



## Case report

# Chronic nonpuerperal uterine inversion: laparotomy assisted vaginal hysterectomy

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### ABSTRACT

Chronic nonpuerperal uterine inversion is an extremely rare clinical situation. We report a 36 year-old woman with chronic nonpuerperal uterine inversion due to a fundal leiomyoma. She was treated with laparotomy assisted vaginal hysterectomy. We emphasized the importance of abdominal access at the time of vaginal hysterectomy for complete inversion of uterus. After excluding possible bowel loops in the inverted uterus through abdominal incision, vaginal subtotal hysterectomy was performed followed by total hysterectomy. In addition to better surgical exposure, abdominal approach also helped management hemorrhage as in our case.

**Key words:** Uterine inversion; nonpuerperal; management; surgery.

## Introduction

Chronic nonpuerperal uterine inversion (CNPI) is an extremely rare clinical situation. On average a gynecologist may only see one case in their entire life. Due to the diversity of the underlying cause and the presentation of this condition, assessment and treatment need to be tailored individually. Most of the surgical methods described for treating CNPI involve reinverting the uterus before either repairing the incisions made or proceeding to hysterectomy. Vaginal hysterectomy for CNPI, without reinverting the uterus, poses unique challenges to the surgeon.

We report a 36 year-old woman to have CNPI due to a fibroid who was treated with laparotomy assisted vaginal hysterectomy.

## Case

Thirty six year-old woman, who had three term vaginal deliveries in the past, was presented with vaginal bleeding and a lump at vulva for three months duration. On admission she looked pale and ill. Abdominal palpation and systemic examination were normal. Gynecologic examination revealed an irreducible necrotic mass with a sloughing surface protruding through the introitus. At the apex a firm

pale spherical mass with a different texture was noted (**Figure 1**). Cervix could not be identified separately during vaginal examination. Ultrasonographic examination could not identify the uterus in the pelvis. Diagnosis of chronic uterine inversion was established with associated pathology of fundal fibroid. Intravenous antibiotics were started, inverted uterus was covered with povidone iodine soaked gauze and surgical treatment was planned.

In theatre, patient was examined under general anesthesia in lithotomy position after emptying the bladder with a Foley catheter. We decided to have combined abdominal and vaginal approach and the abdominal cavity was opened with a suprapubic transverse incision. Both ovaries were noted as dragged into the inverted uterus. Considering the gangrenous nature of the inverted uterus, conserving the uterus was not considered and we proceeded with hysterectomy.

A second surgeon operating on the inverted uterus vaginally, made a transverse incision on the anterior aspect of the cervix, and using two clamps on each side, the body of the uterus was removed. This gave more space to reach the vaginal fornices. Then the bladder was pushed up from the cervix through the cervical canal. Next incision was made on the cervix close to the place where the vaginal wall



adjacent to the inverted cervix and removed after clamping the uterosacral and cardinal ligaments together on both sides. Vaginal wall was closed and hemostasis was checked by the surgeon operating abdominally. Active bleeding was noted from the vaginal vault, which had been undone when the original pedicle was reinverted after the surgery. Hemostasis was achieved by suture ligation of vaginal cuff through abdominal incision.

Postoperative period was uncomplicated and patient was asymptomatic at six weeks and six month control examinations. Histology confirmed chronic uterine inversion with the fibroid.

## Discussion

CNPUI is very rare; indeed in the literature, there is no figure about the incidence of its occurrence. Uterine leiomyoma, leiomyosarcoma, rhabdomyosarcoma, endometrial polyps, endometrial carcinoma, and uterovaginal prolapse has been described as possible preceding factor. Uterine leiomyoma were known to cause uterine inversion in 78.8%-85% of cases and was the most common cause [1-2].

Gomez-lobo *et al.* who analyzed 149 cases of CNPUI, found only 3 cases CNPUI occurring in women less 45 years of age [3]. Two of them had uterine sarcomas, and the other case, published in 1924 specific pathology could not be confirmed [3]. Since the publication of Gomez-lobo *et al.* in 2007, the Eigbefoh *et al.* reported a CNPUI in 38 year old women with uterine leiomyoma making our case the one youngest patient reported (PubMed literature search was done on 30<sup>th</sup> March 2010) to have CNPUI due to leiomyoma [4].

The clinical diagnosis of chronic inversion depends on finding a mass coming through the cervix, without definite margins of a cervix, and the absence of the uterine body during bimanual or rectal examinations. Openings of the fallopian tubes may be identifiable on its endometrial surface.

Many authors have used ultrasonographic examination as the first line of investigation. Indentation of the fundal area and a depressed longitudinal groove extending from the uterus to the centre of the inverted uterus are the two signs described in relation to the chronic uterine inversion [5]. Magnetic Resonance Imaging (MRI) is also helpful in the diagnosis. "U" shaped uterine cavity, a thickened and inverted uterine fundus on sagittal section, and a "bull's eye" configuration on an axial image are the described MRI findings of uterine inversion [5].

Frozen section of the vaginal mass has been used by some authors for the diagnosis [6]. Demonstration of the endometrium on the surface of the mass will confirm the diagnosis of chronic inversion. Patient needing anesthesia and the need for facility for frozen section are the drawbacks of this method. But we believe that frozen section under anesthesia is a rather invasive procedure for diagnosis, in an era where USG and MRI are readily available. However, biopsy of the mass has definite place if an associated malignancy is suspected.

Many surgical methods have been described to treat CNPUI. The efficacy of the nonsurgical methods are not clear. Huntington and Haultain are commonly used ab-



Figure 1. Inverted uterus with endometrial lining exposed with the fibroid (arrow) attached to the fundus.

dominal approaches. Huntington procedure involves grasping the round ligaments and the uterus below the area of inversion and slowly pulling up repeatedly until the uterus is reinverted. Haultain procedure is where vagino-cervical ring is incised posteriorly and carried up the posterior wall of the uterus until it can be reinverted to its normal anatomy. Then the uterine incision can be repaired or followed by hysterectomy. Tjalma *et al.* described abdominal retroperitoneal dissection of ureters and uterine arteries, prior to progressing into hysterectomy after opening the vaginal wall anteriorly. They emphasized that identification of the ureter is important to prevent the ureteral injury due to distorted anatomy [7].

Kustner and Spinelli procedures are the commonly used vaginal approaches. Kustner procedure is entering the pouch of Douglas vaginally and splitting the posterior aspect of the uterus and the cervix, and reinverting the uterus. In Spinelli operation incision is made on the anterior aspect of the cervix and then the uterus is reinverted. After both the procedures the uterine incision needs to be repaired after repositioning, if the fertility is wished or otherwise can be proceeded for routine vaginal hysterectomy.

Subtotal vaginal hysterectomy or vaginal hysterectomy without reinversion of the uterus has been described to treat CNPUI. Mayadeo *et al.* in 2003 described a case of incomplete lateral inversion of the uterus, diagnosed with laparoscopy, and treated with vaginal hysterectomy without reinversion of the uterus [8]. As this was a case of incomplete inversion, the pedicles could have been reached as in a routine vaginal hysterectomy. Simms *et al.* who treated a post menopausal chronic inversion with performed subtotal vaginal hysterectomy, differed removal of the cervix, considering the risks associated with distorted anatomy [1]. Mwinyoglee *et al.* reported a CNPUI which was treated with vaginal hysterectomy without reinverting the uterus. They had to use USG to locate the bladder at the cervicofornical region before making the incision. In addition they had to bisect the corpus to access the top pedicles [9].

We believe that vaginal hysterectomy (for complete CNPUI) without reinverting the uterus is dangerous, when there is no access through the abdomen. There are case reports in literature in patients, where the diagnosis of CNPUI was overlooked, excision of the vaginal mass resulted in severing the fundus from the uterus and inadvertent entry into the peritoneal cavity [10]. The procedures like bisecting the uterus can easily damage the content of the inverted uterus, especially if it contains a loop of bowel.

In our case it was impossible to reinvert the uterus, due to its gangrenous nature, leaving us with the only option of trying for a vaginal hysterectomy. Abdominal approach helped to confirm firstly that there were no contents in the inverted uterus, and secondly, following the vaginal hysterectomy, it helped us to restore hemostasis from the reinverted pedicles. Surgeons should be aware of this potential complication of internal bleeding from the reinverted pedicles while operating on chronic uterine inversions.

## Conclusion

Chronic uterine inversion is a rare condition that is difficult to manage even for the experienced gynecologist. USG and MRI usually lead to definitive diagnosis and the treatment is surgical that includes both abdominal and vaginal approaches. However, need for preservation of fertility and excluding possible malignancy might be important in selected cases.

Repositioning the uterus may not be possible in all cases, leaving vaginal hysterectomy the only option. Having abdominal accesses in such situation will help in confirming the diagnosis, excluding any content in the inverted uterus, achieving better hemostasis of bleeding from reinverted pedicles.

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