Incarceration of gravid uterus by growing subserosal myoma: case report

S.C. Kim, Y.J. Lee, J.E. Jeong, J.K. Joo, K.S. Lee

Department of Obstetrics and Gynecology, medical research institute Pusan National University School of Medicine, Busan (Korea)

Summary

Incarceration of gravid uterus is a rare condition, occurring in one in 3,000 to 10,000 pregnancies during second trimester. Incarceration of uterus can cause several complications, such as uterine rupture, labor dystocia, and uncontrollable postpartum hemorrhage. Early diagnosis is important to prevent these complications, but there are no standard treatments of incarceration of gravid uterus. The authors present a case report of incarceration of gravid uterus caused by growing subserosal myoma, which was treated with myomectomy during second trimester.

Key words: Retroverted gravid uterus; Subserosal myoma; Uterine incarceration.

Introduction

Approximately 11% of pregnant women have a retroverted uterus [1]. Usually it changes to spontaneously anteverted upward position by 14 weeks of gestation [2]. When retroversion persists beyond the second trimester, the uterine corpus becomes entrapped in the hollow of the sacrum. This complication is called uterine incarceration [3]. The incidence of uterine incarceration during second trimester has been reported in one in 3,000 to 10,000 pregnancies [4, 5]. Predisposing factors of uterine incarceration are pelvic adhesions, endometriosis, uterine malformation, leiomyoma, and pelvic tumors [6]. Therefore if the patient has these factors, the obstetrician has to consider possibility of uterine incarceration. If the obstetrician misses to diagnose this condition, it can lead to some emergencies, such as uterine rupture, labor dystocia, and uncontrollable postpartum hemorrhage [7].

Here the authors present a case of an incarcerated gravid uterus caused by growing subserosal myoma and myomectomy was performed for correction of uterine incarceration at second trimester, and the baby was successfully delivered vaginally at 39 weeks of gestation.

Case Report

A 29-year-old married woman, gravid 0, had visited the outpatient clinic for gynecologic check-up. By ultrasound, she was diagnosed with a subserosal myoma which was located at anterior part of uterus, seven cm sized (Figure 1), but she did not have any specific symptoms, and the present authors recommended regular follow up. After three months, she returned for antenatal care with intrauterine pregnancy 6⁺⁴ weeks of gestation. By ul-

trasonographic scanning, the authors found the fetus with normal fetal heart beats and the crown-rump length was six weeks of gestation size (0.67 cm) and the uterus was in an anteverted state. However the subserosal myoma had grown to 10.85 cm. The antenatal routine check-up results were all within normal range.

For quad test, she returned to the outpatient clinic at 15⁺⁵ weeks of gestation. The patient complained of constipation and low abdominal discomfort. Ultrasonographic scan revealed that the subserosal myoma was increased to 13.45 cm and the uterine position was changed to retroverted. The authors checked magnetic resonance imaging (MRI) of the pelvis to identify exact position of uterus. It revealed a uterus that was retroverted by a large subserosal myoma with dimensions of 20 x 15 cm (Figure 2). The cervix was extended anteriorly and the body of uterus was seen with an acute retroverted angle. So the authors diagnosed incarcerated retroverted gravid uterus caused by huge subserosal myoma.

They expected natural repositioning of the uterus following increasing uterine size with advancing gestational age at outpatient clinic. However, the symptoms of incarcerated uterus, lower abdominal pain, and constipation worsened, therefore the patient was admitted for manual reduction, but the traction of uterine cervix by grasping forceps failed and then the authors performed myomectomy with general anesthesia. In supine position, low midline incision about ten cm was done. After opening of peritoneum, the authors found a subserosal myoma on the anterior surface of gravid uterus and the myoma was expelled from abdominal cavity manually (Figure 3). The stalk of subserosal myoma was ligated with vicryl 1-0 suture and the subserosal myoma was removed. After removing the subserosal myoma, the uterus was naturally repositioned to anteverted state. Postoperative ultrasound scan showed normal fetal heart rate and no intrauterine or subplacental hematoma. After surgery, the patient's symptoms improved without complications. The pregnancy progressed uneventfully and normal spontaneous vaginal delivery was done at 39 weeks of gestation. The patient gave birth to a



Figure 1. — Ultrasonographic finding of subserosal myoma before pregnancy (m = subserosal myoma; u = uterus; b = bladder).

A

Figure 2. — Pelvic MRI (non CE) findings at 15 weeks gestational age. A) sagittal view; B) coronal view; arrow = cervix; arrow head = stalk of subserosal myoma.

healthy female baby weighing 3,430 g and Apgar score were 7 and 9 at one and five minutes respectively. The patient and baby were discharged postpartum second day without complication.

Discussion

The incarceration of retroverted gravid uterus is when the uterine fundus remains in the lower pelvis below sacral promontory and both bladder and cervix are elongated and pulled in to abdominal cavity. Approximately 11~19 % of pregnant women have a retroverted uterus [2]. Usually retroverted uterus changes to anteverted state by 14 weeks of gestation [2]. However the incidence of uterine incarceration during second trimester has been reported in one in 3,000 to 10,000 pregnancies [4, 5]. In the present case, the uterine position was anteverted before pregnant and early pregnant period, but the uterine position was changed to retroverted due to rapid growth of subserosal myoma. The present authors did not find reports of incarceration by rapid growing myoma in their PubMed research.

Because of anatomical changes of bladder and cervix, the most common symptoms of uterine incarceration are abdominal pain and voiding difficulty. The other symptoms are rectal pressure, tenesmus, constipation, and vaginal bleeding [3]. The complications of persistent incarcerated uterus are fetal loss, preterm labor, uterine rupture, and postpartum hemorrhage [7]. In this case, lower abdominal pain and constipation were main symptoms and worsened by progress of pregnancy. For these reason, early diagnosis of incarcerated uterus is important. The risk factors of incarcerated uterus are pelvic adhesion related to previous surgery, pelvic inflammatory disease, endometriosis, large pelvic mass, and uterine malformation [6].

Uterine myoma is the most common benign uterine mass. The incidence of uterine myoma during pregnancy is 0.1-3.9% [8]. Mostly, uterine myoma do not cause problems during pregnancy. The size of uterine myoma increases dur-

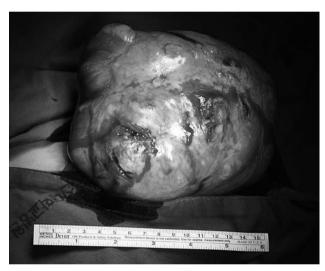


Figure 3. — Photograph taken during myomectomy.

ing first trimester and at second and third trimester, the myoma size was stabilized [8]. Conservative management is the principle of uncomplicated uterine myoma during gestation period. Therefore, surgical treatment is not a standard method for women who want to persist in their pregnancy.

For the successful management, the correction of uterine incarceration has to be performed before 20 weeks of gestation to prevent development of complications. There are several methods for repositioning of incarcerated uterus, but non-invasive method should be considered first [4].

Treatment techniques are applied to patients according to the gestational age [7]. In the late first or early second trimester, spontaneous repositioning of incarcerated uterus is possible [9]. One of general methods used in first trimester is knee-chest position intermittently over several

hours with an empty bladder [10]. If spontaneous reduction is not successful, manual repositioning may then be attempted. Manual manipulation through the posterior fornix should be considered, while the patient is in the dorsal lithotomy position. If this method is unsuccessful, manual manipulation can attempted once more under an anesthetic condition. It has been found that epidural anesthesia is a reasonable approach to the initial anesthetic management for reduction of an incarcerated uterus [10]. Another manual repositioning method is attempted by pulling down the cervix and maintaining rectal pressure on the fundus at the same time. In the present case, the cause of uterine incarceration was due to the mass effect of the subserosal myoma, hence the possibility of manual reduction was thought to be low. The present authors attempted manual traction of uterine cervix only one time.

In the present case, uterus was incarcerated because of rapid growth of the subserosal myoma. The present authors therefore recommend that myoma should be observed more carefully during pregnancy, especially in a rapid growing case. The incarceration of gravid uterus by rapid growing subserosal myoma might be corrected only by myomectomy and the patient had no problem during postoperative and pregnant period and the baby was born successfully by vaginal delivery. The present authors have reported this case with a short review of the articles.

References

[1] Love J.N., Howell J.M.: "Urinary retention resulting from incarceration of a retroverted, gravid uterus". *J. Emerg. Med.*, 2000, 19, 351.

- [2] Jackson D., Elliot J.P., Pearson M.: "Asymptomatic uterine retroversion at 36 weeks' gestation". Obstet. Gynecol., 1988, 71, 466.
- [3] Gibbons J.M. Jr., Paley W.B.: "The incarcerated gravid uterus". *Obstet. Gynecol.*, 1969, *33*, 842.
- [4] Hess L.W., Nolan T.E., Martin R.W., Martin J.N. Jr., Wiser W.L., Morrison J.C.: "Incarceration of the retroverted gravid uterus: report of four patients managed with uterine reduction". South. Med. J., 1989, 82, 310.
- [5] Weekes A., Atlay R., Brown V., Jordan E., Murray S.: "The retroverted gravid uterus and its effect on the outcome of pregnancy". Br. Med. J., 1976, 1, 622.
- [6] van der Tuuk K., Krenning R.A., Krenning G., Monincx W.M.: "Recurrent incarceration of the retroverted gravid uterus at term two times transvaginal caesarean section: a case report". *J. Med. Case Rep.*, 2009, 3, 103.
- [7] Wang L., Wang J., Huang L.: "Incarceration of the retroverted uterus in the early second trimester performed by hysterotomy delivery". *Arch. Gynecol. Obstet.*, 2012, 286, 267.
- [8] Vitale S.G., Tropea A., Rosseti D., Carnelli M., Cianci A.: "Management of uterine leiomyomas in pregnancy: review of literature". *Updates Surg.*, 2013, 65, 179.
- [9] Lettieri L., Rodis J.F., McLean D.A., Campbell W.A., Vintzileos A.M.: "Incarceration of the gravid uterus". Obstet. Gynecol. Surv., 1994, 49, 642.
- [10] Algra L.J., Fogel S.T., Norris M.C.: "Anesthesia for reduction of uterine incarceration: report of two cases". *Int. J. Obstet. Anesth.*, 1999, 8, 142.

Address reprint requests to: J.K. JOO, M.D. Department of Obstetrics and Gynecology School of Medicine Pusan National University Hospital 179 Gudeok-Ro, Seo-Gu 602-739 Busan (Korea) e-mail: jongkilj@hanmail.net