

Previous studies evaluated the pregnancy rates following myomectomy[9,10]. Bajekal et al[9] evaluated the postoperative pregnancy rates following myomectomy and reported the pregnancy rate following myomectomy as 50 %. They also told that the place of the fibroid may also influence the chance of pregnancy in submucous, intramural and subserosal fibroids being in decreasing order of importance. They also recommend abdominal myomectomy to large fibroids. Different from Bajekal and our current study, Gavai et al[10] found that preoperative place of fibroid, diameter of fibroid, number of fibroid have no effect on postoperative reproductive results following abdominal myomectomy.

Data about the size of fibroid to justify myomectomy in infertile women is 5 cm and was determined as a prognostic factor[11,12]. We also found that in pregnancy group in our study myomectomy to a fibroid > 5 cm increase the chance of pregnancy after myomectomy. The place of fibroid was also a detected factor to determine infertility. Studies reported that submucosal fibroids reduce the fertility with a ratio of 70 %. Intramural fibroids have lesser effect on fertility and subserosal fibroids seem to have no negative effect on fertility[13]. These data supported our study and we also found that in our pregnant group intramural fibroids was lesser than the non pregnant group.

In conclusion, we think that, especially infertile women that have intramural and large fibroids (> 5 cm) should be managed by abdominal myomectomy by an experienced clinician in order to increase the chance of postoperative pregnancy.

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