

Uterine Perforations Post-Manual Vacuum Aspiration: A Time for Re-Training

*Mohammed Usman¹, Umaru-sule Hajara¹,
Abdullahi Zubaida G¹, Adesiyun Adebisi G¹

Department of Obstetrics and Gynaecology¹,
Ahmadu Bello University and
Ahmadu Bello University Teaching Hospital
Zaria,
Nigeria.

Email: uthmaan2010@yahoo.com

Abstract

Manual vacuum aspiration (MVA) is the recommended surgical procedure for early miscarriages. Yet, its performance by unqualified and inexperienced hands without minimal medical knowledge and skills in the societies of developing nations is not uncommon. This can present some serious life threatening but preventable complications like uterine perforation with resultant intra-abdominal organ injuries that require surgical intervention. General awareness and retraining may decrease unsafe practices and thus reduce maternal morbidity and mortality. We present two cases of young multiparous women who underwent MVA for incomplete miscarriages, which were complicated by anterior and multiple fundal uterine perforations and resultant gangrenous bowel evisceration and entrapment respectively.

Keywords: Manual vacuum aspiration, Uterine perforation, Emergency laparotomy, Miscarriages

INTRODUCTION

Manual vacuum aspiration (MVA) is a safe and effective treatment modality for early miscarriages. Despite its documented safety, life threatening conditions have been reported including uterine perforation (Bechem *et al.*, 2016). Uterine Perforation is an obstetric catastrophe that poses a considerable challenge to the obstetrician when associated with other sequelae such as intestinal herniation, severe bleeding, visceral injuries or pyometra (Bechem *et al.*, 2016). Uterine perforation with intra-abdominal evisceration can lead to high maternal morbidity and mortality, especially secondary to termination of pregnancy (Zorila *et al.*, 2023). It is a surgical emergency and delay in diagnosis and treatment have deleterious consequences for the mother (Augustin *et al.*, 2013). Therefore, unsafe abortion is considered a significant public health concern (Augustin, *et al.*, 2013). We present two cases of uterine perforation resulting from the use of Karman's cannula that led to exploratory laparotomy. This is an exceptional situation, and the index cases provide the information and learning points.

Case Report One

A 30 year old para 7⁺²5 alive at 16 weeks of gestation who was referred from a secondary health facility with history of spontaneous miscarriage two days prior to presentation associated with excessive bleeding per vaginam. This necessitated her presentation to the referring hospital where she had manual vacuum aspiration for retained products of conception. Vaginal bleeding however persisted with associated severe lower abdominal

*Author for Correspondence

pain. Loops of bowel were noticed to protrude outside the introitus, and subsequently developed features of intestinal obstruction; abdominal swelling, projectile vomiting and constipation. She was transfused a unit of blood and referred to Ahmadu Bello university teaching hospital (ABUTH) after a day.

On examination, at presentation at ABUTH, she was pale, dehydrated afebrile (36°C) with a pulse of 120 bpm and blood pressure of 120/ 80 mmHg. Abdomen was distended, severely tender especially in the suprapubic area with reduced bowel sounds. Gangrenous distended loops of bowel were noticed at the vulva extruding per vaginam (plate 1). Investigations showed a packed cell volume of 23%, and her total blood count, liver and renal functions tests were within normal except for elevated urea of 8 mmol/L. She had 3 units of blood grouped and cross matched.

She was resuscitated with blood and fluid and emergency laparotomy was scheduled. Intraoperatively, there was a herniated gangrenous loop of bowel (ileum) through a 4 cm longitudinal rupture in the lower uterine segment anteriorly(plate 2), 2-3 cm longitudinal posterior uterine serosal tear ,eight weeks size uterus with normal fallopian tubes and ovaries, normal urinary bladder and clean peritoneal cavity .There was no injury to other viscera. The estimated blood loss was 500 ml. She had segmental ileal resection (74 cm of ileum resected) and end to end anastomosis by a multidisciplinary team (plate 3). The rents in the uterus was closed in two layers after debridement and removal of clots.



Plate 1: Gangrenous Bowel at Introitus



Plate 2: Anterior Lower Segment Uterine perforation



Plate 3: Resected loops of bowel

She was transferred to gynaecology ward after recovery and received 3 pints of blood and intravenous antibiotics peri-operatively. She was discharged on the 5th day post operatively with a Haemogram of 9.1g/dL on iron supplement and oral antibiotics. She was counselled

on long term contraception and linked to other components of post abortion care. Subsequent visit at two weeks revealed a negative serum B-HCG and normal study on ultrasound.

Case Report Two

A 30 year old P4+¹ all alive at 12 weeks of gestation who presented three days after she had MVA in a peripheral facility for spontaneous incomplete miscarriage. She was discharged two hours after the procedure. She still had some persistent vaginal bleeding, lower abdominal pain and later fever which necessitated her presentation to ABUTH. She also had abdominal swelling and projectile vomiting suggestive of Intestinal obstruction.

On examination, she was pale, febrile (37.9^oC) with a pulse of 105 bpm and blood pressure of 120/70 mmHg. Abdomen was distended, moderately tender especially in the suprapubic area with reduced bowel sounds. Investigations showed a packed cell volume of 28%, and her total blood count, liver and renal functions tests were within normal. Abdominal x-ray showed dilated small bowel loops suggestive of intestinal obstruction.

She was resuscitated with antibiotics and intravenous fluid, and she received a multidisciplinary care. Intra operative findings were those of 1.5 litres of pyometra and abdominal collection, three separate fundal uterine perforations (plate 4) largest measuring 7 by 4 cm, bowel entrapment into the largest uterine perforation but there was no bowel perforation. She had bowel separation, and the uterine rents were connected due to proximity to each other to allow for good debridement under vision and subsequent repair (plate 5). The pyometra was aspirated and abdomen was lavaged with saline. An abdominal drain was left *in situ*. She was counselled on long term contraception. She had parenteral antibiotics postoperatively and was discharged after a week on admission. Serum b-HCG was negative at two weeks follow up.



Plate 4: Unconnected perforations



Plate 5: Connected perforation

DISCUSSION

Abortion is a serious public health condition in obstetrics and gynecology. It is one of the main causes of maternal death worldwide and especially in Sub-Saharan Africa (Bechem *et al.*, 2016). It is the termination of pregnancy before the age of viability which is 28 completed weeks in developing countries including Nigeria (Bechem *et al.*, 2016).

The surgical management of incomplete abortion has evolved from dilatation and curettage (D&C) to Manual Vacuum Aspiration (MVA) (Bechem *et al.*, 2016). MVA has credit of lesser complication and ease of use. Despite its documented safety and effectiveness, it can lead to severe haemorrhage, uterine perforation and a rare but serious surgical complication of bowel prolapse through the introitus and requires emergency exploratory laparotomy (Chandi et al

2016). Vaginal evisceration which is life threatening can lead to gut injury and gangrene resulting in bowel resection as in the first case (Chandi et al 2016).

As a complication of unsafe abortion, uterine perforation varies from 0.1-4 per 1000 abortion as reported in many studies, (Nnabuike *et al.*, 2022) majority of which occur in the hands of untrained and unqualified health professionals. The level of training is considered as the strongest statistically significant risk factor for uterine perforation among other factors (Augustin *et al.*, 2013). Other risk factors identified are poor preparation of uterine cervix before intrauterine diagnostic or therapeutic procedure, uterine anomalies, uterine scar, and pregnancy with increased risk during second trimester (Tchuenkam *et al* 2021).

It was reported that, out of 9344 first trimester abortions performed, 37 uterine perforations occurred (Mittal *et al* 2019). The suction cannula was responsible for > 50% of those perforations (Mittal *et al* 2019). Fundal and anterior wall perforation were the most common, though injury may occur at different locations on the uterus (Mittal *et al* 2019). This was the situation in both cases where anterior and fundal wall perforations occurred respectively. A perforation by Karman's cannula may result in abdomino-pelvic viscera such as omentum and small intestine being sucked into the aperture on the distal end of the cannula and a loop of bowel can be pulled into the vagina and possibly beyond the introitus with consequential damage like gangrene as in the first patient (Augustin *et al.*, 2013). The small intestine is the most commonly injured because of its central pelvic location, length and mobility (Augustin *et al.*, 2013). In order to prevent evisceration of the bowel the pressure in the MVA set must be released before the withdrawal of the cannula from the genitalia if perforation is suspected (Nnabuike *et al.*, 2022).

Administration of uterotonic agent such as misoprostol before MVA facilitates priming of the cervix, uterine contraction and tone, and improves recognition of uterine fundus (Nnabuike *et al.*, 2022; Mittal *et al* 2019). Evacuation of the uterus under cover of uterotonics prevents uterine perforation (Nnabuike *et al.*, 2022).

Sometimes uterine perforation should be enlarged for easier pulling of the bowel into the peritoneal cavity minimizing the possibility of further bowel and mesenteric damage (Augustin *et al.*, 2013). This was done in the second case where the three perforations close to each other were connected (plate 5).

Laparotomy has an enviable place in bowel injuries secondary to uterine perforation ranging from bowel repair to bowel resection with end to end anastomosis with was done in the first case due to a non-viable and gangrenous bowel (Augustin *et al.*, 2013). Uterine repair after debridement is the procedure of choice (Augustin *et al.*, 2013). However, where uterus is irreparable or necrotic, hysterectomy is indicated (Augustin *et al.*, 2013). In both our case the uteri were debrided and repaired. During follow up, ultrasonogram of the uterus and serum B-HCG measurement should be performed to eliminate the possibility of retained products of conception (RPOC) (Augustin *et al.*, 2013). However, ultrasonogram was not done in the second patient because the uterine perforations were enlarged and possibility of RPOC was eliminated.

A conservative approach to management has been described with surgical intervention necessary in cases of increasing pain, haemodynamic instability and evidence of intra-abdominal viscus perforation or protrusion of abdominal content through the cervix (Alalade *et al.*, 2006). Laparoscopic management of uterine perforation in haemodynamically stable

patient is also feasible (Alalade *et al.*, 2006). However, the above approaches were not feasible in our patients due to protrusion of abdominal content through the cervix and haemodynamic instability respectively.

In developing countries, mostly care is given by untrained personnel. Strong measures to bring awareness among general public so that they seek medical care from trained medical facilities. This emphasizes the need for training and retraining of health personnel on MVA including assessment of gestational age and appropriateness of its use and to identify high risk and difficult cases. Strong and proper referral system should be established.

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

REFERENCES

- Bechem, E., Leopold, D. and William, T. A. (2016). Small Bowel Exteriorization after Uterine Perforation from Manual Vacuum Aspiration for Abortion in a Young Cameroonian: A Case Report. *Pan Afr Med J.*, 25:198.
- Zorila, G.L., Razvan, G.C., Roxana, C.D., Anca-maria I.O., Elena. B. and Madalina, D. (2023). Uterine perforation as a complication of intrauterine procedure causing omentum incarceration: a Review. *Diagnostics*. 13(2):331
- Augustin, G., Majerovic, M. and Luetic, T. (2013). Uterine perforation as complication of surgical abortion causing small bowel obstruction: a review. *Arch Gynecol Obstet*. 288: 311-323
- Chandi, A., Jaiprakash, G., Shaveta, J. and Sakshi, Y. (2016) Vaginal evisceration is a rare but serious obstetric complication; a case series. *Case reports in women's health*. 10: 4-6
- Nnabuike, C.N. (2022) Multiple uterine perforations during manual vacuum aspiration; the need to increase the clinical awareness of attending health care professionals. *Afr Health Sci*. 22(1):180-182
- Tchuenkam, L.W., Mbonda, A.M., Tochie, J.N., Mbem-Ngos, P.P. and Noah-Ndzie, H.G. (2021). Transvaginal strangulated bowel evisceration through uterine perforation due to unsafe abortion: a case report and literature review. *BMC Womens health*. 21:98
- Mittal, S.J. (2019) uterine perforations after manual vacuum aspiration. *NJOG*. 28 (1): 62-64
- Alalade, A.O. and Odejinmi, F.O. (2006) Laparoscopic management of uterine perforation following surgical termination of pregnancy: a report of three cases and literature review. *Gynecol surg*. 3; 34-36