

# First cases of vNOTES hysterectomy with spinal anesthesia in Wallonia (Belgium)

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## ABSTRACT

General anesthesia is the gold-standard method for vaginal natural orifice transluminal endoscopic surgery (vNOTES) hysterectomy though it can cause many side effects and is anxiety-inducing for some patients. We describe the first two cases of total hysterectomy with bilateral salpingectomy performed under spinal anesthesia in Wallonia (Belgium). This report aims to provide evidence that spinal anesthesia (SA) is a good alternative for general anesthesia (GA) in vNOTES hysterectomy. vNOTES hysterectomy performed under SA is manageable and safe. It allows better comfort for patients with less postoperative pain and PONV, and diminished use of painkillers.

## KEYWORDS

vNOTES, total hysterectomy, spinal anesthesia.

## Introduction

The gold standard anesthetic method for vaginal natural orifice transluminal endoscopic surgery (vNOTES) hysterectomy is general anesthesia (GA). GA presents risks and side effects such as postoperative pain, nausea and sometimes vomiting, sore throat and attention disorders. GA is also associated with longer hospital stay. Performing this minimally invasive surgery technique under locoregional anesthesia (LRA) allows better postoperative comfort for patients and shorter hospitalization. To our knowledge, no case of vNOTES hysterectomy has been performed under spinal anesthesia (SA) in Wallonia, Belgium.

## Report of cases

We present the first two cases of vNOTES hysterectomy with bilateral salpingectomy achieved under SA in Wallonia, Belgium. The first patient was a 44-year-old woman, with 3 natural deliveries (G5P3) and 2 surgical abortions. Regarding her surgical history, she had an abdominal wall lipectomy and two conizations due to a pathological Pap smear result. She had a Body Mass Index (BMI) of 26.6 kg/m<sup>2</sup>. The surgical indication for vNOTES hysterectomy was the persistence of H-SIL cervical lesion.

The second patient was a 51-year-old woman, 2 natural deliveries (G3P2) and 1 surgical abortion. Regarding her surgical history she had an appendectomy and peritonitis. Her BMI was 21.3 kg/m<sup>2</sup>. The surgical indication for vNOTES hysterectomy was abnormal uterine bleeding (AUB) due to multiple uterine fibroids. Two FIGO VI 5 cm fibroids were located on the anterior uterine wall and one FIGO VII 4 cm fibroid was located on the posterior wall.

After installing the patient in a sitting position, the anesthesiologist performed a local anesthesia of the skin at the puncturing point. He used a median approach with a Whitacre 25G needle

## Article history

Received 11 Feb 2024 - Accepted 22 Mar 2024

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## DOI

10.53260/EGO.246023

and after visualizing ebbing of cerebrospinal fluid, a mixture of 12 mg of hyperbaric MARCAINE® 0.5%, 3 µg of SUFENTA® 5 µg/mL and 75 µg of CATAPRESSAN® was injected.

The first patient immediately accepted sedation using 2 mg of MIDAZOLAM®. The second patient refused sedation but 7.5 µg of SUFENTA® and 2 mg of MIDAZOLAM® were added intraoperatively for shoulder discomfort.

After installing the patient in a lithotomy position, draping and emptying the bladder with an in/out catheterization, a circular cervical infiltration was made using 20 mL of physiological fluid mixed with 20 mL of CHIROCAINE® 5% and ¼ of 1 mL of ADRENALINE® 1 mg/mL. We accessed the peritoneal cavity following cervix circumcission with Mayo scissors. vNOTES port (GelPOINT vPATH® Advanced Access Platform, Applied Medical, Rancho Santa Margarita, California, USA) was positioned and the abdomen was insufflated to obtain a pneumoperitoneum of 4 mmHg for patient 1 and 3 mmHg for patient 2. A 15° Trendelenburg position was sufficient, and the uterus was dissected from caudal to proximal using the bipolar instrument in both cases. Insufflation pressure and Trendelenburg tilt were significantly lower than the usual parameters used during vNOTES hysterectomy under GA. This is one of major differences between vNOTES hysterectomies under GA than under LRA. Uterus extraction for patient 2 needed morcellation because of the size and presence of fibroids.

Total operative time was 33 minutes for both cases. Patient one felt shoulder discomfort during the surgery. However, both patients were satisfied with their procedures and did not suffer from postoperative abdominal pain, nor did they experience postoperative nausea and vomiting (PONV). At H+6 pain scale evaluation was 7/10 for patient one on the Visual Analog pain Scale (VAS) and 5/10 for patient two.

The following day patient one had slight lower abdominal pain and pain in the right shoulder. Patient two had no complaint. Both patients were discharged at the 24<sup>th</sup> postoperative hour.

## Discussion and the vNOTES technique

Hysterectomy is one of the most frequent gynecological procedures. In 2022, Belgian social security reported 10,301 cases of hysterectomy with 1.61% only as outpatient surgery (INAMI 2022) [1]. First vNOTES hysterectomies were performed in humans in 2012 by Su and Al [2]. Since then, a series of other benign surgical procedures have been carried out by vNOTES such as myomectomy and adnexal surgeries [3-5]. It is a well-established and safe technique [6]. It has been described as non-inferior to the gold standard surgical route, however, maybe even superior since it allows better visibility of the abdominal cavity and better access to adnexa [7]. With the vNOTES technique, low pressure pneumoperitoneum can be used (6-10 mmHg) which significantly reduces postoperative pain, use of painkillers and consequently hospital stay. This makes vNOTES feasible as a day-care surgery [8]. vNOTES hysterectomy can be performed with SA to guarantee better comfort regarding postoperative pain and PONV.

In Belgium, the first vNOTES hysterectomy with LRA was performed by Baekelandt and his colleagues at Imelda hospital (Mechelen) in a pre-lung transplant patient. Cervical cytology staging as part of the pre-transplantation assessment showed high grade dysplasia. Pre-transplant removal of the uterus and adnexa was necessary because the conization demonstrated tumour-containing edges. Mechanical ventilation was contraindicated therefore LRA was recommended [9]. vNOTES hysterectomies are performed under GA despite the postoperative side effects and the fear it induces in some patients.

GA allows better surgeon and patient operative comfort. Mechanical ventilation limits respiratory changes that can occur with the pneumoperitoneum and Trendelenburg position [10].

LRA is associated with few complications such as injection site pain, infection risk, headaches, hypotension and in worst cases cauda equina syndrome. These complications are rare, and a rigorous technique reduces the risk for unwelcome incidents. LRA has many benefits. It is an easy and fast technique with low rates of failure. Diminished postoperative pain due to the prolonged effect of nervous block and diminished use of painkillers are the most interesting benefits of LRA.

Moreover, incision after LRA block reduces inflammatory mediator release [11].

Another major advantage is the reduced PONV, early mobilization and faster return of bowel function [12]. A recent study conducted by Gundogdu and Al. showed the safety and feasibility of vNOTES hysterectomy with LRA [13].

## Conclusion

VNOTES hysterectomy performed under LRA is manageable and safe. It allows better comfort for patients with less postoperative pain, less PONV and faster recovery, in addition to reducing the use of painkillers and hospital stay. This type of surgery could be done as a day-care procedure at lower expenses.

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### Conflict of interest statement

The authors declare having no conflicts of interest.