

Fibroids and Infertility: Transabdominal Ultrasound Guided Oocyte Retrieval in Patient with Massive Multiple Leiomyomas - Case Report

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ABSTRACT

The World Health Organization (WHO) defines infertility as a disease characterized by the absence of pregnancy after 12 or more months of regular unprotected sex. Couple infertility is an increasingly present problem in today's society. We present a case of a patient with assisted reproduction program complicated with uterus altered by numerous fibroids who obstructed routine transvaginal oocyte retrieval. Routine transvaginal procedure of oocyte retrieval was impossible due to the size and shape of the uterus altered by numerous fibroids. The aspiration was done by transabdominal ultrasound-guided follicular aspiration. A successful embryo transfer was performed without complications. Patient was successfully delivered at 32 weeks of gestation. Main objective of this case report is to bring to the light the challenging situations that infertility specialist face, and alternative solutions that deviate from the daily routine but bring the final desired result – birth of the healthy newborn.

Keywords

Infertility, Leiomyomas, Pregnancy, Transabdominal ultrasound guided oocyte retrieval.

Introduction

The World Health Organization (WHO) defines infertility as a disease of the male or female reproductive system failure to achieve pregnancy after 12 months or more of regular unprotected sex [1]. Infertility affects millions of people of reproductive age around the world. The incidence of infertility is between 48 million couples and 186 million individuals worldwide [2-4]. Infertility can be caused by a number of different factors. Sometimes it is not possible to determine the causes of infertility - idiopathic type. This paper will focus on the causes of female infertility. The most common causes of female infertility are: tubal disorders, uterine and ovary disorders, disorders of the endocrine system causing imbalances of reproductive hormones etc. Although the transvaginal follicular aspiration is the preferred modality over transabdominal approach, it can be done safely and efficiently. The total number of oocytes retrieved transabdominally was

lower compared to transvaginally (11,9 vs. 14,1), but the number of mature oocytes was similar (9,2 vs. 7,3), as well as normally fertilized oocytes, average embryo cell number, number of embryos available for transfer, clinical and ongoing pregnancy rates [5]. We will present a case of 32-year-old patient, G2, P0 who came to our clinic for secondary sterility treatment. Laparoscopic bilateral salpingectomy caused by ectopic pregnancy was performed. She also had multiple uterine leiomyomas. Uterine leiomyomas (fibroids or myomas) are the most common pelvic tumor in women [6,7]. They are noncancerous monoclonal tumors arising from the smooth muscle cells and fibroblasts of the myometrium. They are common in reproductive-aged women and are typically present with symptoms of abnormal uterine bleeding and/or pelvic pain/pressure. Uterine fibroids may also have reproductive effects (egg. infertility, adverse pregnancy outcomes, abnormal vaginal bleeding, pelvic pain, pressure, fetal malpresentation, placenta praevia, preterm birth, placental abruption, cesarean section and postpartum hemorrhage, etc.). They are reported in 3 to 12% pregnancies. Uterine fibroids are described according to their location in the uterus although

many fibroids have more than one location designation. The International Federation of Gynecology and Obstetrics (FIGO) classification system for fibroid location recognize eight types of leiomyomas: submucosal (type 0, 1, 2), intramural (type 3, 4, 5), subserosal (type 6, 7) and cervical myomas (type 8). How we will treat patients who have symptoms, depends on their reproductive aspirations. Interventions should be individualized, based upon factors such as type and severity of symptoms, size of the myoma, location of the myoma, patient age, reproductive plans and obstetrical history [8]. Today we can chose between different types of treatment based on multiple factors. We can choose medication treatment, embolization, minimal invasive surgical procedure or radical surgical treatment (hysterectomy).

Case Report

We present the case of 32-year-old patient G2, P0 who came to our Department for secondary sterility treatment. There was no known teratogen exposure, consanguinity, or family history of hereditary diseases or malformations. From the family history we can find that patient's mother had hysterectomy due to uterine fibroids. Patient had one ectopic pregnancy in 2007. A laparoscopic (LSC) salpingectomy was performed. Since 2007, she has been monitored for uterine fibroids. Due to the increase in fibroids, ulipristal acetate therapy (Esmya) was introduced for 3 months. As part of infertility assessment, a diagnostic hysteroscopy (HSCP) was performed in 2016, which did not reveal any pathological findings in the uterine cavity. Sonography (US) exam revealed uterus with multiple fibroids. The largest fibroid was described like subserous anterior and right with diameter of 41x37mm (type 6), isthmic anterior and posterior fibroids 22 mm in diameter (type 4), in the fundus subserous (type 6) and two intramural fibroids (type 1,2) measuring 17 mm, partly showing a neat cavum. The right ovary could not been shown (most likely was hidden behind the fibroid). The left ovary was normal. After detailed exam she underwent controlled ovarian hyperstimulation with short antagonistic GnRH protocol. Due to the fact that the ovaries could not been reached in usual transvaginal path, we performed transabdominal ultrasound-guided retrieval and collected 3 oocytes. Frozen embryo transfer was performed on day 5.

The patient had a flawless pregnancy until the 27th week of pregnancy when she reported to the emergency maternity ward due to lower abdominal pain. She was hospitalized due to abdominal pain and elevated inflammatory parameters attributed to degenerative myoma changes. Antibiotic therapy for 5 days was ordinated with analgesics and spasmolytics for symptomatic therapy. During the stay she was afebrile, and inflammatory parameters decline. During US exam low lying placenta was found (22 mm) and an increase in myoma-conglomerate of fibroids on the right back side of uterus sizing 130x30 mm, and also on the back side of uterus retrocervically 70x80 mm. She was released after 9 days. She was hospitalized second time, with 30 + 4/7 gestations, for uterine contractions. Therapy for fetal lung maturation with Dexamethasone was performed according to the scheme. Total steroid doze of 24 mg was administered in

divided dose 24 hours apart with tocolysis for 2 days. At the age of 31 weeks of gestation, she bled profusely from the uterus with deep variable decelerations in the CTG record, and due to the threatening asphyxia of the fetus, labor was completed surgically. Cesarean section was performed by corporal incision with lower median laparotomy. Intraoperatively, a fibroid-altered uterus and fetal head fixed between 2 posterior wall myomas were described. Live premature male child was born. 1720 grams and 42 cm long, Apgar score was 4/6. The early postpartum course went smoothly. The neonatal care period was successfully completed and the child and the mother were released after 13 days after Cesarean section.

Discussion

Today's challenges of human reproduction include many procedures that are not part of routine clinical practice. We are aware that the number of couples who have problems conceiving is growing, and that patients with a multifactorial problem of conception will appear more and more often. The described patient is an example of how the multifactorial nature of her problems has become a challenge of everyday clinical practice in achieving the ultimate goal. Asisted reproduction procedures were indicated by transient procedures of LSC bilateral salpingectomy as a consequence of ectopic pregnancy. As such, the patient did not present a special challenge, but after the process of ovulation stimulation, aspiration and oocyte retrieval became a challenge. Due to the myomatous altered uterus that placed the ovaries inaccessible to transvaginal aspiration, it was decided that the procedure will be done in an uncommon transabdominal route. Although transabdominal ultrasound (TAUS) for follicle aspiration is not routinely used in everyday practice as a transvaginal (TVUS) approach, numerous studies have proven its effectiveness and safety in follicle aspiration. Numerous studies have shown that the transabdominal approach is relatively safe and effective in women in whom transvaginal ovarian aspiration is not an option [8]. Obesity and previous surgical procedures in the abdominal cavity and pelvis are mentioned as important risk factors and causes of failure for the procedure. It is known that the BMI of the population is constantly growing all over the world, which affects fertility and the results of assisted reproductive treatments [5].

Large amounts of adipose tissue have been shown to complicate ultrasound examinations because adipose tissue slows down the feedback signal, causing loss of image quality and explains why the ovaries can be difficult to detect in obese patients [9]. Numerous studies also have shown that fewer oocytes were obtained in cases of TAUS aspiration, but no statistically significant differences were found for oocyte damage, fertilization rate, number and quality of embryos, or pregnancy rates [9]. In terms of intraoperative complications and safety, there was no statistical difference in TAUS-related complications compared to TVUS. Several transvesical aspirations have been described but without subsequent complications and consequences. Among the most common complications are certainly the higher incidence of abdominal pain, exacerbation of previously diagnosed pelvic inflammatory disease, mild hemoperitoneum, urinary

tract infections, and transient macroscopic hematuria after the procedure [10]. Some studies also describe that patients in whom transabdominal aspiration was performed were anesthetized for an average of 8 minutes longer than those who underwent the same procedure transvaginally. After reviewing the studies and the described risks and complications, we can conclude that the transabdominal approach to oocyte collection is certainly an additional tool for oocyte collection without the risk of increasing patient morbidity.

Conclusion

By carefully assessing patients and deciding on a transabdominal approach, we certainly reduce the total working time in high-risk patients and avoid unsuccessful attempts with a transvaginal approach. TAUS-guided follicular aspiration may increase the total number of oocytes retrieved by the standard transvaginal method, especially in obese patients and those with a history of pelvic surgery or difficulty visualizing ovaries during IVF stimulation.

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