

Research



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Corresponding author: Ferjaoui Mohamed Aymen, Department B of Gynecologic Surgery in Tunis Maternity Center, Tunis School of Medicine, El Manar University, Tunis, Tunisia. ferjaoui16@yahoo.fr

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Submucosal myomas and fertility in a Tunisian population

Ferjaoui Mohamed Aymen^{1,&}, Hannachi Mohamed Amine¹, Marzougui Ali¹, Abdessamia Kais¹, Azri Raja¹, Khedheri Slim¹, Malek Monia¹, Neji Khaled¹

¹Department B of Gynecologic Surgery in Tunis Maternity Center, Tunis school of Medicine, El Manar University, Tunis, Tunisia

[&]Corresponding author

Ferjaoui Mohamed Aymen, Department B of Gynecologic Surgery in Tunis Maternity Center, Tunis School of Medicine, El Manar University, Tunis, Tunisia

Abstract

Introduction: infertility associated with submucosal myomas may be treated by hysteroscopic resection. This retrospective study is aimed to analyze 50 subfertile patients who underwent hysteroscopic myomectomy with particular regard to their post procedure pregnancy outcome. **Methods:** the patient group (n=50) underwent the procedure between January 2012 and January 2017. The submucosal were G0 (n=37), G1 (n=12) and G2 (n=4). The mean size was 3.2 cm, while the mean duration of the procedure was 26 minutes and the mean follow-up was 18 months (9 months to 5 years). Eight cases had one or more associated infertility factors. **Results:** eighteen patients (36%)

conceived after procedure, at 12 months \pm 2.6 months after procedure. The pregnancy rate was better when myomas was the exclusive etiology of infertility (42.85%). The complication rate was 7%.

Conclusion: hysteroscopic myomectomy is a safe procedure to enhance infertility essentially in case of unexplained infertility.

Introduction

Uterine fibroids are benign tumors occurring in 30 to 60% in young women before menopause. The association between uterine fibroids and infertility is a controversial topic especially for extra cavity fibroids. However, it was demonstrated that submucous fibroids affect negatively the fertility potential [1]. Five to ten percent of infertile women present submucous fibroids [2]. Infertility mechanisms are multiple and poorly defined: modifications in uterine contraction, endometrial alterations and mechanical impediment to the transit of male gametes (particularly if localized at the endocervix and tubal ostia). In cases of infertility, myomectomy's impact depends on the fibroids type. In fact, subserosal fibroids (G6 and G7) have no influence on fertility, whereas intramural tumors (G3, G4 and G5) resection enhances fertility only if the size of the tumor is 5 cm or more [2]. However, hysteroscopic myomectomy of intra uterine cavity and submucous fibroids (G0, G1 and G2), improves fertility in infertile patients [2]. This retrospective study is aimed to analyze 50 subfertile patients who underwent hysteroscopic myomectomy with particular regard to their post procedure pregnancy outcome.

Methods

A retrospective and descriptive study analyzing 50 cases of hysteroscopic myomectomy was done in the context of infertility between January 2012 and January 2017 in the B department of gynecologic surgery. The inclusion criteria were: existence of one or more submucous fibroids associated with one year at least infertility and pregnancy desire;

whereas exclusion criteria were: medical history of malignancies, and other general, hormonal and anatomic uterine disorder which can explain infertility. On the basis of the hospitalization and the outpatient's files, we analyzed for each case: age, gravidity, parity, general medical history, reason for consultation, data from ultrasound examination and intraoperative details such operative time, per operative complications, and any side effects of the procedure. Anatomic and functional results were checked. All myomectomies were performed by skilled surgeons, with F 30° resectoscope connected to an electro-surgical monopolar unit. In the follow-up, all patients underwent a phone interview. Questions about number of pregnancies, delivery mode and gestational age at delivery were asked. Labor complications and information about the newborn were collected. Data related to miscarriage were also reported.

Results

The mean age of patients at surgery time was 32 years and 4 months (from 22 to 40 years). Forty-eight women (96%) were nulliparous, while 2 women (4%) had already one child. Eighteen women (36%) had a miscarriage history. The mean duration of hypofertility was 2 years and 3 months (from 1 to 16 years). Eight women (16%) had a history of pelvic surgery: one caesarean section, four appendectomies and three operative laparoscopies. Nine women (18%) had anemia and 7 of them had been transfused. The mean hemoglobin level was 11.5g/dl, with values ranged from 5 to 14.4g/dl. Thirty women (60%) complained of menorrhagia and 10 (20%) of pelvic pains. All patients had been subject to endovaginal and trans-abdominal gynecological ultrasounds. The fibroids mean size was 3.2 cm (from 1.1 to 5.2 cm). Fibroids characteristics are reported in Table 1. Hysterosalpingography was performed in 42 patients. However, sono-hystero-graphy was performed in all cases. Fifteen patients (30%) had a preoperative progestin therapy (from 16th to 25th day for 3 to 6 menstrual cycles), 12 patients (24%)

a GnRH analog (Triptorelin) therapy for 3 months and 25 patients (50%) a parenteral iron therapy. All myomectomies were done under spinal anesthesia. Misoprostol (200 ug) was used for cervical ripening and preparation. The uterine distension fluid used was Glycocol. Resection was considered complete in 37 cases (74%). Incomplete resections were reported in 13 patients (26%) and concerned 10 cases of large fibroids (larger than 7 cm) and 3 cases of multiple myomas. All these cases have been treated in several operating sessions: 8 cases in 2 operating times and 5 cases in 3. No associated treatment was needed. The average duration of interventions was 26 min (15-45 min) depending on the size and number of fibroids.

Per-operative complications were reported in 3 cases: two per-hysteroscopic perforation repaired laparoscopically; one case of postoperative TURP syndrome resolved within 24 hours after hydro-electrical equilibrium. All results of pathology have concluded to a leiomyoma. The mean duration of hospitalization was 30 hours (24-120 hours). Anatomical control was performed with endovaginal ultrasound 2-3 months after the intervention in 40 patients and with hysteroscopy 6-12 months later in 10 patients. Two cases of fibroid recurrence were seen and 1 case of uterine synechia were found. On an average follow-up of 18 months, we recorded 22 (44%) pregnancies with 4 (18.18%) miscarriages and 18 (81.81%) live births. The average time between the hysteroscopic myomectomy and the onset of pregnancy was 12 months (range: 6 to 18 months). All data are reported in Table 2. Later on, 24 patients were lost to follow-up. A second attempt of medically assisted procreation was made in 3 patients and a spontaneous pregnancy occurred in a patient with different outcomes: a second In vitro fertilisation (IVF) and a second ICSI, which failed in a 37 year and a 39 year old patients, respectively; an ovulation induction with programmed sexual intercourse that led to a successful vaginal delivery in a 37 year old patient; and a second spontaneous pregnancy that led to a caesarean section delivery in a 39 year old patient.

Discussion

Uterine fibroids are benign tumors occurring in 30 to 60% before menopause. Infertile women are affected by submucous fibroids in 5 to 10% of cases, and in 1 to 3% of patients, uterine fibroid is the only factor of infertility, due to their impact on implantation of the fertilized ovum and ascension of spermatozoa by the obstruction of tubal ostia and the deformation of the uterine cavity. Otherwise, resulting changes on endometrial vascularization, endometrial dystrophy, changes in uterine contractions and decreased production of HB-EGF by fibroids may be responsible for subfertility [1]. In a meta-analysis on the impact of myomas on in vitro fertilization, infertile patients with submucous myomas have a lower pregnancy rate (RR = 0.30 (0.13-0.70)) and a lower implantation rate (RR = 0.28 (0.10-0.72)) than infertile patients without myomas. This meta-analysis revealed as well a positive impact of myomectomy for submucosal myomas since the pregnancy rate increased after myomectomy (RR = 1.72 (1.13-2.58)) [1,2]. Farhi J [3] compared IVF results between a first group of patients having a uterine myoma deforming the uterine cavity (i.e. a submucosal myoma), a second group of patients having uterine myoma not deforming the uterine cavity and a third group of patients who undergone IVF for tubal sterility. The results were in favor of a significant reduction in implantation rates in the case of submucosal myomas.

The impact of hysteroscopic myomectomy on abortion and (full term) pregnancy rate in our environment was the objective of our study. In fact, a meta-analysis revealed that rates of pregnancy were significantly different from those of abortion and were not statistically different after a hysteroscopic myomectomy [1]. Thus, a retrospective study of 186 patients with hysteroscopic myomectomy illustrated a significant decrease in the abortion rate, and also a significant increase in the live birth rate [4]. Further, another study showed that the rate of delivery increased from 16% to 72% ($p = 0.0001$) and abortion rate

decreased from 69.1% to 23.3% after a hysteroscopic myomectomy [5]. In the literature, the average pregnancy rate after endoscopic resection is about 45%. Its range varies between 17 and 77% depending on case (age, presence of other risk factors for infertility ...) and characteristics of the fibroid (number, size, location, type...) [6]. In our retrospective study, pregnancy rate was 44%. Fernandez *et al.* confirmed that the coexistence of infertility factors significantly decreases the level of pregnancy rate from 41.6% (absence of associated factors) to 26.3% (a single associated factor) and 6.3% (two factors or more) [7]. They also demonstrated a non-significant difference between post-resection pregnancy rates by location, type, and size which was also confirmed also by several studies [8, 9]. In our study, the number, the localization, the size and the type have no influence on the outcome of pregnancy, delivery, or abortion rate. In fact, a lot of studies discussed the influence of the size, yet the results were divergent due to the operator skills to preserve myometrium. Many societies state that the improvement of pregnancy rate due to surgical treatment of uterine abnormalities has been proved. In fact, the latest French guidelines recommend hysteroscopic resection of submucosal myomas in asymptomatic patients willing to have a child (Grade A). As far as possible, it is recommended to use bipolar energy and anti-adhesion gel (Grade C) [10].

Conclusion

Hysteroscopic management of submucosal fibroids in infertile women is a safe and effective treatment.

What is known about this topic

- *Submucosal fibroids are associated with infertility;*
- *Hysteroscopic management is the gold standard to treat submucosal fibroids;*
- *Hysteroscopic resection of submucosal fibroids in infertile women improve fertility and pregnancy rate.*

What this study adds

- *In Tunisian population, hysteroscopic resection of sub mucosal fibroids improve fertility;*
- *Hysteroscopic management of submucosal fibroids is safe;*
- *Low complication rate was reported.*

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.

Tables

Table 1: fibroids characterization

Table 2: pregnancies details

References

1. Zepiridis LI, Grimbizis GF, Tarlatzis BC. "Infertility and Uterine Fibroids". *Best Pract Res Clin Obstet Gynaecol.* 2016 Jul;34: 66-73. **PubMed** | **Google Scholar**
2. Pritts EA, Parker WH, Olive DL. Fibroids and infertility: an updated systematic review of the evidence. *Fertility and Sterility.* 2009;91(4): 1215-23. **PubMed** | **Google Scholar**
3. Farhi J, Ashkenazi J, Feldberg D, Dicker D, Orvieto R, Ben Rafael Z. Effect of uterine leiomyomata on the results of in-vitro fertilization treatment. *Human Reproduction.* 1995;10(10): 2576-8. **PubMed** | **Google Scholar**

4. Roy KK, Singla S, Baruah J, Sharma J, Kumar S, Singh N. Reproductive outcome following hysteroscopic myomectomy in patients with infertility and recurrent abortions. *Archives of Gynecology and Obstetrics*. 2010;282(5): 553-60. **PubMed** | **Google Scholar**
5. Varasteh NN, Neuwirth RS, Levin B, Keltz MD. Pregnancy rates after hysteroscopic polypectomy and myomectomy in infertile women. *Obstetrics & Gynecology*. 1999;94(2): 168-71. **PubMed** | **Google Scholar**
6. Di SpiezioSardo A, Mazzon I, Bramante S, Bettocchi S, Bifulco G, Guida M *et al*. Hysteroscopic myomectomy: a comprehensive review of surgical techniques. *Human Reproduction Update*. 2008;14(2): 101-19. **PubMed** | **Google Scholar**
7. Fernandez H, Kadoch O, Capella-Allouc S, Gervaise A, Taylor S, Frydman R. Résection hystéroscopique des myomes sous muqueux : résultats à long terme. *Annales de Chirurgie*. 2001;126(1): 58-64. **Google Scholar**
8. Makris N, Vomvolaki E, Mantzaris G, Kalmantis K, Hatzipappas J, Antsaklis A. Role of a bipolar resectoscope in subfertile women with submucous myomas and menstrual disorders. *Journal of Obstetrics and Gynaecology Research*. 2007;33(6): 849-54. **PubMed** | **Google Scholar**
9. Fernandez H, Sefrioui O, Virelizier C, Gervaise A, Gomel V, Frydman R. Hysteroscopic resection of submucosal myomas in patients with infertility. *Human Reproduction*. 2001;16(7): 1489-92. **PubMed** | **Google Scholar**
10. Marret H, Fritel X, Ouldamer L, Bendifallah S, Brun J-L, De Jesus I *et al*. Therapeutic management of uterine fibroid tumors: updated French guidelines. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2012;165(2): 156-64. **PubMed** | **Google Scholar**

Table 1: fibroids characterization

| Characteristics | | Number |
|------------------|-----------|--------|
| Number of myomas | 1 | 48 |
| | >=2 | 2 |
| Size | <3cm | 37 |
| | >=3cm | 16 |
| Type | 0 | 37 |
| | 1 | 12 |
| | 2 | 04 |
| Endometrium | <10mm | 36 |
| | >=10 | 14 |
| Location | Anterior | 31 |
| | Posterior | 22 |

Table 2: pregnancies details

| Fertility assistance technic | N | pregnancies |
|-------------------------------------|----------|--------------------|
| Programmed sexual intercourse | 32 (64%) | 14 |
| Artificial insemination | 12 (24%) | 6 |
| IVF | 6 (12%) | 2 |