



Hypogastric artery ligation in management of postpartum hemorrhage

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Objective

Ligation of the hypogastric arteries (HAL) was first introduced into surgery by the end of the 19th century to control intractable haemorrhage from the uterus of women with advanced cervical cancer. At present, HAL is part of a spectrum of operative methods to control life-threatening postpartum haemorrhage. The aim of our study was to analyse maternal outcome and complications after ligation of the hypogastric arteries.

Methods

This was a retrospective cohort study of 113 patients who were managed by hypogastric artery ligation to control postpartum haemorrhage in our perinatal center between January 2005 and December 2017. Indications and clinical findings in low risk and high-risk group (placenta praevia, previous uterine surgery, morbidly adherent placenta - MAP) of patients were described. Complications were specified as early and late postoperative morbidity.

Results

Of these patients, 23/113 (20.4%) delivered vaginally and 90/113 (79.7%) had a caesarean section (elective in 35, 4%, emergency in 44, 3%) at a mean of 35 weeks' of gestation. Hypogastric artery ligation was performed to control intractable haemorrhage (uterine atony 27, 4%, placental abruption 6, 2%, vaginal trauma 6, 2%, haemoperitoneum after C-section 9, 7%, HELLP syndrome and embolism 6, 2%) in 63/113 (55.7%) patients. Prophylactic reduction of pelvic blood flow was the indication of the procedure in 50/113 (44.3%) patients (placenta praevia 17, 7%, MAP 26, 6%). As a first step of devascularization of the pelvis HAL was performed in 95/113 (84.1%) cases. In a group of high-risk patients (diagnosis of MAP, placenta praevia and uterine surgery) the arteries were prophylactically ligated in 58/65 (89.2%) cases. The median blood loss of 1541.2 ml (range 700-6000ml) and median duration of operation of 128.5 min (range 60-380 min) were related to the cause of haemorrhage. One woman after vaginal delivery with DIC development died of amniotic fluid embolism. In other cases, hemorrhage was effectively controlled and 60/113 (53.1%) patients did not undergo caesarean hysterectomy. In 66, 6% (40/60) there were low risk patients, but the uterus was preserved even in cases of MAP (8/60, 13.3%). Hysterectomy was more often performed in multiparous patients (58.1 vs. 25.6%). Out of cases where the uterus was preserved five women (5/60 - 8.3%) become pregnant. Assessing the morbidity of the devascularisation methods is difficult. It is related mainly to its own serious form of postpartum hemorrhage and its cause. Apart from one case of urethral injury and 4 cases of urinary bladder injury (5/113 - 4.4% cases) no complications have been observed. Late morbidity was represented by the need for late reoperation due to hemoperitoneum, sepsis or thrombosis in 6/113, 5.3% cases. No case of soft tissue necrosis or ischemic complications occurred.

Conclusion

From our work we have shown that HAL could be effectively used to control life-threatening pelvic hemorrhage and also as a prophylactic procedure. In this situation it is an inconceivable benefit to perform HAL as a first step of pelvic devascularization of the pelvis after delivery of the fetus. Ligation of the hypogastric arteries preserves reproductive function and has shown to be a safe and effective method.

