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Triple P Procedure : Surgical Alternative to Hysterectomy for Placenta Accreta

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INTRODUCTION

Abnormal invasion of the trophoblastic tissue beyond decidua basalis into the myometrium is referred to as abnormal invasion of placenta (AIP) or placenta accreta spectrum disorders (PAS). The incidence of these cases has significantly increased worldwide mostly due to a rise in C-Section rates in recent years. Historically, management of PAS involved a peripartum caesarean hysterectomy (radical) or intentional retention of the entire placenta (IRP). Both which are associated with significant maternal morbidity.

Elective peripartum hysterectomy with or without bowel/bladder resection or ureteric reimplantation (for placenta percreta infiltrating these organs) is associated with massive obstetric haemorrhage and serious maternal complications. Therefore, several conservative surgical procedures such as surgical resection of the invaded part of uterine wall followed by uterine reconstruction or the use of uterine compression sutures with balloon tamponade have been attempted. Even though, the reported success rate of IRP is between 60%-93% , it is associated with increased risk of secondary haemorrhage, infection, fistula formation, the need for secondary curettage, secondary hysterectomy up to 9 weeks post-partum and recurrence.

Triple P Procedure was introduced as a conservative surgical alternative to reduce the maternal morbidity. It involves 3 key steps: perioperative placental localisation; pelvic devascularisation; placental non-separation and myometrial excision, followed by reconstruction of the myometrium [1].

CASE REPORT

To our best knowledge, this is the first case of Triple-P Procedure performed in Wales.

History of Presenting Illness

31 years, Gravida 9, Para 3 with a history of vaginal bleeding at 24 weeks + 1 day of gestation. She had previous 2 term deliveries by C- Sections, 4 miscarriages and one ectopic pregnancy.

Investigations

Early pregnancy USS - Gestational sac was in the lower uterine segment
Follow-up scan - at her 7th week - Multiple internal septa within the intrauterine gestational sac
Subsequent USS - Anterior placenta with an irregular leading edge with lacunae and prominent vessels invading the myometrial, placental and posterior bladder wall interface.
A multidisciplinary care plan involving midwives, obstetricians, anaesthetists, radiologists, and urologists was instituted and an elective C-Section was planned at 34th weeks of gestation in view of the history of vaginal bleeding.

Procedure

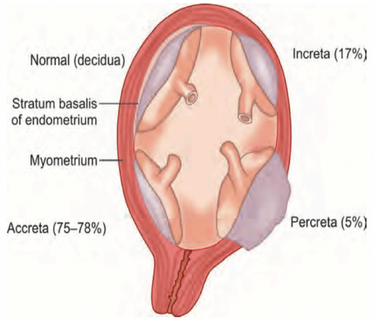
After performing a peri-operative ultrasound scan to delineate the upper border of the placenta, the abdomen was opened with a transverse suprapubic incision, and the subcutaneous fat was reflected from the underlying rectus sheath, so that the "St George's Boat Incision" could be made to incise the myometrium transversely above the upper border of the placenta. The fetus was delivered as breech and the uterus was exteriorised thereby allowing identification of the placental bed within the endometrial cavity. The placental margins were identified and myometrial excision was made to remove the adherent placenta. Haemostasis was achieved and the the uterus was closed in a single layer, with a uterine tamponade balloon in-situ. A diagnostic cystoscopy was performed in the end to rule out any iatrogenic bladder injury. Routine closure of the abdomen was carried out. Estimated intraoperative blood loss was 4.5 litres and the patient had 7 units of packed red blood cells transfused.

Post Operative Care and Follow-up

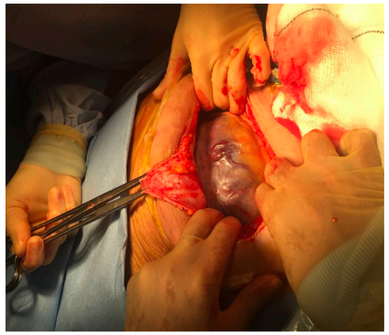
Antibiotics were prescribed for 5 days in the postoperative period. The woman made a good post-operative recovery with no postpartum haemorrhage, fever, ileus, urine retention, vesicovaginal fistula, infection, or deep vein thrombosis. Follow-up US after 8 weeks confirmed complete involution of uterus without significant uterine scar niche or intrauterine adhesions. Histopathological examination of the excised myometrium confirmed evidence of PAS with extensive infiltration of the uterine myometrium (placenta increta).The patient resumed normal menstrual cycle after cessation of breast feeding. She conceived twice, however, due to her previous history of recurrent pregnancy loss and ectopic, unfortunately these were early pregnancy losses.

DISCUSSION

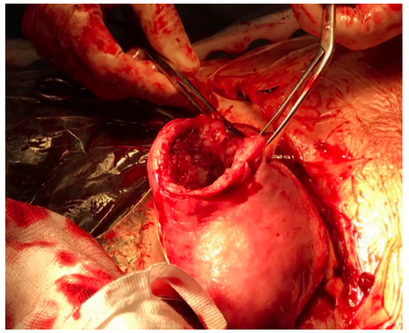
The incidence of PAS is reported to be increasing worldwide, and hysterectomy remains the "standard treatment " in many centres. Our case report illustrates that a conservative surgical approach (Triple P procedure) is a viable alternative to minimize surgical complications and preserve fertility. Triple-P involves three steps: perioperative placental localization using a transabdominal ultrasound scan to delineate the upper border of the placenta on the operation table and delivery of the fetus through a uterine incision placed above the upper border of the placenta; pelvic devascularization immediately after delivery of the fetus by inflation of prepositioned uterine artery occlusion balloons to reduce blood supply to the myometrium and placental nonseparation and myometrial excision (to avoid separation of the morbidly adherent placenta from the underlying myometrial bed) with reconstruction of the uterine wall.
The area of placental infiltration into the bladder (approximately 2-3 cm) is left untouched as attempts at separation may result in perforation of the urinary bladder. Focal myometrial excision has been previously described for PAS. However, avoidance of placental incision by delineating the upper border of the placenta immediately prior to caesarean section and immediate pelvic devascularization prior to myometrial excision helps minimize blood loss and avoids the risks of an emergency peripartum hysterectomy. Management of abnormal invasion of the placenta depends on the diagnosis, surgical and anaesthetic expertise available, resources as well as the woman's choice for future fertility.



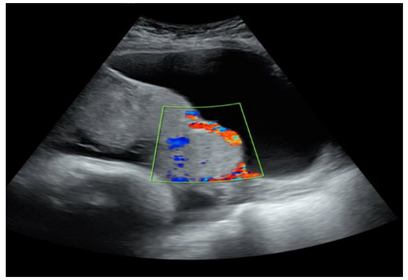
Placenta Accreta Implantation sites

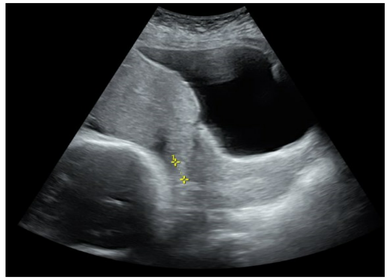


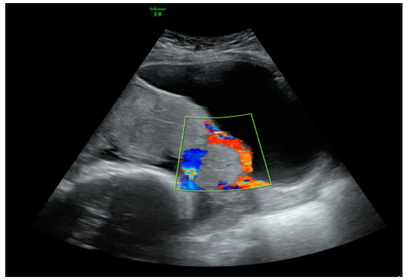
St George's Boat Incision on the Rectus[2]



Myometrial excision of area of placental invasion in the upper segment [2]







Ultrasound Doppler Images taken preoperatively

CONCLUSION

Elective delivery is generally performed between 35 and 37 weeks to achieve the best balance between the risks of prematurity and the risk of emergency delivery. However, in view of history of vaginal bleeding, an earlier delivery at 34 weeks of gestation was carried out to reduce the risk of an unexpected profuse vaginal bleeding.
We strongly believe that this conservative surgical approach should be chosen in carefully chosen women to reduce the short and long term physical and psychological consequences of peripartum hysterectomy. The Triple P procedure, and its modifications has shown to have excellent surgical outcomes, with minimum maternal and neonatal morbidity, and the potential to preserve fertility, in women who desire further pregnancies, after appropriate counselling. The case report of a successful pregnancy was reported in 2017 [3] and the study which analysed the outcomes for first 50 cases at the institution where the Triple P Procedure was developed, reported no cases of hysterectomy with reduced maternal morbidity [4].

REFERENCES

1. Chandraharan E, Rao S, Belli AM, Arulkumaran S. The Triple-P procedure as a conservative surgical alternative to peripartum hysterectomy for placenta percreta. Int J Gynaecol Obstet. 2012 May;117(2):191-4. doi: 10.1016/j.ijgo.2011.12.005.
2. Piñas Carrillo A, Chandraharan E. Placenta accreta spectrum: Risk factors, diagnosis and management with special reference to the Triple P procedure. Womens Health (Lond). 2019 Jan-Dec;15:1745506519878081. doi: 10.1177/1745506519878081. PMID: 31578123; PMCID: PMC677
3. Cauldwell M, Chandraharan E, Pinas Carillo A, Pereira S. Successful pregnancy outcome in woman with history of Triple-P procedure for placenta percreta. Ultrasound Obstet Gynecol. 2018 May;51(5):696-697. doi: 10.1002/uog.17566.
4. Pinas-Carrillo A, Bhide A, Moore J, Hartopp R, Belli AM, Arulkumaran S, Thilaganathan B, Chandraharan E. Outcomes of the first 50 patients with abnormally invasive placenta managed using the "Triple P Procedure" conservative surgical approach. Int J Gynaecol Obstet. 2020 Jan;148(1):65-71. doi: 10.1002/ijgo.12990. Epub 2019 Oct 19