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Letter to the Editor

Massive hemoperitoneum due to uterine perforation by the Bakri Balloon, during the treatment of postpartum hemorrhage

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A B S T R A C T

The current case describes a very rare complication of Bakri Balloon during the treatment of postpartum hemorrhage; a massive hemoperitoneum with a hemodynamic shock, due to a migration through the right broad ligament, with an anterior uterine rupture, and an irreversible wound of the right uterine artery. This event occurred even if the unfold placement was controlled with ultrasound guidance, to a patient who has never had abdominal surgery (Cesarean section included).

Introduction

Uterine tamponade with an intra uterine balloon is now a well-known procedure in the postpartum hemorrhage [1]. To our knowledge, known complications of the Bakri Balloon are failure (effective bleeding even if the balloon is well placed) [2,3], and one uterine perforation in the treatment of secondary postpartum hemorrhage, 18 days after delivery [4]. The current case describes an unreported complication of Bakri balloon (Cook Medical Inc, Bloomington, IN), 6 h after placement.

Case

A 39 years-old woman, para 3, without any history of abdominal surgery, cesarean delivery or postpartum hemorrhage) gave birth to a 2730 g girl. Postpartum hemorrhage was diagnosed eleven minutes after delivery. The uterine and vaginal inspections revealed a right lateral vaginal and cervical laceration, who was successfully sutured, and a uterine atony. The infusion of oxytocin was stopped and replaced by sulprostone. An intrauterine tamponade Bakri Balloon was successfully inserted under general anesthesia, and inflated (up to 500 mL) under manual and ultrasonographic guidance. The bleeding who stopped shortly after inflation, was recorded at 1400 mL.

Five hours and 45 min later, the Bakri Balloon was deflated to 400 mL due to pelvic pain resisting to intravenous painkillers. Hemoglobin level was 10 g/dL, and the Bakri Balloon spike bag was filled with 75 mL of blood, without any active bleeding. Ultrasonographic control did not observed any abnormality, blood pressure and cardiac frequency where normal.

Six hours later the balloon's inflation, a hemodynamic shock occurred very quickly (20 min), without any vaginal bleeding. A quick abdominal ultrasound revealed a massive hemoperitoneum. Explorative laparotomy was then performed concomitantly to resuscitation. Intraperitoneal exploration was in the first time impossible, due to the massive hemoperitoneum (2700 mL), with active bleeding. The Bakri Balloon was found deflated into the abdominal cavity. Exploration revealed dilacerations of the right broad and an anterior uterine perforation. The rights uterine and cervico-vaginal arteries where bleeding. Dissections and hemostasis was particularly difficult, due to important pelvic edema. Ligature of the uterines vessels and the cervico-vaginal artery, suture of the uterine rupture. Due to hemorrhagic suffusion, internal iliac arteries ligations where performed after ureteral dissections, which allowed to control the bleeding. Hysterectomy was jugged without any more benefit prognostic due to the edematous tissues, who would have cause more bleeding during dissection, and was not performed. The resuscitation was concomitantly proceeded; in total 11 units of red cells, 9 units of fresh frozen plasma, 2 platelet unit, 2 g of tranexamic acid, 8 g of fibrinogen, 2 units of sulprostone, and 24 h of intravenous norepinephrine. Lowest Hemoglobin recorded was at 7.9 g/dL, during the surgery. After biologic stabilization, the patient was able to leave intensive care unit the day after her admission.

Comment

Cervical rupture was not considered as a cause of the migration of the Bakri Balloon; after laparotomy, a cervix and vaginal examination found the cervix suture intact, and no path between the vaginal cavity was found. Furthermore, insertion and inflation occurred without any clue of wrong path or place; and was performed under ultrasound guidance. Abnormal pain was the only clinic sign before hemodynamic shock, and despite two ultrasonographic controls before deflation to 400 mL, the perforation was not diagnosed. Rupture of the Broad ligament and the inferior segment should have occurred during dilation of the balloon and cause edema of the para uterine structures, then internal bleeding rapidly occurred when the balloon was partially inflated to 400 mL, due to patient's pain.

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The technical procedure of the Bakri tamponade balloon is simple and in 2018 well known by obstetricians [5]. Bakri Balloon's own complications published are displacement [2–4] (around 10%), spontaneous expulsion [6] (lower than 1%) or failure (3,6,6) (between 7 and 14%), defined by pursuit of bleeding, and leading to embolization or surgery. This event is to our knowledge the second reported uterine perforation published [4]. This seems to be very rare complication needs to be known by the obstetricians, and be included in the future evaluations of intrauterine tamponade balloon.

Conflict of interest

We have no conflict of interest to declare.

Author contributions

Each author contributed to the realization of this manuscript.

Patient consent

The patient gave her consent for the publication of this case.

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