

# Title

## A Case of Hydronephrosis in Placenta Percreta

**Running title:** Hydronephrosis in placenta percreta

### ABSTRACT

Urinary bladder can be involved in ~~case~~ of placenta percreta which is the one important cause for severe hemorrhage during delivery and may ~~leads~~ to further complications. Though placenta percreta itself and its complications discovered during delivery and possible management can be done accordingly, but mother can lose her uterus to cease the severe bleedings in ~~the sake of~~ to save mother's life. Therefore, early detection of placenta percreta is highly recommended to save the uterus. We presented here a case report of involvement of urinary bladder in ~~case~~ of placenta percreta which ~~leads later~~ to hydronephrosis and ~~discussed~~ possible steps to save the uterus for the future ~~conceive of~~ mother ~~on the perspective of this~~ patient.

**Key words:** Placenta percreta, Hydronephrosis, Uterus transplantation, kidney.

### 1. INTRODUCTION

The condition 'morbidly adherent placenta' includes placenta accrete, increta and percreta. Among those three types, placenta percreta is the most severe form and in this type, abnormal placental implantation as ~~as~~ chorionic villi penetrate through the myometrium to the serosa of the uterus or other adjacent organs which ~~leads~~ severe ~~bleedings~~ and at the end of ~~the~~ ~~outcome is hysterectomy~~ [1]. Though the incidence of the placenta percreta is 7% ~~in~~ theoretically, but this incidence is increasing day by day [2].

The pathogenesis of placenta percreta is not clear but it is assumed that this incidence is increasing when old uterine scar dehiscence completely and this leads to the straight entrance of the extra villous trophoblast in the deeper myometrium, serosa and beyond [1]. The uterine scar may come from any types of the uterine surgery, for example myomectomy entering the uterine cavity, removal of intrauterine adhesions, conchal section of ectopic pregnancy, dilation and curettage, endometrial ablation etc, cesarean scar pregnancy, history of pelvic irradiation, infertility procedure etc [3, 4, 5]. Because of its propensity of severe hemorrhage, placenta percreta is a potentially life-threatening condition. Although it is commonly discovered at the time of delivery, antenatal diagnosis with ultrasound (USG), magnetic resonance imaging (MRI), and/or cystoscopy might be very helpful to recognize beforehand. Several steps of investigations during antenatal checkup can detect the early stage of placenta percreta. Therefore we aimed to discuss here one case study of placenta percreta with involvement of urinary bladder that lead to hydronephrosis and proposed several steps during antenatal checkup to save the uterus on the viewpoint of this patient.

## 2. CASE REPORT

A 30 years old women, married for five years, gravida 2, Para 1, admitted in the hospital at 27 weeks (+4 days) gestation due to tender, contracted abdomen and vomiting for two times in last 4 hours. She had a history of Caesarean Section (C/S) for her 1<sup>st</sup> baby 1 year and 6 months ago. That C/S was at 38 week of pregnancy due to marginal oligohydramnios. But, the cause of oligohydramnios was not known. The patient had no history of taking any kind of hormonal

contraptives. She had no other medical history except allergic rhinitis. She was regular in the antenatal checkup during both of her pregnancies.

During her second pregnancy, from approximately 11 weeks of gestation, she was complaining of itching at her wound site of previous C/S. At 20 weeks, during antenatal checkup, she was diagnosed with anemia (haemoglobin/Hb: 9.8 gm/dl), oligohydramnios, and type II placenta praevia. Patient was referred to tertiary level hospital and within 2 weeks her Hb was 12 mg/dl. She was discharged with some medications (mainly progesterone, ecosprin, iron supplement and calcium tablets). Patient regularly maintained all of the advices. Antenatal checkup was set after 2 weeks (24<sup>th</sup> weeks of gestation). Her itching problem at wound site was prominent with additional low back pain. Placenta position was Type III. As there was no sign of fetal distress, fetus was not in viable age, and fetal growth was not alarming, everyone ~~was~~ agreed to wait until 28 to 30 weeks of gestation to make more mature of the fetus. But, patient admitted in the hospital early in the morning at 27 weeks (+4 days) of gestation with tender and contracted abdomen.

During admission, the patient was haemodynamically stable. Her fundal height was 25 weeks of gestation, abdomen was tense and tender, and there was irregular contraction present. Fetal heart sound was 128 beats per minutes (bpm). Patient was given conservative treatment and was on observation. There was severe per vaginal (PV) bleeding after 20 hours of admission and she was in shock within the period of preparing operation theater (OT).

### **Operative and post-operative outcome:**

Per operative findings (under ketamin anesthesia) were Type-IV placenta praevia, morbidly adherent placenta with placenta percreta. Placenta could not be separated by one single

piece. With the consideration of patient's age, surgeon tried to protect the uterus and with all the available knowledge and facilities, she repaired wound. A baby boy weighting 1700 gm, with an APGAR score of 4 and 2 at 4<sup>th</sup> and 5<sup>th</sup> minutes, respectively, was born. The baby was send to the neonatal intensive care unit (NICU) and fought for his best with artificial ventilation. After all radiological investigation, it was found that his lungs were not mature enough for drug treatment. The baby expired after 4 days of delivery.

On the other hand, on operating day, mother's PV bleeding started after 15 minutes of abdomen closure that could not be stopped by any regular using (for post partal hemorrhage) drugs. Then patient was taken to OT for subtotal hysterectomy under general anesthesia. Three hours after 2<sup>nd</sup> intervention, her vital conditions started to fall (Pulse: 130-170/min, BP: 35/55 mm of Hg, Oxygen saturation was 98%). Immediately, 3<sup>rd</sup> operation was arranged in presence of some urologists with suspecting of concealed bleeding. There were around 1-5 units of clotted and liquid blood in whole abdomen mainly paracolic gutter. Many bleeding spots were encountered from bladder surface and placental tissues were removed from them. There was no placental tissue inside the urinary bladder. Patient was unconscious for three days. After three days of unconsciousness with getting 5 bags of fresh frozen plasma, 3 bags of concentrated platelet and 41 bags of fresh blood (from the 1<sup>st</sup> operation, some were running); patient was shifted to general ward with consciousness. Her in situ canula was for 7 days, and urinary bladder catheter was for 21 days. All antibiotic were resistant except Netimicine, Cefepime and Gentamicin on 17<sup>th</sup> POD. She developed urinary tract infection (UTI) and left sided moderate hydronephrosis after 10<sup>th</sup> POD. Ureteric stent was given next day (Figure 1). The stent was removed 5 months after. Patient was completely discharged from the hospital after 1month and 11 days of admission.

Patient was free from any physical complains when came follow up after 6 months. But within these 6 months she was suffering from left sided low back pain, clotted PV bleeding, lower abdominal heaviness, etc; which was treated symptomatically.

### 3. DISCUSSION

Continuous sutures (single or double layers closure both) in the uterine myometrium during prior caesarean section (C/S) is one of the independent risk factors for placenta accrete/percreta [6]. Our case had previous history of C/S in which itching was started around 11 weeks of pregnancy. We assume that that itching symptom was the early sign of placenta percreta. And on that time we could detect the early sign of placenta percreta by proper antenatal investigation that was colour dopler ultrasonography, which could detect the blood flow of placenta [7]. In our case colour doppler was done only during 8 weeks of pregnancy but not later. Color doppler ultrasonography was highly recommended [8, 9] when itching symptoms arose at the beginning in this case. Additionally MRI w/gadolinium contrast [10, 11] and cystoscopy[12] could add a great help for the early detection of placenta percreta. We suppose that if we could found the sign of placenta percreta early and then we could get attempt to get abortion to save the uterus. Therefore two steps of management are necessary to avoid placenta percreta; (1) to use interrupted suture during closure of abdomen and uterus in 1<sup>st</sup> C/S which might not lead to placenta percreta (2) to use always color doppler ultrasonography (USG) during antenatal checkup to detect abnormal blood flow of placenta. As color doppler USG is expensive for the developing countries therefore we shall expect universal health coverage to buy color doppler USG.

Placenta usually invades to the surrounding structures of uterus like urinary bladders, rectum, ureters etc during placenta percreta and makes the life threatening condition to mother

[13]. Though commonly urinary bladder involve [13] but kidney involvement (hydronephrosis) still not documented. Our case developed hydronephrosis after post operation. Untreated urinary tract block is one cause for Hydronephrosis. That block might be appeared due to blood clot [14] which can be treated with ureteric stent or pyeloplasty [15]. Our patient received ureteric stent for the treatment of unilateral hydronephrosis which was recovered after 5 months.

Uterus loss is the most common complication in placenta percreta [16]. And that was happened in our patient with ~~lost~~ of child bearing capacity. Uterus transplantation is a good option for her. Though successful outcome was documented [17] but public funding [18] was the questionable remark for our patient. Therefore, another option for her is surrogacy, which is already in great controversy psychosocially and legally in some countries [17]. Only one option left for her is adoption. Here, one discipline of health science is last but not the least. That is psychology. Our patient had to face, 3 anesthesia, from which 2 were G/A, within 9 hours. Besides these, she carried stent for 5 months. In which extent her brain functioning is a common interest for anesthesiologist, cognitive and neuropsychologist. Also, dream of her future life can give her any psychological trauma, that is not prominent yet (upto 1 year). Though any strong psychological effect was not documented yet after hysterectomy in benign condition [19] patient should need some brain functioning test, like EEG (electroencephalogram), cognitive function test, etc; although still there is no visible behavioral abnormality in our patient. The couple was counseled properly about all the above matters and it is expected that the patient will get strong mental support from her spouse.

#### 4. CONCLUSION

As Placenta percreta is usually involve with the urinary bladder, there might be some consequence in kidney by blocking urinary tract. Therefore any block in urinary tract should be

investigated immediately and properly when detect placenta percreta. A regular practice of interrupted suture instead of continuous suture at the inner side of uterine wall is suggested to reduce the incidence of Placenta percreta. Regular use of color doppler USG is highly recommended to detect abnormal placental flow during antenatal checkup.

## REFERENCES

1. Tantbirojn P, Crum CP, Parast MM. Pathophysiology of placenta creta: the role of decidua and extravillous trophoblast. **Placenta** 2008; 29:639.
2. Miller DA, Chollet JA, Goodwin TM. Clinical risk factors for placenta previa-placenta accreta. **Am J Obstet Gynecol** 1997; 177:210.
3. Fitzpatrick KE, Sellers S, Spark P, Kurinczuk JJ, Brocklehurst P, Knight M. Incidence and risk factors for placenta accreta/increta/percreta in the UK: a national case-control study. **PLoS One** 2012; 7:e52893.
4. Timor-Tritsch IE, Monteagudo A, Cali G, Vintzileos A, Viscarello R, Al-Khan A, Zamudio S, Mayberry P, Cordoba MM and Dar P.. Cesarean scar pregnancy is a precursor of morbidly adherent placenta. **Ultrasound Obstet Gynecol** 2014; 44:346.
5. Kaser DJ, Melamed A, Bormann CL, Myers DE, Missmer SA, Walsh BW, Racowsky C, Carusi DA. Cryopreserved embryo transfer is an independent risk factor for placenta accreta. **Fertil Steril** 2015; 103:1176.
6. Sumigama S, Sugiyama C, Kotani T, Hayakawa H, Inoue A, Mano Y, Tsuda H, Furuhashi M, Yamamuro O, Kinoshita Y, Okamoto T, Nakamura H, Matsusawa K, Sakakibara K, Oguchi H, Kawai M, Shimoyama Y, Tamakoshi K, Kikkawa F. Uterine sutures at prior caesarean section and placenta accreta in subsequent pregnancy: a case–control study. **BJOG** 2014;121(7):866–874.

- 158 7. Yang JI, Lim YK, Kim HS, et al. Sonographic findings of placental lacunae and the  
159 prediction of adherent placenta in women with placenta previa totalis and prior Cesarean  
160 section. **Ultrasound Obstet Gynecol** 2006;28:178–182.
- 161 8. Shih JC, Lim YK, Kim HS, Chang KH, Lee JP, Ryu HS: Role of three-dimensional power  
162 Doppler in the antenatal diagnosis of placenta accreta: comparison with gray-scale and color  
163 Doppler techniques. **Ultrasound Obstet Gynecol** 2009;33:193–203.
- 164 9. Wong HS, Cheung YK, Zuccollo J, Tait J, Pringle KC: Evaluation of sonographic diagnostic  
165 criteria for placenta accreta. **J Clin Ultrasound** 2008;36:551–559.
- 166 10. Levine D, Hulka CA, Ludmir J, Li W, Edelman RR: Placenta accreta: evaluation with color  
167 Doppler US, power Doppler US, and MR imaging. **Radiology** 1997;205:773–776.
- 168 11. Thiravit S, Lapatikarn S, Muangsomboon K, Suvannarerg V, Thiravit P, Korpraphong P.  
169 MRI of placenta percreta: differentiation from other entities of placental adhesive disorder.  
170 **Radiol Med** 2016 Sep 20. Epub ahead of print.
- 171 12. Takai N, Eto M, Sato F, Mimata H, Miyakawa I: Placenta percreta invading the urinary  
172 bladder. **Arch Gynecol Obstet** 2005;271:274–275.
- 173 13. Ortiz-Villalobos RC, Luna-Covarrubias EE, Serrano-Enríquez RF, Laureano-Eugenio J,  
174 Mejía-Mendoza ML, Rodríguez-Rodríguez JG. Placenta percreta with invasion of the  
175 bladder, ureter and abdominal wall. **Case report.Ginecol Obstet Mex** 2013;81:487–493.
- 176 14. Koh JS, Wong MY, Li MK, Foo KT. "Idiopathic retroperitoneal fibrosis with bilateral lower  
177 ureteric obstruction—a case report with literature review". **Singapore Med J** 1998; 39 (9):  
178 416–7.
- 179 15. Onen A. "Treatment and outcome of prenatally detected newborn hydronephrosis". **J Pediatr**  
180 **Urol** 2007; 3 (6): 469–76.

16. Frasca D. A Cesarean hysterectomy for invading placenta percreta: anesthetic safety considerations--a case report. **AANA J** 2012 Oct; 80(5):373-8.
17. Johannesson L & Järholm S. Uterus transplantation: current progress and future prospects. **International Journal of Women's Health** 2016 Feb; 8:43–51.
18. Wilkinson S, Williams NJ. Should uterus transplants be publicly funded? **J Med Ethics** 2016 Sep; 42(9):559-65.
19. Darwish M, Atlantis E, Mohamed-Taysir TP. Psychological outcomes after hysterectomy for benign conditions: a systematic review and meta-analysis. **Eur J Obstet Gynecol Reprod Biol** 2014 Mar; 174:5-19.

## Figure legends

Figure1: Ultrasonogram shows the stent which was given for hydronephrosis of left kidney.

