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Original Article

A new facilitating technique for postpartum hysterectomy at full dilatation: Cervical clamp

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Abstract

Background: Postpartum hysterectomy is a life saving emergency procedure in the management of uncontrollable severe maternal hemorrhage that every obstetrician should be closely acquainted with despite developments in medical and non-surgical interventions for obstetric hemorrhage. It can be difficult to detect the real boundaries of the cervix at full effacement and dilatation in patients who undergo emergency hysterectomy after vaginal delivery.

Methods: Hereby we propose a simple and effective method to ease the operation by placing two atraumatic ring forceps to the anterior and posterior sides of the cervix during the preoperative vaginal examination and leave the two ring forceps while taking the patient into surgery. The boundary of the vagina and cervix will be determined with the help of the ring forceps intraoperatively, which are already placed before the operation.

Results: Cervical clamp technique was successfully performed in four cases underwent to emergency postpartum hysterectomy due to uncontrollable postpartum atony. There were no postoperative complication and re-exploration for the persistent hemorrhage. Postoperative FSFI scores of the cases were 26.7, 27.4, 30.3 and 30.7.

Conclusion: Taking extra vaginal tissue from the lower level of the cervix may be avoided and the last stage of the total hysterectomy may be facilitated by this simple technique with ensuring of bleeding management.

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Keywords: Cervical clamp; Postpartum hemorrhage; Postpartum hysterectomy

1. Introduction

The most common preventable causes of maternal mortality leading to postpartum hemorrhage (PPH) deaths involve inadequate surgical hemostasis.[1] The vast majority of the hysterectomy indications after vaginal birth is uterine atony with uncontrollable hemorrhage that do not respond to the conservative practices. Other risk factors for PPH include abnormal placentation, coagulopathies, retained placenta, precipitated or prolonged labor, fetal macrosomia or multiparity, maternal obesity and previous primary PPH.[2] Incidence of emergency postpartum hysterectomy (EPH) varies from 0.1 to 0.3 per 1000 vaginal deliveries with a declining ratio due to the developments in standard obstetric care.[3,4] Although the incidence is low, it represents a major operation in modern obstetric practice as it is directly related with maternal morbidity and mortality.[5] Despite the obstetric hysterectomy technique shows similarity with the abdominal hysterectomy in gynecologic cases, it holds specific surgical difficulties because of physiological and anatomical changes that occur during

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pregnancy. Subtotal hysterectomy is technically simpler, safer in terms of urinary tract injury and needs less skill when compared to total hysterectomy. However, bleeding from the lower segment and insufficient hemorrhage control may conduce to total hysterectomy. Difficulties in identifying the borders of the effaced cervix in women who have labored at full dilatation conclude with operative problems in total hysterectomy.[6,7] It can lead to incomplete removal, excessive loss of vaginal tissue and increased risk of urethral injury when doing total hysterectomy due to the loss of cervico-vaginal junction and the limited exposure caused by heavy bleeding.

2. Methods

2.1. Technique: cervical clamp

Determining the borders of the cervix surgically in emergency hysterectomies after vaginal delivery can be a challenging issue. It could be easy to detect the boundaries of the cervix with full effacement and dilatation with our technique. The clamps (ring forceps), which does not harm the tissue, are placed to the cervix with full effacement and full dilatation by the 6th and 12th o'clock positions during the vaginal examination in lithotomy position while evaluating the postpartum hemorrhage (Fig. 1).

If the decision inevitably turns to hysterectomy despite all the efforts and alternative methods routine hysterectomy procedures are swiftly followed. Bilateral round ligament, ovarian ligament and uterine arteries are clamped, cut and ligated with the use of Haney clamps. The bladder and rectum are dissected off the lower end of the uterus and subsequently priorly placed clamps are reached. After determining the boundaries of the cervix and vagina with the help of the ring forceps, cardinal ligaments clamped, cut and ligated. An incision made right above the anterior and posteriorly palpated clamps, clamps are removed transvaginally and the uterus is extracted totally after anterior and posterior incisions are closed.

3. Results

Retrospective clinical data of four cases underwent to emergency postpartum hysterectomy due to postpartum atony and massive maternal hemorrhage after vaginal delivery were given below to support the concept of using cervical clamp.

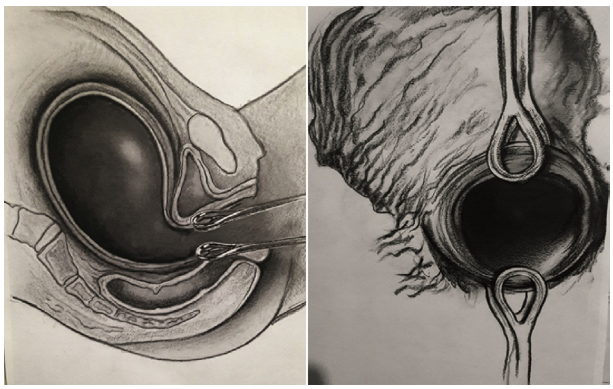

Fig. 1. Placing cervical clamps preoperatively at full dilatation.

Two cases were presented with postpartum atony subsequent to partus precipitatus. First of those two was 24 years old, primigravida nulliparous woman. Cervical clamps were placed during the transvaginal examination and left in place to assist the laparotomy or hysterectomy if needed by determining the borders of the cervix. Emergency laparotomy was performed due to the abundant hemorrhage resistant to medical interventions. Total hysterectomy decision was taken after rapid decrease in hemoglobin levels from 15, 1 mg/dl to 4,95 mg/dl and the failure of ligamentum ovarii proprium and uterine artery ligation. 5 units of whole blood, 16 units of erythrocyte suspension, 16 units of fresh frozen plasma and 6 units of thrombocyte suspension were required to obtain hemodynamic stability.

The second case with partus precipitatus was 41 years old, gravid 8 and para 6. Total hysterectomy decision was taken after rapid decrease in hemoglobin levels from 10, 2 mg/dl to 4, 35 mg/dl and the failure of ligamentum ovarii proprium, uterine artery and hypogastric artery ligation. 6 units of erythrocyte suspension and 6 units of fresh frozen plasma were required.

Third case was 34 years old, gravid 3 para 2 and presented with fetal macrosomia. Total hysterectomy decision was taken after rapid decrease in hemoglobin levels from 11, 7 mg/dl to 5, 5 mg/dl and the failure of ligamentum ovarii proprium, uterine artery, hypogastric artery ligation and B-Lynch suture. 3 units of whole blood, 6 units of erythrocyte suspension and 6 units of fresh frozen plasma were required.

Fourth case was 36 years old gravid 5 para 3 and presented with prolonged second stage of labor. Total hysterectomy decision was taken after rapid decrease in hemoglobin levels from 12, 4 mg/dl to 3, 5 mg/dl and the failure of ligamentum ovarii proprium, uterine artery, hypogastric artery ligation and B-Lynch suture. 3 units of whole blood, 8 units of erythrocyte suspension, 8 units of fresh frozen plasma and 6 units of thrombocyte suspension were required to obtain hemodynamic stability.

All four cases were required postoperative care in intensive care unit for 5, 3, 3 and 5 days, respectively. Newborn of the first case required 13 days of NICU. There were no postoperative complication and re-exploration for the persistent hemorrhage. All cases were discharged uneventfully. The FSFI scores were obtained at 6th month in the first and second cases (12 months did not lapsed yet) and at 12th month in the third and fourth cases. FSFI scores of the cases were 26.7, 27.4, 30.3 and 30.7, respectively.

4. Discussion

We propose a simple and effective method to ease determining the borders of the cervix in the emergency postpartum hysterectomy by placing two atraumatic ring forceps to the anterior and posterior sides of cervix during the preoperative vaginal examination and leave during the surgery. The proposed cervical clamp technique successfully eased the

emergency postpartum total hysterectomy without any complication and also with reassuring postoperative sexual function. Despite it was shared a very limited postpartum hysterectomy cases with using preoperative cervical clamp technique, we still believe that these were clinically relevant since emergency maternal postpartum hemorrhage resistant to medical treatment and conservative methods is not common.

The leading indication of the postpartum hysterectomy is changing from uterine atony to placental abnormalities.[8] Nowadays more women apply to trial of labor after previous cesarean section. In a recent study, EPH required in 0.99% of the patients during the trial of labor.[9] While the changes in trends of delivery choice make the importance of EPH more apparent, type of hysterectomy is a matter of debate. EPH has still high priority in the management of obstetrical hemorrhage although it is rare and chosen as a last option. EPH can be needed to be performed despite advancements in conservative methods in modern obstetrics such as angiographic selective embolization and intrauterine balloon tamponing.[10−13]

Currently the proportion of subtotal hysterectomy performed for EPH ranges from 20% to 81%.[14,15] Thakar and his friends mentioned that injury to the nerve bundle passing from the upper vagina inhibits lubrication and orgasm during sexual intercourse.[16] Jewet and his friends reported that shortening of the vagina may cause dyspareunia after total hysterectomy.[17] Both total and subtotal hysterectomy are associated with high and similar maternal mortality.[4,18,19] In cases of uterine atony, subtotal hysterectomy is often related with shorter operation times, shorter hospital stay and also associated with a smaller risk of visceral injuries, particularly urinary tract injuries.[4,19,20] However, subtotal hysterectomy may not appropriate in cases of bleeding from the lower uterine segment associated with placenta accreta or previa.[4,5,20] Total hysterectomy may be considered the choice of the conclusive operation type when active bleeding occurs from lower uterine segment as the intact cervical branch of uterine artery or placental abnormalities may cause persistent bleeding.[2,4,7,18]

Ureter progress from cervix and upper vaginal area, continues in an 1, 5−2 cm intramural tunnel at the base of the bladder and opens to the bladder to form trigon. Cervical effacement and dilatation during vaginal delivery changes the anatomical progress of the ureter. If the boundaries of the cervix can not be clearly identified, EPH performed at the lower level including the upper area of the vagina may cause ureter injury.[21,22] It is recommended that the choice of subtotal versus total hysterectomy be individualized considering the patient's condition.[2,4]

However, determining the portio vaginalis is mostly difficult during the surgery and one of the reason is the full cervical dilatation and effacement after a vaginal delivery.[23] We realized that there is no major contribution or suggestion to overcome this issue in the literature except palpation. The only but unreliable method was proposed by Eltabbakh and Watson in 1995 is to use the thumb and forefinger to feel the lower extent of the cervix and eventually the external os by following the lower uterine segment and to explore the endocervical canal after incising the lower uterine segment.[7]

Our method is simple and can be performed by every obstetrician in clinical practice. Further researches should aim to compare total versus subtotal hysterectomy with using this technique that we also expect to form a clinical trial soon. Using this method may eliminate the potential disadvantages of total hysterectomy after vaginal delivery by facilitating to determine the borders of the cervix. Thus, taking extra vaginal tissue from the lower level of the cervix may be avoided.

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