

The Use of the Foley Catheter in Controlling Severe Uterine Haemorrhage in Gynaecological Practice.

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Abstract:

Three patients with severe uterine bleeding were managed successfully by intracavitary insertion and distension of Foley catheter balloons. Blood transfusion was averted in the first patient and reduced to 2 units in the second, while imminent maternal death was prevented in the third case. The availability of the Foley catheter and minimal requirements for its use, coupled with lack of untoward effects in cases managed, make the procedure a useful one.

Key Words: Uterus, Haemorrhage, Foley Catheter. [Trop J Obstet Gynaecol, 2002, 19: 44-46]

Introduction

Uterine haemorrhage can be a sudden and potentially life-threatening event¹, predisposing to severe anaemia and possibly death. It is a major cause of maternal morbidity and mortality in developing countries²⁻⁵. With severe anaemia, blood transfusion with associated risk of transmission of infections, such as human immunodeficiency virus, hepatitis B and C, syphilis and malaria, and toxic haemolytic reaction⁶ become a possibility. Therefore management protocols that aim at reducing blood loss should be advocated. We hereby describe three gynaecological cases in which Foley's catheter was used to arrest severe uterine haemorrhage.

Patient 1

Mrs. P. U. was aged 25. Her parity was 2⁺⁰, with two living children. She was a Jehovah's Witness. She was first seen in March 2001 complaining that she no longer felt pregnant. Her last menstrual period (LMP) was on 25/11/00. Examination revealed a 12-week uterus and ultrasound scan confirmed missed abortion. Her haemoglobin was 11.5g/dl. The clotting profile was normal.

She gave consent for uterine evacuation, with the proviso that there should be no blood transfusion. At suction evacuation, necrotic products of conception were evacuated. There was profuse uterine bleeding, which did not respond to intravenous oxytocics. About 900 ml of blood had been lost when a size 16G Foley catheter with 30ml balloon was inserted into the endometrial cavity and gradually distended with sterile water. Bleeding stopped after instillation of 20ml of sterile water. She was commenced on broad-spectrum antibiotics. The catheter was removed 6 hours later and the patient discharged after 24 hours. Her normal

menstrual periods resumed five weeks later and she subsequently became pregnant.

Patient 2

Mrs. C. N. was a 28-year old woman. Her parity was 2⁺⁰. She had one living child. She had a repeat caesarean section in a private hospital in May 2001. Two weeks after delivery, she developed secondary postpartum haemorrhage and had uterine exploration in the same hospital. Bleeding was profuse. She was treated with intravenous oxytocics and transfused 2 units of blood.

A week later, she had a repeat episode of profuse vaginal bleeding, for which she was referred to UNTH, Enugu. On admission, her haemoglobin concentration was 7.5gm/dl, pregnancy test was negative and ultrasonography confirmed retained products of conception. She was counselled for re-exploration of the uterus under anaesthesia with possible hysterectomy, but she refused to give consent to the hysterectomy.

At uterine exploration, there was brisk haemorrhage leading to loss of 750mls. Few products of conception were seen. Because of continuing haemorrhage that did not respond to repeated doses of intravenous oxytocics, a 20-gauge Foley catheter was inserted into the cavity and inflated with 30ml of sterile water. The bleeding stopped immediately. Two units of blood were transfused. The catheter was removed after 12 hours and no further bleeding occurred. Her menstrual period occurred normally 8 weeks later.

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Patient 3:

Mrs. A. A. was aged 30 years. Her parity was 1⁺ and she had a living child. She was referred from Utmanu Danfodiyo University Teaching Hospital for intermittent profuse vaginal bleeding. She had evacuation of a 16-week missed abortion, which was followed by intermittent profuse vaginal bleeding. She had uterine curettage three times, trans-abdominal uterine exploration, and had been transfused with 6 units of blood. At admission on 14th 2001, she was not bleeding actively, pregnancy test was positive and the uterus was empty on ultrasonography. A diagnosis of choriocarcinoma was made.

About 4.30pm 16th September, before chemotherapy could be commenced, she developed profuse vaginal bleeding. She lost an estimated 1.5 litres of blood and lapsed into hypovolaemic shock. Resuscitation was by means of intravenous crystalloids.

To arrest haemorrhage, a 16-gauge Foley catheter was inserted and the balloon distended with 25ml of sterile water. This arrested the haemorrhage immediately. Two units of blood were transfused immediately and another 4 units subsequently. The catheter was removed after 24 hours. She is currently responding to cytotoxic drug therapy.

Discussion

In each of the cases, the cervical os was 2 to 3 cm dilated and the uterus was empty. The slightly open os facilitated the insertion of the Foley catheters and prevented its expulsion after distension. The use of the Foley catheter in the control of postpartum haemorrhage had been reported in the literature⁷. Uterine gauze packing to arrest severe uterine bleeding has also been described^{1, 7}, but may be difficult when the cervical os is only 2–3 cm dilated.

The catheter balloons were gradually distended with 20–30 ml of sterile water. More water may be needed, depending on the capacity of the endometrial cavity. The distended balloons arrested the bleeding immediately by a tamponade effect⁷. Uterine myometrial contractions, a reflex action aimed at expelling the distended balloons from the uterine cavity⁸, also helped occlude the bleeding vessels. The combined effect of these enhanced clot formation that prevented further bleeding, even after the catheters had been removed.

Overzealous distension may theoretically rupture the balloon, cause pressure necrosis of the endometrium or scar dehiscence. Scar dehiscence could have led to continued deterioration of the patient, which was not seen here. Patient 1 had become pregnant and Patient 2 had resumed normal menses before this

report, thereby confirming absence of pressure necrosis of the endometrium. Concealed haemorrhage as reported in association with uterine gauze packing¹, will easily be identified as a result of continued bleeding through the catheter. The Foley catheter, being a foreign body, could theoretically introduce infection leading to endometritis. This did not occur in our cases because the catheters were sterile, the procedures were aseptic and antibiotic prophylaxis^{1,7} was used.

When to introduce the intrauterine Foley catheter and how long to leave it *in-situ* is a judgment call for the physician¹. The catheters in our cases were left in place for between 6 and 24 hours without any complications. In Maier's report¹, the gauze packs remained for between 5 and 96 hours, without untoward effects. The catheter does not have to be inserted in the theatre and under anaesthesia, as shown by the experience with Patient 3.

Severe uterine haemorrhage is a significant cause of morbidity and mortality in relation to abortions^{3, 5}, childbirth^{2, 4} and certain other benign and malignant lesions. Management options for uncontrollable uterine bleeding include uterine packing^{1, 7}, massive blood transfusion with its related risks, surgical exploration of the uterus as in Patient 3, ligation or embolisation of the hypogastric or uterine arteries^{1, 7}, or hysterectomy^{1, 7, 9}. Due to the high premium placed on childbearing here¹⁰, the patient may not consent to hysterectomy. Also, to be forced to perform major surgery like hysterectomy, under the worst of clinical conditions on a patient who desires more children, is not an enviable position for any obstetrician/gynaecologist¹.

The use of the Foley catheter to arrest severe uterine haemorrhage has several advantages. The Foley catheter is readily available and cheap. It is pre-sterilized and can be introduced through a minimally open cervical os. The procedure is easy to learn and does not necessarily need the luxury of a theatre or anaesthesia. Emergency anaesthesia and surgery in a patient already compromised by severe haemorrhage may thus be avoided.

The use of the Foley catheter for the prevention of severe uterine haemorrhage is recommended for cases of profuse bleeding following uterine evacuation for missed abortion, incomplete abortion or secondary postpartum haemorrhage. It is also recommended for use in cases of choriocarcinoma. In these situations, it is preferred that the uterus be empty and intact. Foley's catheter is recommended for prevention of blood transfusion in Jehovah's Witnesses and patients who refuse to consent to transfusion. It is useful for stabilisation of patients prior to referral, investigation or major surgery.

In conclusion, the use of the Foley catheter in the prevention of profuse uterine bleeding is advantageous. It is appropriate in centres that lack skilled manpower, blood transfusion services and other infrastructural facilities. It is recommended for reduction of blood loss from profuse uterine bleeding in women particularly after satisfactory evacuation of retained products of conception from the uterus.

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