

UOG Journal Club: September 2015

妇产科超声杂志期刊俱乐部：2015年9月

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

产后出血的预防和胎盘病态附着患者的子宫切除术：
队列研究比较引入Triple-P过程之前及之后的结局

M. Teixidor Vinas, A. M. Belli, S. Arulkumaran and E. Chandraharan
Volume 46, Issue 3, Date: September, pages 350–355



Journal Club slides prepared by Dr Joel Naftalin
(UOG Editor for Trainees)

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Background背景

- Morbidly adherent placenta (MAP) is the second highest cause of hemorrhage leading to peripartum hysterectomy in the UK
- 在英国，围产期出血导致行子宫切除术的第二位原因是胎盘病态附着 (MAP)
- Traditional management has been Cesarean hysterectomy
- 传统的处理方法是切除子宫
- In the absence of an antenatal diagnosis, this Caesarean hysterectomy is associated with a mean expected blood loss of 7800mL and significant maternal and fetal morbidity and mortality
- 在缺乏产前诊断时期，剖腹产子宫切除术与平均预期失血为7800ml和重大母胎疾病发病率和死亡率相关
- MAP can now be diagnosed prenatally by ultrasound or MRI, allowing a specific management plan to be instituted, however the optimal management of these women is yet to be determined
- 现在，MAP在产前可以通过超声或MRI进行诊断，为此制定一个特定的管理计划，尽管这些女性的最佳管理仍有待确定

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Objective 目的

To evaluate patient outcomes and need for further interventions in women with MAP, before and after introduction of the Triple-P procedure involving placental non-separation, myometrial excision and reconstruction of the uterine wall

以评估病人的结局和对MAP女性的进一步干预，引入Triple-P过程之前和之后涉及胎盘不分割，子宫肌层的切除和重建

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Patients and Methods病人和方法

- Cohort study including 30 pregnant women with MAP treated at the study center between December 2007 and February 2014
- 队列研究包括从2007年12月至2014年2月在研究中心治疗的30位MAP孕妇。
- In 2007, a policy of placing bilateral prophylactic occlusion balloon catheters in both internal iliac arteries before Cesarean delivery, with non-placental separation and preservation of the uterus, was instituted
- 2007年,制定了预防性措施,就是剖腹产之前,在双侧髂内动脉放置闭塞性球囊导管,不分离胎盘并且保留子宫。
- In 2010, the surgical technique was modified and the Triple-P procedure was introduced
- 2010年,外科技术被修改,并引进了Triple-P过程。
- 19 women received the Triple-P procedure (study group) and 11 did not (control group)
- 19名孕妇接受了Triple-P过程(研究组)和11名没有(对照组)

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

The Triple-P procedure Triple-P过程

- Step 1 – Preoperative location of the placenta and delivery of the fetus by an incision above the upper border of the placenta
步骤1 -术前胎盘的位置和从胎盘上缘的上方作切口娩出胎儿
- Step 2 – Pelvic devascularization by inflating pre-placed occlusion balloons in both internal iliac arteries under imaging guidance
步骤2——在影像学引导下膨胀预置在双侧髂内动脉的闭塞性气囊行盆腔血管断流术
- Step 3 – Placental non-separation with myometrial excision and reconstruction of the uterine wall
步骤3 -胎盘与子宫肌层不分割，子宫壁切除和重建

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Patients and Methods病人和方法

- Estimated blood loss (EBL), uterine artery embolization, hysterectomy and quantity of blood products given were compared between the two groups
- 两组之间的比较估算失血量(EBL),子宫动脉栓塞,子宫切除术和大量血液制品的应用
- When affected myometrium was removed or hysterectomy was performed, histological confirmation of the degree of placental invasion was recorded
- 当受侵子宫肌层被切除或行子宫切除术,记录其组织病理学确定的胎盘入侵程度
- When histological confirmation was not possible (control group, as the placenta was left in part or entirely within the uterus), surgical assessment of the type of MAP was recorded
- 当组织病理学不能证实(对照组,胎盘是部分或者全部留在子宫内),记录其手术评估的MAP的类型
- Statistical analysis comparing the two groups was performed using chi-square test (Fisher's exact test) for categorical variables and the Wilcoxon and Mann-Whitney *U*-tests for continuous variables
- 使用卡方检验(确切概率法)统计分析比较两组间分类变量,秩和检验和 Mann-Whitney *U*-tests比较连续变量

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Results结果

两组间人口统计资料

Characteristic	Control group (n = 11)	Study group (n = 19)	P
Age (years)	35 ± 5.06	36.1 ± 5.09	0.363
Age ≥ 35 years	7 (63.6)	12 (63.2)	
Nulliparous	1 (9.1)	0 (0)	0.406
Gravidity	4.36 ± 2.91	3.23 ± 1.30	0.181
≤ 3	5 (45.5)	13 (68.4)	0.194
> 3	6 (54.5)	6 (31.6)	
Parity	3.36 ± 2.91	2.06 ± 1.14	0.104
≤ 2	4 (36.4)	13 (68.4)	0.093
> 2	7 (63.6)	6 (31.6)	
History of gynecological surgery	9 (81.8)	17 (89.5)	0.470
History of curettage	4 (36.4)	7 (36.8)	0.646
History of CS	4 (36.4)	14 (73.7)	0.052
History of MAP or placenta previa	1 (9.2)	2 (10.5)	0.702
Other uterine surgery*	1 (9.1)	4 (21.1)	0.381
Placenta accreta	3 (27.3)	5 (26.3)	0.637
Placenta increta	2 (18.2)	1 (5.3)	0.298
Placenta percreta	6 (54.5)	13 (68.4)	0.354
GA (weeks)	32.9 ± 1.9	35.9 ± 5.8	0.280

Data are given as mean ± SD or n (%). *Myomectomy, ectopic pregnancy or circumcision. CS, Cesarean section; GA, gestational age at treatment.

两组治疗方式和结果

Variable	Control group (n = 11)	Study group (n = 19)	P
Radiation dose (mGy)	168.91 ± 122.64	97.59 ± 65.29	0.042
Blood loss during procedure (L)	2.17 ± 2.46	1.70 ± 0.95	0.445
Total blood loss (L)*	3.82 ± 4.09	2.31 ± 1.38	0.454
Hemoglobin reduction immediately post-procedure (g/dL)	3.49 ± 3.93	2.16 ± 1.43	0.195
PPH observed	6 (54.5)	3 (15.8)	0.035
UAE required	5 (45.5)	3 (15.8)	0.091
Cesarean hysterectomy required	3 (27.3)	0 (0)	0.045
Transfusion required	5 (45.5)	9 (47.4)	0.610
Volume of transfused blood products (units)			
Total RBC	54	40	
Total FFP	23	8	
Total PL	7	6	
Total CRYO	4	0	
Maternal complications	0	1	
Infant complications	2	0	
ICU stay (days)	2.82 ± 2.63	3.5 ± 1.20	0.058
Inpatient stay (days)	7.73 ± 5.08	4.75 ± 2.02	0.044

Data are given as mean ± SD, n (%) or n. *Blood loss during procedure and postprocedure in case of postpartum hemorrhage (PPH). CRYO, cryoprecipitation; FFP, fresh frozen plasma; ICU, intensive care unit; PL, platelets; RBC, red blood cells; UAE, uterine artery embolization.

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Results 结果

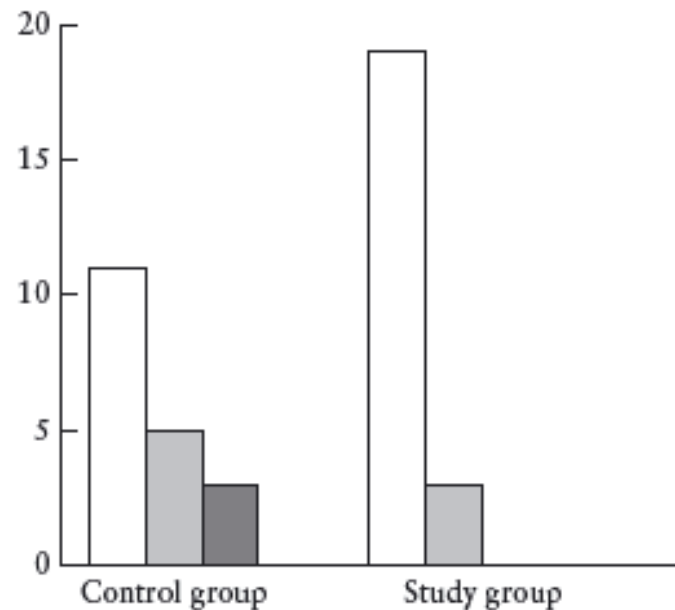


Figure 1 Pregnant women receiving prophylactic occlusion balloon catheter with (study group) or without (control group) Triple-P procedure (□) for treatment of morbidly adherent placenta and those who also required uterine artery embolization (▣) or hysterectomy (■).

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Results结果

- EBL was lower in the study group than in the control group but the difference was not statistically significant (1.7L vs 2.2L, $p = 0.445$)
- 估算失血量在研究组低于对照组,但差异没有统计学意义(1.7 vs 2.2 L, $p = 0.445$)
- The risks of postpartum haemorrhage (16% vs 55%) and emergency peripartum hysterectomy (0% vs 27%) were statistically significantly lower ($p < 0.05$) in the study group receiving the Triple-P procedure than in the control group
- 与对照组相比,接受Triple-P过程的研究组中,产后出血的风险(16% vs 55%)和围产期行紧急子宫切除术(0% vs 27%)在统计学上是显著降低的($p < 0.05$)。
- There was also a significant difference ($p = 0.044$) in mean duration of inpatient stay, with a significantly lower duration among women treated in the study group (4.8 vs 7.7 days)
- 病人的平均住院时间也有显著性差异($p = 0.044$),特别是研究组中接受治疗的孕妇住院时间显著降低(4.8 vs 7.7天)

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Results结果

Type of MAP	Group	Patients (n)	EBL (L)		Transfusion required		PPH	UAE performed		Hysterectomy required		
			Mean (range)	P	Mean (%)	P		Mean (%)	P	Mean (%)	P	
Placenta accreta	Control	3	3.4 (2.2–5.0)	0.28	2 (66.7)	0.5	3 (100.0)	0.07	2 (66.7)	0.28	1 (33.3)	0.37
	Study	5	2.4 (1.0–4.5)		2 (40.0)		1 (20.0)		1 (20.0)		0 (0)	
Placenta increta	Control	2	6.4 (0.8–12.0)	*	1 (50.0)	0.66	1 (50.0)	0.66	1 (50.0)	0.66	1 (50.0)	0.66
	Study	1	1		0 (0)		0 (0)		0 (0)		0 (0)	
Placenta percreta	Control	6	7.6 (0.5–10.0)	0.20	2 (33.3)	0.47	2 (33.3)	0.37	2 (33.3)	0.37	1 (16.7)	0.31
	Study	13	2.25 (1.0–4.5)		7 (53.8)		2 (15.4)		2 (15.4)		0 (0)	

Data are given as *n*, mean (range) or *n* (%). *Not possible to perform statistical calculation owing to limited number of patients included in sample. EBL, estimated blood loss; PPH, postpartum hemorrhage; UAE, uterine artery embolization.

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Results结果

Maternal complications母体并发症

Control group对照组

- 一个病人剖腹产后出现了双侧闭塞球囊破裂, 导致大量产科出血 (12 L), 立即行子宫切除术
- 两个病人, 产后大出血通过子宫动脉栓塞术控制不住, 需行子宫切除术
- 一个病人在产后4个月继发产后大出血, 需要第二次子宫动脉栓塞治疗

Study group研究组

- One patient developed a right common iliac and external iliac artery thrombosis after removal of the occlusion balloon catheters and sheaths
- 除去闭塞性球囊导管和鞘后, 一个病人的右侧髂总和髂外动脉血栓形成

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Conclusion讨论

- Introduction of the Triple-P procedure conveyed a significantly reduced rate of hysterectomy, PPH and duration of hospital stay in patients with MAP
- 引入Triple-P过程可以显著地降低子宫切除术，产后出血和MAP患者的住院时间

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Strengths 优点

- This is the largest reported study in the literature of women with MAP being treated conservatively
•关于MAP的孕妇进行保守治疗的文献报道中，这是最大的研究
- It is a novel study with a standardized management protocol
•这是一个关于规范化管理的新研究
- The same team were used for both groups therefore minimizing the possibility that reported differences are due to variables other than the change in the management protocol
•相同的团队均用于两组最大程度的减少了因变量而非管理规范的变化导致的偏差报道的可能性。

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Limitations 局限性

- The number of cases were small ($n = 30$)
- 病例数量很少 ($n=30$)
- Case-historical cohort design rather than a randomised trial
- 病例-历史队列设计而不是一个随机试验
- The study only evaluated short-term outcomes
- 这项研究只评估短期结果

Prevention of postpartum hemorrhage and hysterectomy in patients with morbidly adherent placenta: a cohort study comparing outcomes before and after introduction of the Triple-P procedure

Teixidor Vinas et al., UOG 2015

Discussion points 讨论要点

- 这个研究的结果或许解释的是暂时性的，但随着时间的推移，这个团队会积累更多的使用阻塞球囊导管的经验，或许这个研究结果可以进一步改善，而不仅仅是为了介绍一个在2010年新的手术技术？
- 在MAP的管理中，对于随后就怀孕不知道妊娠结局的孕妇，是否能完整的评估保守治疗？
- 是否所有在产前被诊断为MAP的孕妇，需要三级转诊中心提供子宫动脉栓塞术？