

UTERINE ARTERY EMBOLIZATION - MINIMALLY INVASIVE TREATMENT IN UTERINE FIBROIDS

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ABSTRACT

In modern society, the idea of health includes not only the lack of illness but also the well-being of the person and his integration as an active member of society. Although an old problem, uterine fibroids are one of the most common pathologies present in women of childbearing age. It is the most benign tumor of the feminine genital system, characterized by abnormal bleeding, anemia, dysmenorrhea, pelvic discomfort, pain and infertility. All these aspects affect the quality of life of the patients. There are a variety of treatment options consisting of surgical, interventional or medical treatment. Thus, for each patient, depending on the clinical and biological elements, but especially the perspective on the state of well-being and personal desire, we will opt for the optimal treatment. In the current period, an important aspect is the preservation of fertility. Embolization of the uterine arteries is the minimal invasive approach of uterine fibroids, the main purpose being the management of abnormal bleeding while maintaining fertility. There is still controversy regarding this issue, but the reality of the possibility of getting a post-intervention task remains unquestionable. The purpose of this paper is to review the literature as well as the experience of our clinic regarding the effect of uterine artery embolization on abnormal uterine bleeding, pain and volume of uterine fibroids.

KEYWORDS: *anaplastic large cell lymphoma, skin lesions, blood tests, lymphadenopathy, histopathology exam, skin biopsy*

INTRODUCTION

Uterine fibroma is a benign tumor that originates in the smooth muscle of the miometer [1] which affects 40% of women aged 35 to 55 [2]. Symptomatology is commonly found to be abnormal bleeding, altered leucorrhea, pelvic pain, pelvic discomfort, dyspareunia, infertility and polakiuria [3]. The hormonal status of the patient determines their evolution. Estrogen and progesterone levels are factors that stimulate the

growth of the nodules in the fertile period [4], and their decrease during menopause causes fibroids to enter remission and decrease in size [5]. A particular evolution of fibroids occurs during pregnancy, which is under the influence of the hormonal status specific in this period [6]. The literature contains contradictory studies on the progression of fibroids during pregnancy, most studies revealing the maintenance of the dimensions [7- 9], although others show data showing an increase in fibromas in pregnancy

[10]. Perhaps one of the most important issues for women of childbearing age is fertility in the context of a fibroma, both before and after treatment. One study showed that the prevalence of uterine fibroids in pregnancy is 18% among women of African-American origin, 8% among white women and 10% in Hispanic population[11]. The association of a fibroma in pregnancy associates a higher incidence of presentation malposition, cesarean delivery, pre-term birth [12] as well as the slightly increased incidence of low placental insertion, abruption placentae, or premature membrane rupture [13]. Certainly, knowing the existence of a fibroid in pregnancy requires careful and constant evaluation of fetus and mother. Before conception, the existence of a fibroid nodule may cause difficulty in obtaining a pregnancy. Depending on the nodule localization, it may affect the implantation (if the nodule is submucosal) or it is obstructing the fallopian tube (intramural, cornual nodules) making it difficult to get pregnant.

Thus, especially at this point, an important role is represented by the therapeutic approach of this pathology due to the psychosocial implications that the treatment can have on the women. Due to this benign pathology, 30% of all hysterectomies occur, bringing this procedure to second place as frequency after cesarean surgery [14]. However, this procedure associates increased morbidity and mortality with a significant socio-economic impact[14]. The surgical procedure indicated for leiomyomas in patients with procreation is myomectomy, indicating symptomatology characteristic of fibroids or impairment of fertility in some cases [15-17]. The rate of recurrence after a myomectomy is considered to be 15%, and 10% of patients will subsequently need a hysterectomy for the next 5-10 years.

Medical treatment involves modulation of estrogen and progesterone, because by stimulation of ERs and PRs during the follicular phase, followed by progesterone-induced mitogenesis in the luteal phase, fibroid nodules develop. This type of treatment includes the use of oral contraceptives, intrauterine levonogestrel devices, GnRH agonists or antagonists, estrogen receptor agonists, mifepristone or ulipristal acetate. During the use of these therapies the patient will be unable to get a pregnancy.

Other methods of conservative treatment include uterine artery embolization, high frequency ultrasound focused ablation, or radiofrequency myolysis. Embolization of uterine arteries has been used in recent decades as a method of treating various abnormal gynecological bleeding. Annually, over 25,000 embolization are done worldwide [18]. The primary goal of the UAE is to stop abnormal bleedings followed by reduction in fibroid size. The specialty literature confirms the efficacy of this treatment that associates a reduced rate of morbidity and mortality. Regarding fertility, although it was initially considered that UAE would not be an eligible treatment if fertility preservation is desired, studies conducted following embolization have demonstrated the feasibility of achieving them, but with the risks associated with a pregnancy involving uterine fibroids and the higher incidence of complications in pregnancy[19].

MATERIALS AND METHODS

The purpose of this study was to obtain data on uterine arteries embolization as a treatment for patients with significant uterine bleeding and / or infertility. Abnormal bleeding, the volume of the fibroid nodule, fertility rate and quality of life after treatment were evaluated. The study was designed as a prospectively observational study, evaluating the evolution of symptomatology in patients with embolization at 3 months and 6 months after procedure, in the period 01.01.2014 - 01.01.2017. To obtain the data, the PBAC (pictorial blood assessment chart) was used, the ultrasound imaging was used for evaluation of the fibroid nodules volume and vascularization, and the quality of life was assessed with the UFS QOL (Quality of Life Questionnaire) .

RESULTS

We selected a total of 20 women aged between 29 and 42 years that we followed before and after procedure, for a 6 months period. The average age was 35.3 years. 16 women came from urban area and 4 from rural area. Nulliparous patients accounted for 12 of 20 included patients and of the total and half suffered at least one pregnancy loss.

Demographics are summarized in Table 1. The initial symptomatology is shown in Figure 1.

Demographic characteristics

Demographic characteristics	
Patients included (n=20)	
Age (medie)	35.3 (29-42)
Urban area	16 (80%)
Educational level - at least high school	17 (85%)
Nuliparous	12 (60%)
At least 1 pregnancy	8 (40%)
At least 1 pregnancy loss	10 (50%)

Table 1 - Patient lot demographic characteristics

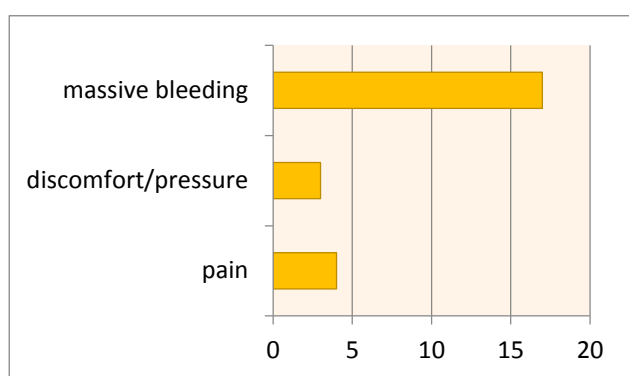


Figure 1 - Initial symptomatology

Abnormal bleeding was evaluated using pictorial blood assessment chart (PBAC). The score was evaluated before the procedure, and then at 3 months and 6 months post-embolization. The significant reduction in bleeding was noted in 90% of cases at 3 months and in 80% of cases at 6 months.

The evaluation of myomas volume following embolization revealed a decrease in 85% of cases after the first 3 months, keeping the proportions at 6 months (Figure 3).

Patients evaluated at 3 months and 6 months after UAE reported both overall improvement in quality of life. Most of them have noted general well-being, with better social integration and increased self-esteem. They also experienced improvements in the couple's life. From the fertility point of view in this period, we had a number of 3 pregnancies without major complications from which we will present a case.

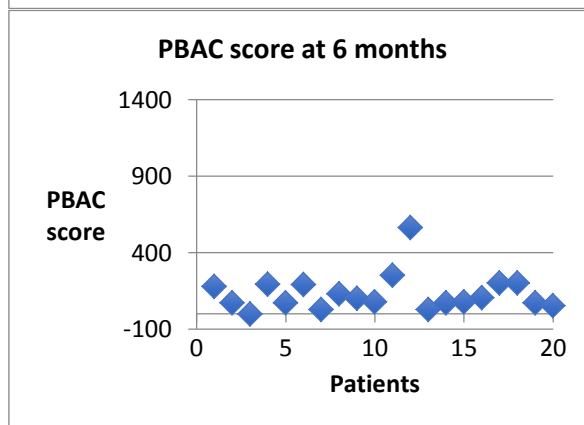
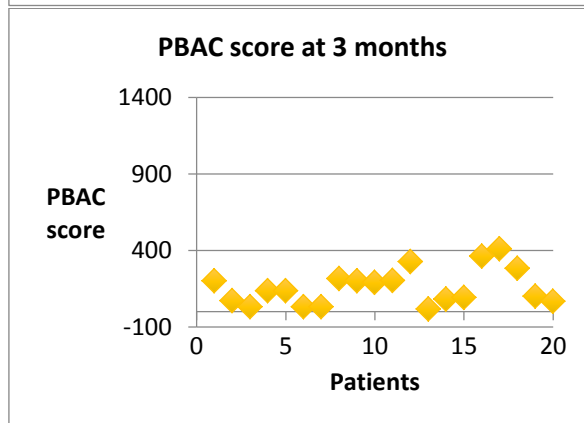
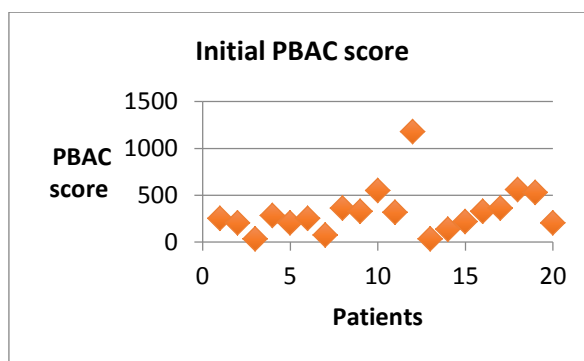


Figure 2 - Initial PBAC score for the 20 patients and UAA scores at 3 months and 6 months respectively

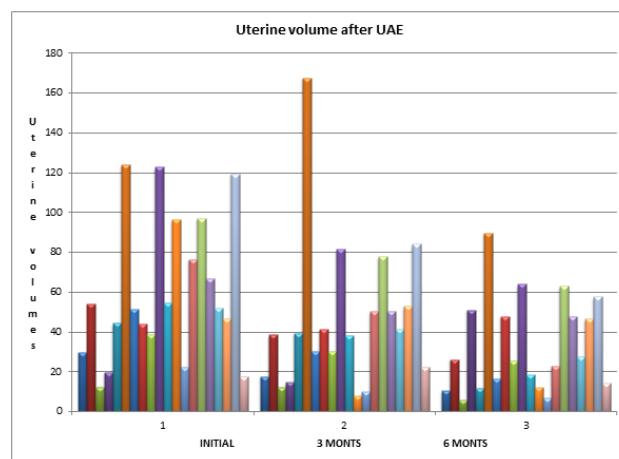


Figure 3 - Uterine volume after UAE

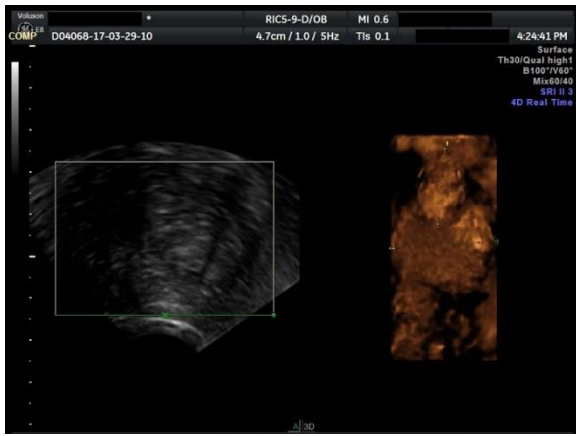


Figure 4 - Patient M.V. 41 years old - Ultrasound image 6 months after UAE

CASE REPORT

Patient O.L., 39 years old known to our clinic with uterine fibroids, with abundant bleeding, PBAC score in the pre-embolization evaluation of 284. From the patient's history we mention a 27-week cesarean delivery for premature spontaneous rupture of membranes and fetal distress with neonatal death 4 years before. Subsequently, the patient had 2 pregnancies loss around the gestational age of 6-7 weeks.

The patient was proposed for embolization, the ultrasound realized before intervention had the following features: uterus AVF 91/65/70 mm, fibroid uterus, myometrium with adenomyosis areas, uterine septum, small inferior fibroid nodule (approximately 1 cm), intracavitary fibroid nodule, of 20 mm with vascularization at the Doppler exam located in the right region; polycystic ovary.

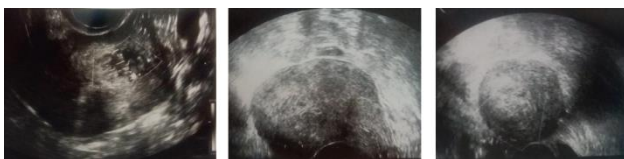


Figure 5 - Patient O.L. - Pre-embolization ultrasound

Reevaluation at 3 months reveals regarding the patient's symptomatology a significant improvement, with a reduction in menstrual flow with a PBAC score of 90, improved overall well-being. The ultrasound revealed the AVF 96/54/67 mm uterus; non-homogenous myometrium; endometrial cavity disposed of non-homogeneous material 4-5 mm; intracavitary, corresponding to the image

described above - 1.2 / 1.2 cm formation - with post-embolization specific aspect; endometrium 2 mm; ovary with normal ecosystems. Overall, the ultrasound had shown an improved image after procedure.

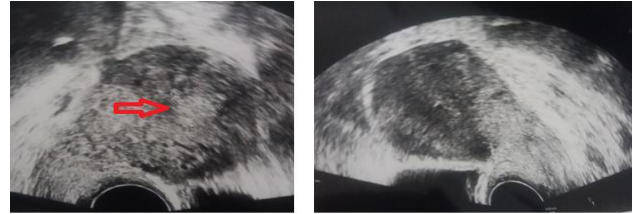


Figure 6 - Patient O.L. - Post-procedure ultrasounds

Four months after surgery, the patient was re-evaluated due to a pregnancy. Pregnancy was achieved spontaneously and successfully completed at the gestational age of 37 weeks, resulting in a 2580 grams newborn with Apgar score at birth 8. In surgery, we did not detect the presence of the myomas described before.

CONCLUSIONS

This procedure mostly addresses the patient with abnormal uterine bleeding that wishes to preserve the uterus. The action of embolization on the uterine vasculature will lead to a significant decrease in bleeding as well as to the reduction in size of the fibroid nodules. The benefit of this procedure is represented by the fertility preservation. We hope that in the future we will study the success of pregnancies in the groups of patients whose main purpose is the preservation of fertility.

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