

Conservative treatment of retained placenta in six patients: a retrospective case series

Analysis of conservative medical treatment against retained placenta was possible in six cases

Risa Fujishima¹, Masao Shimaoka², Kiko Yamamoto³, Chiho Miyagawa⁴, Yoshie Yo¹,
Akiko Kanto¹, Yasushi KOTANI¹, Ayako Suzuki¹, Noriomi Matsumura¹

¹ *Department of Obstetrics & Gynecology, Kindai University faculty of Medicine*

² *Department of Obstetrics and Gynecology, Kobe University Graduate School of medicine*

³ *Chibune General Hospital*

⁴ *Osaka Red Cross Hospital*

Abstract

Retained placenta is associated with postpartum hemorrhage and intrauterine infection and can be comorbid with placenta accreta. Although critical obstetric hemorrhages necessitating massive blood transfusion, intensive care, or total hysterectomy occur in some cases of retained placenta, conservative treatment was possible in many recently reported cases. This retrospective study investigated six cases of retained placenta treated conservatively at our hospital. We report a comparative eval-

uation of the clinical course and serum levels of human chorionic gonadotropin in each case. The retained placenta was expelled spontaneously in three of the six cases, while rebleeding occurred in the other three cases, necessitating hemostatic treatment. Finally, the uterus was successfully preserved in all six cases.

Key words : Conservative treatment, retained placenta, postpartum hemorrhage

Introduction

Retained placenta is associated with postpartum hemorrhage and intrauterine infection and can be comorbid with placenta accreta. Although critical obstetric hemorrhages necessitating massive blood transfusion, intensive care, or total hysterectomy occur in some cases of retained placenta, conservative treatment was possible without additional preventive, invasive treatment measures after achieving primary hemostasis in many recently reported cases. According to past references, Timmerman et al¹ reported that conservative treatment enabled the preservation of fertility, albeit in a limited number of cases. Ramoni et al² reported that the blood flow to remaining placental tissue was reduced and tissue mass became small over time. However, in a

clinical setting, there is a potential for major hemorrhage to occur during conservative treatment. It is understood that conservative treatment can be effective, but the type of cases where rebleeding occurs has not been well defined. Against this background, we conducted this retrospective comparative study of cases of retained placenta treated at our hospital to assess when conservative treatment might be indicated.

Cases and Methods

Cases: Six cases were selected for this investigation from patients who were diagnosed with retained placenta after vaginal delivery and for whom serum human chorionic gonadotropin (S-hCG) levels (from detailed pregnancy hormone

test results) and chronological images could be reviewed. These patients delivered at our hospital between 2000 and 2016. The patient ages ranged from 31 to 38 years, with three patients giving birth for the first time and three patients having previously given birth. The deliveries occurred between the 37th and 41st week of gestation. Birth was achieved by natural delivery in three cases, induced delivery in two cases, and vacuum extraction in one case.

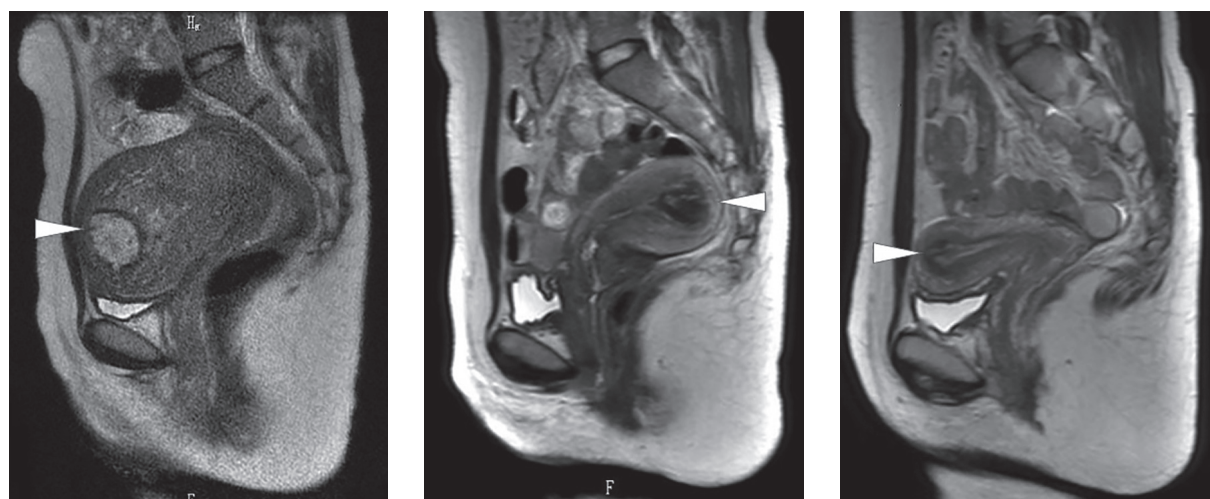
Methods: The major axis of the remaining placental tissue (hereafter, remnant diameter) was measured on ultrasound and/or magnetic resonance imaging (MRI) images taken at the time of diagnosis for the six cases, and the subsequent clinical course of each case was evaluated. The items for evaluating the clinical course were occurrence of rebleeding/requirement of hemostatic treatment; manner of expulsion/removal of retained tissue; and the need for blood transfusion. Those who developed fever and/or lower abdominal pain associated with elevated inflammation markers on laboratory tests were diagnosed as having intrauterine infection. In addition, two further parameters were evaluated before and after an event (rebleeding or spontaneous expulsion): S-hCG levels and the change or lack of change in blood flow to placental tissue as determined using color Doppler ultrasound imaging.

Results

Rebleeding occurred and hemostatic treatment was required in three cases (Patients A, B, and C). Rebleeding was noted at 13, 14, and 22 days after delivery in Patients A, B, and C, respectively. The details concerning the cases with rebleeding were as follows. The remnant diameter was 107 mm in Patient A. The S-hCG level just before rebleeding was abnormally high, at 15,891 mIU/mL. Patient A underwent manual removal of the remaining tissue when the rebleeding occurred. The remnant size was 74mm in Patient B. The S-hCG level just before rebleeding was 331 mIU/mL. Patient B underwent curettage, uterine artery embolization (UAE), and methotrexate (MTX) therapy, after which the S-hCG result was negative and the remaining placental tissue was removed via hysteroscopy. The remnant diameter was small, at 25 mm in Patient C. Patient C developed rebleeding when transvaginal removal was attempted after the S-hCG level showed a decreasing trend to 43 mIU/mL. This patient accordingly underwent UAE, after which the remaining placental tissue shrank to 5mm in diameter and spontaneously disappeared by day41. (Figure 1)

Spontaneous expulsion occurred in the other three cases (Patients D, E, and F) (Table 1). Spontaneous expulsion of retained placenta was noted at 20, 27, and 46 days after delivery in Pa-

Figure 1. MRI image of the retained placenta in Patient C.



A) T2-weighted MRI Image on day 7. Part of placenta was observed in the uterine cavity. The remnant diameter was 25mm. The flow void signal in the placental tissue indicates a lot of blood flow.

B) T2-weighted MRI image on day 29, an examination 7 days after UAE. The retained placenta exhibited a mass with low signal intensity. There was no flow void signal in the placental tissue.

C) T2-weighted MRI image on day 69. Most of the retained placenta was absorbed remaining only tiny mass with low signal intensity.

Summary of the six cases with retained placenta

Table 1. Summary of the six cases with retained placenta. S-hCG; serum human chorionic gonadotrophin, G; gravidity, P; parity, UAE; uterine artery embolization, MTX; methotrexate, TCR; transcervical resectoscope.

Case	Age	Past gestational history and mode of delivery of the current pregnancy	Time to diagnose retained placenta	Placental delivery	The remnant diameter (mm)	Events (rebleeding/spontaneous expulsion)	S-hCG levels just before the events (mIU/mL) (postpartum day)	Treatment for the rebleeding	Blood transfusion
A	38	2G0P, spontaneous vaginal delivery at 39 weeks	Soon after delivery of the baby	—	107 (total)	rebleeding on day 13	15891 (Day10)	Emergency surgery on day 13	+
B	36	1G1P, vacuum extraction -assisted vaginal delivery at 37 weeks	Soon after delivery of the baby	manual removal	74	rebleeding on day 14, 17, and 49	331 (Day14)	Curettage on day 14, UAE on day 20, MTX on day 23, TCR on day 114	+
C	31	0G0P, vaginal delivery following induced labor at 41 weeks	About 7 days after delivery, when ultrasound and MRI examination was performed for continuous bleeding .	natural expulsion	25	rebleeding on day 22 at the trial of curettage	43 (Day22)	UAE on day 22	—
D	35	0G0P, spontaneous vaginal delivery at 39 weeks	About 64 hours after delivery, when ultrasound examination was performed for continuous bleeding .	natural expulsion	65	spontaneous expulsion on day 20	50 (Day19)	—	+
E	35	1G1P, spontaneous vaginal delivery at 39 weeks	Soon after delivery of the baby.	manual removal	50	spontaneous expulsion on day 27	137 (Day24)	—	+
F	34	2G1P, vaginal delivery following induced labor at 40 weeks	Soon after delivery of the baby.	manual removal	41	spontaneous expulsion on day 46	< 0.5	—	—

tients D, E, and F, respectively. The remnant diameters in the three cases of spontaneous expulsion (with no bleeding) tended to be small, at 65 mm (Patient D), 50 mm (Patient E), and 41 mm (Patient F). The S-hCG levels just before spontaneous expulsion of the remaining tissue were 50 mIU/mL in Patient D, 137 mIU/mL in Patient E, and <0.5 mIU/mL in Patient F.

Findings on color Doppler ultrasound imaging just before an event were positive for blood flow to the remaining tissue in two of the three cases with rebleeding (Patients A on day 17 and B on day 12). However, the corresponding ultrasound findings in two of the three cases with spontaneous expulsion of the remaining tissue (Patients D on day 46 and E on day 50) also showed blood flow, and no clear relationship was established between blood flow to placental tissue as measured by ultrasound and rebleeding. Larger remnant diameters were more frequent in cases where blood transfusion was needed before primary hemostasis (A, B, D, E), irrespective of the presence or absence of rebleeding. The uterus was preserved in all six cases. No intrauterine infection was noted under conservative treatment in the present cases.

Discussion

A correlation between risk of rebleeding during conservative treatment of retained placenta and the size of the remaining tissue was suggested in this study. Timmerman et al.¹ reported that preservation of the uterus depended on the total volume of remaining placental tissue, which we consider to be similar to the findings of this study.

It is believed that S-hCG levels reflect viability and blood flow of retained placenta³, thus the retained placenta may be successfully removed in patients with low S-hCG levels. However, S-hCG level to predict successful removal has not been determined. Placenta was removed at 33 IU/L³ or 52~1551 IU/L⁴ level of S-hCG, while removal of a placenta was associated with massive hemorrhage requiring blood transfusion at a S-hCG level of 366 IU/L⁴. Notably, we experienced massive hemorrhage in Patient C during attempted transvaginal removal of the remaining tissue after a confirmed decrease of S-hCG to 43 IU/L. Patient C had the smallest remaining tissue and low level of S-hCG. The massive hemorrhage in this case was caused likely because blood flow remains for a while after degeneration of retained placental tissue.

The S-hCG levels just before rebleeding

were predominantly abnormally high, at 15,891 mIU/mL (Patient A) and 331 mIU/mL (Patient B). The S-hCG levels just before spontaneous expulsion of the retained placenta were 50 mIU/mL (Patient D), 137 mIU/mL (Patient E), and 0.5 mIU/mL (Patient F), suggesting that S-hCG levels are usually low when spontaneous expulsion occurs. However, we should also note that predicting the timing of spontaneous expulsion based on pre-expulsion S-hCG levels is difficult. In previous reports, low or negative S-hCG levels were followed by spontaneous expulsion⁵, while other patients with low (15 IU/L) or negative S-hCG levels required hysterectomy due to massive hemorrhage^{5,6}. Therefore, it is difficult to know whether conservative care would be successful from S-hCG level.

Blood flow as measured on ultrasound was considered to be unrelated to the occurrence of rebleeding. Rebleeding developed in a case where blood flow to the remaining tissue had disappeared, and spontaneous expulsion occurred in a case where a plentiful blood supply to the remaining tissue was suspected. Variability in the evaluation procedure was considered an explanatory factor for this phenomenon: this study was a retrospective investigation, and a different technician carried out the ultrasound examination in each case. MRI could be used when objectivity is critical; however, there are difficulties in conducting frequent MRI imaging and in using the images to predict the clinical course. Alternatively, pulsatility index (PI) of uterine artery could be useful to assess the blood flow of placenta, although we did not examine in our cases. PI increased after removal of placenta⁴. In another report, spontaneous expulsion of placenta was observed in cases with PI >1, whereas PI ≤1 was associated with rebleeding and hysterectomy⁵.

In this study, rebleeding occurred at 13 (Patient A), 14 (Patient B), and 22 (Patient C) days after delivery, suggesting the likelihood of rebleeding in cases of retained placenta is highest within one month of delivery, particularly around a few weeks after delivery. Spontaneous expulsion of the retained placenta occurred approximately one month after delivery, at 20, 27, and 46 days (Patients D, E, and F, respectively), and it is considered that conservative treatment of retained placenta involves an extended period of hospitalization. It was reported that spontaneous expulsion was observed in 75% of retained placenta cases, which occurred at 4 ~ 60 weeks (mean; 13.5 weeks) after delivery⁷. There have been several reports that described active removal of retained placenta by hys-

teroscope surgery^{8,9}. This procedure would shorten the duration of hospitalization, although the risk of massive hemorrhage requiring hysterectomy should be considered. There was no significant pathological difference in spontaneous expulsion tissue and operation sample in this study. Both of them were only necrotic tissues.

Conclusion

This study suggested conservative treatment of retained placenta without total hysterectomy would be possible. However, we consider that such conservative treatment should be carried out in advanced medical facilities with multidisciplinary therapeutic capabilities given that emergency hemostatic treatment is required in cases of rebleeding. We also consider that invasive handling is related to risk of re-bleeding even at low level of S-hCG. The collection of further data from additional retained placenta cases and the elucidation of factors that influence the clinical course of this condition are necessary in future research.

There is no financial support and no relationship that poses a conflict of interest.

This article is secondary publication of Conservative treatment of retained placenta in six patients; *Obstetrical and Gynecological Practice* Vol.65 No.12 2016 p.1685-1688.

References

1. Timmermans S, van Hof AC, Duvekot JJ (2007) Conservative management of abnormally invasive placentation. *Obstet Gynecol Surv* 62: 529-539
2. Ramoni A, Strobl EM, Tiechl J, Ritter M, Marth C (2013) Conservative management of abnormally invasive placenta: four case reports. *Acta Obstet Gynecol Scand* 92: 468-471
3. Kulkarni A, Draycott T (2005) The use of serial beta-HCG to plan surgical evacuation of retained placenta in a case of placenta accreta. *J Matern Fetal Neonatal Med* 17(4):295-297
4. Matsumura N, Inoue T, Fukuoka M, Sagawa N, Fujii S (2000) Changes in the serum levels of human chorionic gonadotropin and the pulsatility index of uterine arteries during conservative management of retained adherent placenta. *J Obstet Gynaecol Res* 26(2):81-87
5. Dueñas-García OF, Diaz-Sotomayor M, Rico-Olvera H (2011) Utility of the pulsatility index of the uterine arteries and human chorionic gonadotropin in a series of cases of placenta accreta. *J Obstet Gynaecol Res* 37(8):1112-1116
6. El-Bialy G, Kassab A, Armstrong M (2007) Magnetic resonance imaging (MRI) and serial beta-human cho-

7. Sentilhes L, et al (2010) Maternal outcome after conservative treatment of placenta accreta. *Obstet Gynecol* 115(3):526-534
8. Ganer Herman H, et al (2018) Pregnancies Following Hysteroscopic Removal of Retained Products of Conception after Delivery Versus Abortion. *Gynecol Obstet Invest* 26:1-7
9. Legendre G, Zoulovits FJ, Kinn J, Sentilhes L, Fernandez H (2014) Conservative management of placenta accreta: hysteroscopic resection of retained tissues. *J Minim Invasive Gynecol* 21(5):910-913