



## CASE REPORT

# Acute Complete Uterine Inversion in a Non-Pregnant Woman: A Gynaecological Emergency Managed with Vaginal Hysterectomy

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## Abstract

Though a rare complication of a poorly managed third stage of labour, uterine inversion can be an unusual occurrence in a non-pregnant patient. Gynecological or non-puerperal uterine inversions are mostly associated with benign uterine pathology such as uterine fibroid, but malignant tumours may sometimes be a cause [1].

This was a case of a non-pregnant woman who came to the accident and emergency unit in hypovolaemic shock because of vaginal bleeding from acute complete uterine inversion.

She was resuscitated and transferred to theatre immediately where she had an emergency vaginal hysterectomy and recovered without complications. The histology from the specimen showed a 7 cm × 5 cm uterine fibroid which was the probably the risk factor for the uterine inversion.

## Background

Non-puerperal uterine inversion is a rare clinical condition in which the fundus of the uterus descends into or through the endometrial cavity or the cervix, resulting in an inside out telescoping of the uterus out of the pelvis and potentially into the vagina or outside the body [1,2]. It could sometimes involve the fallopian tubes and ovaries [2].

## Incidence

It is a rare complication of a poorly managed 3<sup>rd</sup> stage of labour and account for 1 in 3500 deliveries

[2]; however, the incidence for non-pregnant uterine inversion remains unclear [3] with just more than 100 cases reported worldwide [2].

Nongravid uterine inversion is usually associated with uterine pathology, with 80%-85% of them being associated with uterine leiomyoma which makes this pathology the most common cause for non-puerperal uterine inversion [4].

## Clinical presentation

Most women present with foul-smelling vaginal discharge or abnormal uterine bleeding that can be significant enough to result in anaemia requiring blood transfusion. There might be associated abdominal pain, pelvic discomfort, and fullness or pressure in the vagina. There is one reported case of nonpregnant uterine inversion characterised by dysmenorrhoea, menorrhagia, and dyspareunia [5]. There is another reported case of hypovolaemic shock from bleeding as a result of acute uterine inversion caused by a uterine fibroid [6]. Acute urinary retention, needing suprapubic catheterization, is not uncommon.

## Treatment

Surgical approach is the treatment of choice, and the extent of the surgery depends on if a fertility sparing approach is needed as well as the suspected possible cause for the uterine inversion [2]. For those who have



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completed their family and or bleeding significantly, a hysterectomy may be performed as both a lifesaving procedure and treatment of the uterine inversion. There are vaginal and abdominal surgical approaches for those who require fertility sparing procedure and are haemodynamically stable with no vascular compromise to the uterus [2].

## Case Presentation

She was a 32-year-old para 2 (normal vaginal deliveries), who was brought into the accident and emergency department via ambulance with a few hours' history of heavy vaginal bleeding, fainting episodes and low Glasgow Coma Score. She was not pregnant and had a coil *in situ* for contraception.

On examination, she looked pale with cold and clammy extremities and was haemodynamically unstable with a heart rate of 114 beats per minutes and a blood pressure of 93/54 mmHg. Her oxygen saturation was 94% on room air and respiratory rate was 18 cpm.

On examination, abdomen was soft and tender with no guarding. A vaginal examination was performed. This showed significant vaginal bleeding with clots and the uterus was found to be completely inverted.

Massive haemorrhage protocol was activated and two wide bore cannulas were inserted. Blood samples were sent off while she was being resuscitated with intravenous fluid, pending when blood and blood products would be available for transfusion. Her haemoglobin was 37 g/dl, platelets 354, lactate of 4.3, raised PT (12.8), reduced APTT (18.0) and normal urea and electrolytes. The pregnancy test was negative. Blood was crossed matched and blood transfusion commenced while being prepared for theatre. Her heart rate and blood pressure improved with resuscitation, and she was transferred to theatre.

In theatre, the uterus was found to be completely inverted with the endometrial surface of the fundus visible. There was a submucosal fibroid on the fundus of the inverted uterus and she was bleeding significantly.

First a posterior colpotomy was done to gain access to the fallopian tubes which were both ligated and divided with an energy device (LigaSure). This released the tension on the uterus to allow for an anterior colpotomy. Next the uterine vessels were ligated and the uterosacral ligaments and cardinal ligaments divided using the LigaSure to complete the hysterectomy.

The vaginal vault was supported and closed to complete the procedure and specimen sent off for histology.

The histology report showed an inverted uterus with a fundal 7 cm × 5 cm ulcerated submucosal fibroid. There was no evidence of malignancy.

She made a good recovery postoperatively on the

gynaecological ward and was discharged home 3 days later.

## Discussion

Acute complete uterine inversion is rare in non-pregnant women and there are only a few reported cases worldwide [2]. It therefore poses a diagnostic dilemma to the unsuspecting gynaecologist and therefore a high index of suspicion is needed to differentiate it from uterovaginal prolapse or prolapsed fibroid, as the clinical presentations can be similar [1,2]. Majority of the patients are likely to present with vaginal discharge, irregular or heavy vaginal bleeding, urinary problems, or abdominopelvic pain [2,7] and when examined, a mass is usually seen with some discharge or bleeding, depending on the symptoms [7]. This patient presented with heavy vaginal bleeding with hypovolaemic shock in addition to the history of lower abdominal pain requiring resuscitation and immediate surgical intervention.

If she had presented in a haemodynamically stable condition, imaging in the form of a pelvic ultrasound scan or MRI especially when there is a diagnostic dilemma, would be beneficial to clinch the diagnosis. The ultrasound scan would have shown indentation of the uterine fundal area and a depressed longitudinal groove extending from the uterus to the center of the inverted portion [8]. In a T2-weighted MRI scan, indicative signs of uterine inversion include a U-shaped uterine cavity and a thickened and inverted uterine fundus on the sagittal plane, as well as a bulls-eye configuration on the axial plane [9]. This patient was unstable for any form of imaging or diagnostic investigation and the priority was resuscitation followed by surgical intervention.

The usual manual reduction of the uterus, which is done in a puerperal uterine inversion is often unsuccessful in the non-puerperal form. This is because the lower uterine segment and the cervix contracts over time to create a constriction ring, thus making manual replacement of the uterus progressively more difficult, if not impossible; therefore surgical option becomes inevitable [2]. There are abdominal and vaginal procedures done to replace the uterus and subsequently, depending on the clinical presentation, reproductive wishes of the patient or the possible cause of the uterine inversion, further management is carried out.

The documented vaginal surgical approaches include: Tew's and Kustner's procedures.

In Tew's procedure, the bladder is dissected off the cervix and lower uterus followed by release of the constriction ring by performing an anterior hysterotomy. The uterus is then reverted, and the hysterotomy is closed in several layers in cases of uterine preservation; otherwise, hysterectomy is performed.

The Kustner's technique involves replacing the

uterine fundus after opening the posterior cul-de-sac and incising the cervix and posterior wall, providing the clearance for correcting the inversion [2]. The defect in the posterior uterine wall and cervix is then closed in layers, followed by closure of the colpotomy.

This patient had a vaginal hysterectomy with no complication because she was bleeding significantly and had completed her family size. The ovaries were healthy and left because she was young and there was a need to avoid iatrogenic menopause.

There are two documented abdominal surgical approach: Huntington's and Haultain's technique.

In Huntington's technique, the cup or dimple of the inversion is identified followed by application of Allis forceps on the round ligaments. Gentle upward traction is then exerted on the clamps containing the ligaments. While further upward pressure is exerted on the advancing uterus, traction is continually applied on the ligaments until correction of the inversion is accomplished.

In Haultain's technique, a longitudinal incision is made in the posterior uterine wall and through the cervical constriction ring. This releases the constrictive pressure and facilitates anatomical restoration of the uterus with continued upward pressure until it reverts to normal positioning [2]. Neither of these abdominal approaches was used for this patient as the surgeon performing her procedure was an urogynaecologist skilled in vaginal and pelvic floor surgeries.

## Conclusion

Non-puerperal uterine inversion is rare and

remains a diagnostic and management dilemma to a gynaecologist especially because the presentation is non-specific. The treatment is surgical and the extent of the procedure depends on the skill and experience of the surgeon as well as the clinical presentation and reproductive wishes of the patient.

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