

PREGNANCY FOLLOWING HYSTEROSCOPIC MYOMECTOMY IN SUBMUCOUS FIBROID : A CASE REPORT

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Abstract

Uterine fibroids, in particular submucosal fibroid may significantly affect fertility and cause heavy menstrual bleeding. The incidence of myomas in infertile women is estimated between 1- 2.4%. In general submucous fibroids account for 5 – 10% of all type of fibroids. Fertility rates may be increased following myomectomy when there is no other identifiable cause. This is a case report of a 22 year old woman with subfertility and heavy menstrual bleeding that had occurred for the last three months. Gynecologic examination revealed an enlarged and mobile uterus. Ultrasound examination showed a 40 mm mixed echogenic appearance arising from uterine cavity. It suggested a type I submucous myoma. Hysteroscopic myomectomy was scheduled to be performed by first administer GnRH agonist for two cycles. Shortly after the last injection, the patient had COVID -19 and had to undergo self – quarantine. Following recovery of COVID – 19 infection, we decided to administer extra shot of GnRH agonist before performing hysteroscopic myomectomy. Diagnostic hysteroscopy revealed a 40 mm type I submucous fibroid. Hysteroscopic myomectomy was performed with 5 Fr scissor in order to avoid electric current usage. Two months following hysteroscopic myomectomy, the patient had a positive pregnancy test result. The antenatal care was then continued as routine. Hysteroscopic myomectomy in submucosal fibroid may improve fertility and clinical pregnancy rates in patients without any other causes of infertility.

Key words: Hysteroscopic myomectomy, submucosal fibroid, infertility

Introduction:

Myoma is a benign growth of uterine muscles. It occurs in 30 – 40 % women in their 30s or 40s but may occur at any ages. The association between myoma and infertility have not been established due to a large variety of the size, numbers, and location. The incidence of myomas in infertile women without any obvious cause of infertility is estimated between 1 - 2.4%.¹ Only 5 – 10% fibroids are estimated to be submucous and tend to be symptomatic. Common symptoms include menorrhagia, intermenstrual bleeding, and infertility. Submucous fibroids are classified according to the European Society of Hysteroscopy as: Type 0 (complete intracavitary myoma), Type I (50% of the myoma contained within myometrium).²

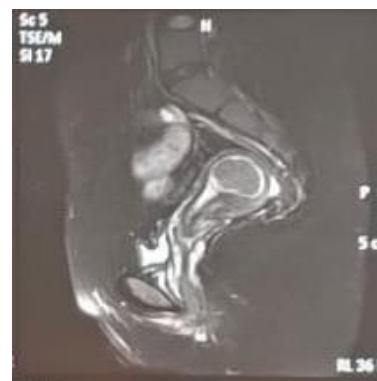
Many theories have been proposed to explain the effects of myomas on fertility. It is generally accepted that the location of a fibroid is an important factor in causing infertility. Submucous myoma is generally considered as the etiology of infertility.³ Myomas may cause dysfunctional uterine contractility, which may interfere with sperm migration, ovum transport, or nidation. Myomas may also be associated with implantation failure or gestation discontinuation due to focal endometrial vascular disturbances, endometrial inflammation, secretion of vasoactive substances or an enhanced endometrial androgen environment.⁴

Submucous fibroid myomectomy may be performed hysteroscopically, especially for type 0 and type I myoma. It is considered generally safe for one time operation without

significant complications. Fertility rates after submucous myomectomy may increase when the fibroid is solely expected to be the etiology of the infertility.⁵ Our case report demonstrated a successful pregnancy following hysteroscopic submucous fibroid removal without evidence of any other causes of infertility.

Case Report:

A 22 – year – old married women was evaluated for menorrhagia occurred for three months. Apparently, she had been married for 8 months and never carried a pregnancy. Gynecologic examination revealed a slightly mobile enlarged uterus. The patient was then evaluated with transvaginal sonography which revealed an intracavitary mass suggestive of a submucous myoma. In order to ascertain the pathology, we perform pelvic CT – Scan to evaluate the extension of the myoma and other pathologies that may be overlooked (Figure 1). The estimated size of the myoma was 40 mm. Other causes of infertility were excluded in both couples. Submucous fibroid was considered to be the solely cause of the infertility.



a) sagittal plane

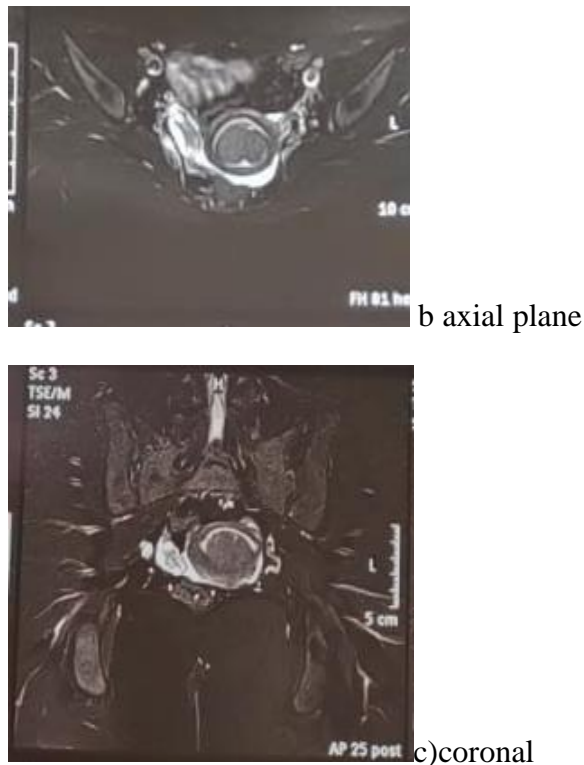


Figure 1. Pelvic CT – scan reveal a clear border and soft tissue density of the fibroids without degeneration and calcification, no other pathologies and intramural extension of myoma

Following thorough consent, the patient agreed to undergo hysteroscopic myomectomy. GnRH agonist was intended to be administered for two shots (one month apart) before procedure. Unfortunately, following the last shot the patient had COVID – 19 and need to be quarantined. She was quarantined for two weeks. Following recovery of her COVID – 19, an extra shot of GnRH agonist was administered in order to reduce intraoperative haemorrhage.

Hysteroscopic procedure was then performed under spinal anesthesia. We first performed diagnostic hysteroscopy with 3 mm sheath. The uterus was distended with NaCl 0,9% to increase the margin of safety of fluid

administration. Uterine pressure was constantly maintained at 100 mmHg. Fluid balance was constantly monitored in order to avoid fluid overload. Diagnostic hysteroscopy with 30° telescope revealed 40 x 40 x 35 mm Type I submucosal myoma (Figure 2a).

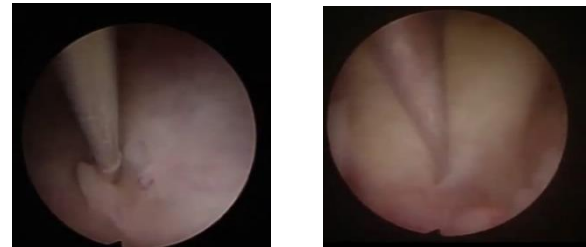


Figure 2. (a) Diagnostic hysteroscopy revealed type I submucosal myoma, (b) myoma enucleation was performed by 5 Fr scissor.

Following the diagnostic hysteroscopy, myoma enucleation was performed in 5 mm working channel hysteroscope (Figure 2b). Myomectomy was performed by cutting of the base of the myoma with 5 Fr scissor combined with hydromassage in order to facilitate myoma protrusion. The electric current was avoided in order to not damage the endometrial layer. The procedure lasted for 30 minutes and completed without remarkable complications.

Two months following the procedure, the patient came with positive home pregnancy test. Ultrasound examination show a gestational sac with mean sac diameter 16 mm. Two months later, the pregnancy showed a positive fetal node and heart beat (Figure 3). Antenatal care was scheduled as routine care for pregnancy.



Figure 3. Ultrasound examination show a 12 weeks pregnancy with a crown rump length of 5.34 cm and a positive fetal heart beat

Discussion:

Uterine fibroids may be the etiology of infertility by produce a mechanical distortion of endometrial cavity, compression of the endometrium, blockage of tubal ostia, and altering uterine contractility as well as tubal peristalsis.⁶ In particular, submucosal fibroids may significantly decreased endometrial receptivity especially for HOXA10 gene. Besides, submucosal fibroid has thicker pseudocapsule in comparison with intramural and subserosal fibroid. This characteristic may significantly reduce clinical pregnancy rates.⁷ In conjunction with subfertility, our patient also suffered from heavy menstrual bleeding that had occurred for the last three months. Submucosal fibroid may cause heavy menstrual bleeding by increase the uterine surface area, increase vascularity and vascular flow into the uterus, reduce myometrial contractility especially of the inner junctional zone, endometrial ulceration, and compression of the venous plexus within myomeytium.⁸

Submucosal myoma was classified by International Federation of Gynecology and Obstetrics depending on the proportion of myoma protruded into uterine cavity (Figure 4). G0 or Type 0 myoma is almost entirely intracavitary, G1 or Type 1 myoma is >50% intracavitary and G2 or Type 2 myoma is < 50% intracavitary.⁹ The benefits of hysteroscopic myomectomy of submucous myomas for improving the chance of pregnancy rates and term delivery are still debatable. There are three factors that may determine the feasibility of hysteroscopic myomectomy, the degree of intramural extension, the myoma size, and the myoma consistency.¹⁰ Technical factors such as the surgeon's skill and experience as well as techniques used surely play an important role. In our case, the patient had type I submucosal myoma which may be the sole etiology of her infertility. Hysteroscopic myomectomy once considered to increased fertility rate in submucous myoma. Hysteroscopic myomectomy in submucuousal fibroid is technically challenging especially in infertility case. We prefer to perform the more conservative strategy in order to preserve endometrial layer by not introducing electric current.

Gonadotropin – releasing hormone analogue (GnRHa) once considered the main indication for the preoperative use before performing submucous myomectomy. Many studies had described a significant reduction in terms of the size, absorption of distention media, and bleeding after GnRHa administration.^{11,12} Well – controlled bleeding was our main priority due to avoidance of using electricity during surgery. Our case showed that GnRHa administration may reduce the amount of

blood intraoperatively. However, GnRHa administration is burdened by high cost, side effects, and increased risk of uterine perforation.¹³

Complications of hysteroscopic myomectomy have ranged from 0.3% to 28%. Fluid overload and uterine perforation were the most common complications during myomectomy.¹⁴ Other complications that may occur during hysteroscopic myomectomy include bleeding, cervical trauma, air embolism, and intrauterine adhesions.¹⁵ Fortunately, our patient did not have any remarkable complications as mentioned above.

Hysteroscopic myomectomy was associated with increased fertility and pregnancy rates. Pregnancy rate was increased in type 0, 1, and 2 by 57.1%, 42.8%, and 25% subsequently. In particular, fertility rates appear to increase in type 0 and 1 submucous myoma following hysteroscopic myomectomy.⁵ Hysteroscopic

myomectomy may increase pregnancy rate. However, obstetrical outcomes such as preterm delivery, intrauterine fetal death, fetal malpresentation, intrauterine growth retardation remain unchanged following hysteroscopic myomectomy.¹⁶ To date, there is no obstetrical complication occur in our patient and we hope that the patient may continue her pregnancy without any remarkable complications.

Conclusion:

Hysteroscopic myomectomy in submucosal fibroid was associated with increase fertility and pregnancy rate. Various techniques in hysteroscopic myomectomy may be applied with similar outcomes. However, further research may be required to determine the best technique to significantly increase fertility, pregnancy, live birth rate and decrease complications rate of hysteroscopic myomectomy.

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