

Key words: Caesarean Section, intra-operation blood loss, devascularization the uterus.

Abstracts. Prospective trial of 137 pregnant women underwent C/s due to previous occurrence (110) or high risk (27) hemorrhage was performed. The ligation of a.uterine at 2 levels bilaterally (devascularization uteri), compression sutures and its combinations were used. The effectiveness of conservative surgery in case of obstetrical hemorrhage was 94.5%. There was no any short-term and long-term complication in all patients. The preventive devascularization uteri in case of high risk intra- or postoperative hemorrhage reduced blood lost and didn't cause any circulation disturbances.

Introduction. Caesarean Section has become the most frequent operation in medicine in 21st Century. Intra-operating complications are increase with successive number of CS [1]. The following categories were identified as specific problems: bleeding during and after CS, pre-eclampsia and eclampsia, anesthesia related death, pregnancy related sepsis and embolism [2]. Serious maternal morbidity progressively increased as the number of previous caesarean deliveries increased [3]. Among the life-threatening complications of multiple CSs the massive obstetrics hemorrhage and blood transfusion is on the 1st position [4]

The aim of our investigation is to minimize the intra-operation blood loss in the group with high risk of massive hemorrhage.

Study Design. Prospective trial of 137 pregnant women was performed. All patients underwent C/s due to previous occurrence (110) or high risk (27) hemorrhage. The indications of C/s in case of hemorrhage were placenta abruption (90), multiple C/s (14), rupture of the uterus in vaginal birth after C/s (1), uterus hypotonia after vaginal delivery (3), severe thrombocytopenia (2). The high risk hemorrhage associated with multiple pregnancy with severe preeclampsia, giant fetus, C/s plus myomectomy, 7th C/s for the patient, severe thrombocytopenia, severe placenta abruption without Cuveler's uterus.

In case of hemorrhage the surgeon complied with the clinical protocol. At the first stage the uterine artery was ligated bilaterally at 2 levels, such as called "devascularisation". If unsuccessfully, compression sutures were used either B-Linch or Pereira or its combination. If hemorrhaging persisted, the ligation of a.ilic int. or hysterectomy were per-

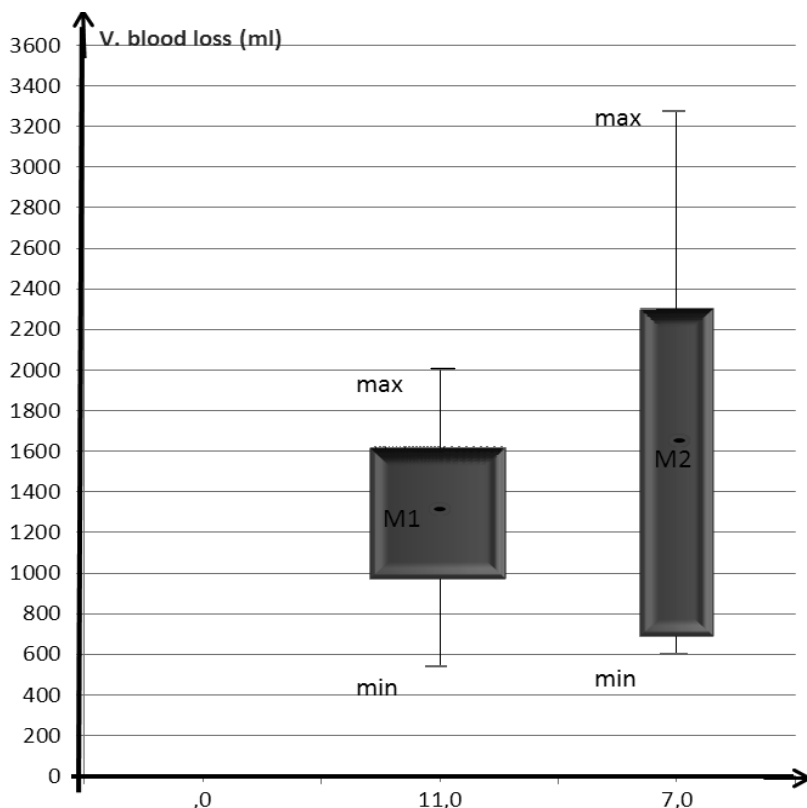


Figure 1. The volume of blood lost in the groups with devascularization (1) and without it (2)
M – mediana.

formed. The ligation of a.uterine at 2 levels bilaterally as a preventive measure was carried after removing placenta and exteriorization uterus from abdominal cavity [5]. Doppler control was used in postoperative period.

Results. We performed 77 ligation of the uterine arteries at 2 levels bilaterally, 13 compression sutures by B-Linch, Pereira or its combination, 11 combination ligation of uterine arteries with compression sutures, 2 ligation of the iliac int. arteries and 6 hysterectomies for stop bleeding (total 110). Thus the effectiveness of conservative surgery in case of obstetrical hemorrhage was 94.5%. The indications for hysterectomy (5.5%) were uterus of Cuveler, placenta increta, stubborn hypotonia of the uterus, and rupture of the uterus resulting in damaged vessels. Preventive ligation of the uterine arteries were highly effective. No postoperative bleeding, lactation, low abdominal pain and menstrual disorders later were reported.

To assess the effectiveness of devascularization, the volume of blood loss in 18 patients was compared with Placenta Abruptio, of which in 11 patients devascularization was performed in comparison with those who did not have devascularization (7 patients). It turned out that in the group with devascularization the total volume of blood loss was significantly lower (1269 ± 140 ml) than in the group without devascularization (1454 ± 367 ml). The difference between the maximum blood loss in the patients of the compared groups was also significant ($p < 0,01$). (Figure 1).

The question of the expediency of preventive uterine devascularization at a high risk of massive blood loss during caesarean section is debatable. We observed for a few years 17 patients, whose uterine arteries were ligated for preventive purposes, and out of these 17 normal menstrual function had 14, improved – 3 (decreased menstrual blood lost) and 4 got pregnant 3 years after the surgery with a favorable outcome.

We consider the indications for preventive ligation of uterine arteries at two levels are the factors that promote uterine hypotonia after a surgery, or disturbance of hemostasis. These factors include the following:

- Excessive distension of the uterus (polyhydramnios, multiple pregnancy, giant fetus), which demonstrates the low ability to contract during operation
- Factors that promote disorder of myometrial trophism (placenta abruptio, high parity, more than 2 cesarean section in history, endometritis in history, conservative myomectomy prior to or during pregnancy in past history)
- Disturbance of the hemostasis system
 - Blood disorder
 - Risk of, or ongoing DIC syndrome (severe preeclampsia)
- Placenta previa (ligation of arteries after removing the fetus and prior to removing the placenta)
- Complications of labor promoting uterine hypotonia (CPD, prolonged induction with oxytocin, prolonged labor, chorioamnionitis in labor, etc.)
- Conservative myomectomy after extracting the fetus

One should bear in mind that surgical preventive ligation of uterine arteries (devascularization) does not exclude prevention of uterine hypotonia using medicamentous therapy with uterotonic drugs. There was no any short-term and long-term complication in all patients.

Conclusion. Thus, the arresting intraoperative obstetrical hemorrhage through ligation of the a.uterine at 2 levels bilaterally solely as the first step in conservative surgery or in combination with compression sutures exhibits a success rate of 94.5%. This method as a preventive measure in case of a high risk of hemorrhage during C/s shows good indicators for success and doesn't result in any short-term/long-term reproductive disturbances.

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