

Pelvic packing method (after two laparotomies): a salvage procedure to control intractable pelvic hemorrhage after vaginal hysterectomy: a case report

A. Kale, M.D.; U. Kuyumcuoğlu, M.D.

Department of Obstetrics and Gynecology, Dicle University School of Medicine, Diyarbakir (Turkey)

Summary

Background: Hysterectomy is one of the most commonly performed operative procedures in the world and hemorrhage continues to be a serious complication of both obstetrical and gynecologic surgeries. The pelvic packing technique is a useful alternative to control pelvic bleeding when standard measures fail. **Case:** A 45-year-old premenopausal woman with a history of pelvic pain and obstructive voiding symptoms underwent vaginal hysterectomy. Intraabdominal bleeding persisted after surgery and relaparotomy was performed. After routine surgical techniques failed to achieve adequate hemostasis, a pelvic packing technique was successfully used to tamponade the pelvic bleeding. **Conclusion:** When traditional methods of controlling pelvic hemorrhage fail, pelvic packing can be used as an unusual method for intractable pelvic hemorrhage. We successfully used the pelvic packing technique in a premenopausal patient with intractable hemorrhage after vaginal hysterectomy and this technique saved the patient's life.

Key words: Pelvic packing; Pelvic hemorrhage.

Introduction

Hysterectomy is one of the most commonly performed operative procedures in the industrialized world and occurs most frequently during the childbearing years. Hemorrhage remains to be a serious complication of both obstetrical and gynecologic surgeries. Hemorrhage after hysterectomy might be the result of failure to ligate a significant blood vessel securely, bleeding from the vaginal cuff, slippage of a previously placed ligature, or avulsion of tissue before clamping. Most surgical bleeding can be avoided with adequate exposure and good surgical technique [1].

The management of serious and refractory hemorrhage of the pelvis includes insertion of topical hemostatic agents and bilateral ligation of uterine or internal iliac arteries [2]. Abdominal and pelvic packing is a valuable method in patients with uncontrollable bleeding but few data exist regarding early and late outcome [3].

Here we provide a case with successful management of intractable hemorrhage after vaginal hysterectomy with abdomino-pelvic packing in a premenopausal patient.

Case Report

A 45-year-old premenopausal woman was admitted with a history of pelvic pain, obstructive voiding symptoms and defecatory problems (constipation, tenesmus). Her past medical history included no operation or systemic illness. On general examination, she was afebrile with a blood pressure (BP) of 129/60 mmHg and a pulse rate of 78 beats/min. Abdominal examination was normal. On gynecologic examination, protrusion of the cervix and uterus toward the introitus and complete eversion of the vagina were noted. Rectoceles and cystoceles were accompanied by uterine prolapse. The patient was diagnosed as having pelvic organ prolapse (Stage IV). Her hematologic workup demonstrated hemoglobin = 12.4 g/dl, hematocrit = 34.2%, WBC = 3.17 K/ul, and platelet count = 145,000 10^3 /ul.

Surgical management was performed to relieve symptoms and to restore vaginal anatomy. The patient was taken to the operating room and vaginal hysterectomy, and anterior and posterior vaginal colporrhaphy were carried out under general anesthesia. She was managed with hourly observations of temperature, pulse and blood pressure as per gynecologic department protocol postoperatively. Six hours after the operation, she developed lower abdominal pain. On examination, her temperature was 37.5°C, pulse rate was 120 beats/min and BP was 95/54 mmHg. Abdominal examination revealed diffuse tenderness. Ultrasonographic examination revealed intraperitoneal hemorrhage. An urgent request was sent for cross-matching of 4 U of blood and for full blood count. The patient's hematologic workup demonstrated hemoglobin = 6.52 g/dl, hematocrit = 19.7%, WBC = 8.78 K/ul, and platelet count = 132,000 10^3 /ul. The patient seemed to enter a state of shock, leading to an immediate exploratory; when removing intraperitoneal blood, suspicious bleeding points were observed. No bleeding sites were found during abdominal observation; 2000 ml of hemoperitoneum was evacuated. The decision was made to discontinue the operation. A suction drain was applied and the abdominal incisions were closed. The patient was transfused 3U of blood intraoperatively. She was managed with 30-min observations of temperature, pulse and blood pressure postoperatively. Although no hematological abnormalities were found, the patient continued to bleed intraperitoneally despite an intravenous transfusion of 6 U of blood, 4 U of fresh frozen plasma and platelets. Fifteen hours after the second operation, her temperature was 36.2°C, pulse rate was 137 beats/min and BP was 77/64 mmHg. The patient's hematologic workup demonstrated hemoglobin = 3.03 g/dl, hematocrit = 7.79%, WBC = 5.35 K/ul, platelet count = 101,000 10^3 /ul. A total of 1000 ml hemoperitoneum was drained with a suction drain. The multidisciplinary team was activated

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Figure 1. — Pelvic packing method as a lifesaving procedure.

to care for the patient's emergency condition. Due to the deteriorating clinical condition of the patient and the continuous bleeding, it was decided to proceed to a third operation (second exploratory laparotomy) as a lifesaving measure. She was transferred to the operating room. An attempt was made to find any bleeding sites during abdominal observation, and multiple small bleeding points were found. Bilateral hypogastric artery ligation was performed. Small bleeding sites were carefully ligated and the vaginal cuff was resutured. Finally pelvic packing were used with laparotomy pads as a lifesaving method (Figures 1 and 2). The hematologist and blood transfusion services helped to determine the degree of depletion of blood and clotting factors, and provided appropriate quantities of these for replacement during surgery.

The patient was transferred to the intensive care unit after surgery. She received 4U of blood and 2 U of fresh frozen plasma (FFP) and platelets. If there had been no response to the clotting factors, recombinant activated factor VIIa was contemplated. She made a good recovery within 48 hours and was transferred to the gynecologic unit. Laparotomy pads were removed after 48 hours of surgery. She was discharged home in good health 18 days after the third operation.

Discussion

Despite adequate technical skills and careful dissection, serious hemorrhage can suddenly complicate almost any operative procedure. The diagnosis of intraperitoneal bleeding in a postoperative patient can be difficult initially. Peritoneal signs are subtle and can be masked at the initial examination of the abdomen. Sometimes it is difficult for the surgeon who performed the original operation to convince him- or herself that bleeding is persistent and intervention is urgently needed. Sometimes a consultation with a colleague is helpful [1, 4].

For our patient, the multidisciplinary team was activated to decide which course to take for her emergency condition. After six hours of vaginal hysterectomy surgery, our patient seemed to enter a state of shock, leading to an immediate exploratory. An experienced surgeon knows that the most common reason for intraperitoneal blood and postoperative shock is loss of surgical hemostasis (a vessel has become untied) [1]. We performed exploratory laparotomy but could not find any bleeding in the pelvic and abdominal areas. It is not unusual to open the abdomen and find no active bleeding sites, which is somewhat disconcerting since the problem might reoccur after the abdomen is again closed [4].

Due to the deteriorating clinical condition of the patient and the continuous bleeding, we decided to reoperate on the patient as a lifesaving measure; bilateral hypogastric artery ligation was performed. Small bleeding sites were carefully ligated and the vaginal cuff was resutured. As is known, one of the methods of controlling severe pelvic hemorrhage is ligation of both hypogastric arteries [2]. However we could not totally control the hemorrhage after ligation of the hypogastric arteries and small bleeding sites, so finally we used the pelvic packing method as a lifesaving method.

Packing is a lifesaving technique for the temporary control of severe injury and it is used as a damage control procedure [3]. Several modifications to pelvic packing have been described. Dildy *et al.* used an effective pressure pack (e.g., pillow cases, gauze sheets, plastic X-ray cassette drapes, or orthopedic stockings) to control severe pelvic hemorrhage [5]. Cirese *et al.* used emergency pelvic packing to control intraoperative bleeding after a Piver type-3 procedure [6]. Awonuga *et al.* utilized a modified packing technique (which consists of ribbon gauze, a penrose drain, and Kocher's forceps) [3].

The pelvic packing technique is simple, and requires little equipment and training. This approach attempts to compress the bleeding vessels against the pelvic floor. It can be used for compression of bleeding vessels that cannot be controlled by other means [1, 4]. When traditional methods of controlling pelvic hemorrhage fail, it can be used as an unusual method for intractable pelvic hemorrhage [1, 4]. We successfully used the pelvic packing technique in a premenopausal patient with intractable hemorrhage after vaginal hysterectomy and this technique saved the patient's life.

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Address reprint requests to:

A. KALE, M.D.

Department of Obstetrics and Gynecology,
Dicle University School of Medicine,

21280 Diyarbakir (Turkey)

e-mail: drakale@dicle.edu.tr