Journal Pre-proof

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PII: S2468-7847(20)30268-3

DOI: https://doi.org/10.1016/j.jogoh.2020.101911

Reference: JOGOH 101911

To appear in: *Journal of Gynecology Obstetrics and Human Reproduction*

Received Date: 18 July 2020

Revised Date: 5 September 2020

Accepted Date: 8 September 2020

Please cite this article as: { doi: https://doi.org/

VNOTES (Vaginal Natural Orifices Transluminal Endoscopic Surgery) myomectomy through anterior cul-de-sac approach on the bicornuate uterus.

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Highlights

- Myomectomy can be performed by vNOTES (vaginal Natural Orifices Transluminal Endoscopic Surgery).

- vNOTES can be performed through anterior cul-de-sac incision.
- vNOTES can be feasible for patients with uterine malformation.
- Despite fibroid morcellation is time-consuming, it is worthwhile since the patient can be discharged the next day.

Abstract

VNOTES is a novel technique that allows access to the pelvic-abdominal cavity through the vagina. Myomectomy can be performed by vNOTES even through anterior cul-de-sac incision and for selected cases of uterine malformation.

Here we present a 29-years-old patient with a complaint about pelvic discomfort. Pelvic examination revealed an 8 cm palpable mass in the right iliac region.

The magnetic resonance exam revealed a bicornuate uterus attached to a subserosal fibroid that was 7.7 x 6.6 x 6.0 cm in size. The fibroid was positioned anteriorly to the uterus so the vNOTES approach was indicated through the anterior cul-de-sac.

The surgery was performed without any complication and the patient was discharged the next day. The final pathological analysis confirmed uterine leiomyoma and the patient had a good postoperative evaluation.

In Conclusion, vNOTES myomectomy may be feasible for selected patients even with uterine malformation.

Keywords

vNOTES, NOTES, myomectomy, fibroid, vaginal, uterine malformation

Introduction

VNOTES is a novel technique that allows access to the pelvic-abdominal cavity through the vagina. Usually, this access is performed by the posterior cul-de-sac, however anterior cul-de-sac approach is necessary for some cases.

A 29-years-old nulliparous patient with a complaint about pelvic discomfort was referred to our institution. She has no previous abdominal surgery and her BMI was 30.48 Kg/m^2.

Pelvic examination revealed an 8cm palpable mass in the right iliac region.

Magnetic resonance exam disclosed a bicornuate uterus connected to a mass compatible with subserosal fibroid which measured 7.7 x 6.6 x 6.0 cm (figures 1A and 1B).

Since the patient was young, has no previous abdominal-pelvic surgery, and the fibroid was subserosal pedunculated (FIGO 7), myomectomy through vNOTES was indicated.

Her hemoglobin level before surgery was 13.7 g/dl.

Materials and methods

The procedure was carried out under endotracheal anesthesia and the patient was installed in a gynecological position. Prophylactic antibiotics were administrated. Disinfection was performed and a bladder catheter was inserted. The uterine cervix was retracted posteriorly with a Pozzi tenaculum and a saline solution with epinephrine and ropivacaine was injected into anterior cul-de-sac vaginal mucosa. At this location, a 2,5cm incision was performed and the bladder was dissected and separated from the uterus until the pelvic peritoneum was reached, then peritoneum was perforated, creating a communication between the vagina and pelvic-abdominal cavity (figure 1C). A self-constructed vaginal port with AlexisR and a surgical glove was inserted at this point and CO2 pneumoperitoneum was inflated to 12mmHg. Two 5mm trocars and one 10mm trocar were connected to the vaginal port. A 30-degree endoscopic camera was inserted through

a 10mm trocar and an advanced bipolar device (LigasureTM blunt tip) and a grasper were inserted through each 5mm trocars (figure 1D).

The pelvic cavity was explored revealing an 8 cm subserosal fibroid on right uterine cornus; tubes and ovaries were normal (video 1). There were no abnormalities in the upper abdominal cavity.

Myomectomy was performed using an advanced bipolar device and a running suture was made using a 2-0 stratafixTM on the uterine wall (figures 2A to 2C).

An Alexis Contained Extraction SystemR was inserted vaginally to bag the fibroid and the opening ring was brought out from the vagina allowing safe fibroid cold knife and scissors morcellation. Despite fibroid morcellation demanded extended surgical time due to its size, surgery was performed without complications (figures 2D to 2F).

After fibroid removal, the pelvis and abdomen were inspected again and vaginal mucosa was closed with a lock-stitch suture. The pudendal nerve block was done with ropivacaine and a vaginal pack was inserted to be removed the next day.

Surgery time was 230 minutes and the estimated bleeding was 30ml.

Results

The patient was discharged the next day in good clinical condition. Final pathological analysis revealed uterine leiomyoma. The patient had no surgical complications.

Discussion

The first cases of vNOTES aimed to perform cholecystectomy through posterior cul-de-sac [1–4]. Also, many reports of different pelvic and abdominal surgeries through the vNOTES approach were published such as incisional hernia repair, gastrectomy,

nephrectomy, and appendectomy [5–9]. Most of these surgeries were performed using a posterior cul-de-sac approach since it is well-known access to the pelvic cavity used by gynecologists for decades and it is easier to perform, however, there are cases in which anterior approach is necessary as the current case. Despite the anterior access is more demanding for the surgeon, it is perfectly feasible, even to patients with uterine malformation.

Baekelandt first reported 8 cases of patients submitted to myomectomy through vNOTES. Some cases were accessed anteriorly and others posteriorly. In the same year, Liu *et al* reported a successfully transvaginal myomectomy through anterior colpotomy of a 42-year-old patient [10,11].

Because it is a new technique, we are performing selected cases of subserosal type using vaginal-NOTES because it is easier, faster, and safer to perform. In the current case, the surgery took 230 minutes but it is important to point out that the opening of the anterior vaginal mucosa, myomectomy, and myometrium suture took 40 minutes approximately. Most of the spent time was due to fibroid morcellation. This explains the small amount of bleeding associated with long surgical time. Furthermore, the patient had no surgical complications and reported good surgery recovery after two weeks.

Conclusion

VNOTES myomectomy through anterior cul-de-sac approach is feasible, even in patients with uterine malformation.

Acknowledgements

Ana Paula Lahoz Badiglian

Disclosure Statement

No competing financial interests exist.

Author contributions

Levon Badiglian-Filho - study conception and wrote the manuscript

Elza Mieko Fukazawa - data collection, analysis and approved the final manuscript.

Carlos Chaves Faloppa - data collection, analysis and approved the final manuscript.

Glauco Baiocchi - approved the final manuscript.

Bibliography

[1] Zorrón R, Filgueiras M, Maggioni LC, Pombo L, Lopes GC, Lacerda AO. NOTES Transvaginal Cholecystectomy: Report of the First Case. Surg Innov. 2007;14(4):279–83.

[2] Peng C, Ling Y, Ma C, Ma X, Fan W, Niu W, et al. Safety outcomes of NOTES cholecystectomy versus laparoscopic cholecystectomy: A systematic review and meta-analysis. Surg Laparosc Endosc Percutaneous Tech. 2016;26(5):347–53.

[3] de Sousa LH, de Sousa JAG, de Sousa Filho LH, de Sousa MM, de Sousa VM, de Sousa APM, et al. Totally NOTES (T-NOTES) transvaginal cholecystectomy using two endoscopes: preliminary report. Surg Endosc. 2009;23(11):2550–5.

[4] Zornig C, Mofid H, Emmermann A, Alm M, Von Waldenfels HA, Felixmüller C. Scarless cholecystectomy with combined transvaginal and transumbilical approach in a series of 20 patients. Surg Endosc Other Interv Tech. 2008;22(6):1427–9.

[5] Jacobsen GR, Thompson K, Spivack A, Fischer L, Wong B, Cullen J, et al. Initial experience with transvaginal incisional hernia repair. Hernia. 2010;14(1):89–91.

[6] Ramos AC, Zundel N, Neto MG, Maalouf M. Human hybrid NOTES transvaginal sleeve gastrectomy: initial experience. Surg Obes Relat Dis. 2008;4(5):660–3.

[7] Kaouk JH, White WM, Goel RK, Brethauer S, Crouzet S, Rackley RR, et al. NOTES Transvaginal Nephrectomy: First Human Experience. Urology [Internet]. 2009;74(1):5–8. Available from: http://dx.doi.org/10.1016/j.urology.2009.03.030

[8] Palanivelu C, Rajan PS, Rangarajan M, Parthasarathi R, Senthilnathan P, Prasad M. Transvaginal endoscopic appendectomy in humans: A unique approach to NOTES - World's first report. Surg Endosc Other Interv Tech. 2008;22(5):1343–7.

[9] Bernhardt J, Gerber B, Schober HC, Kähler G, Ludwig K. NOTES - Case report of a unidirectional flexible appendectomy. Int J Colorectal Dis. 2008;23(5):547–50.

[10] Baekelandt J. Transvaginal natural-orifice transluminal endoscopic surgery: a new approach to myomectomy. Fertil Steril. 2018;109(1):179. doi:10.1016/j.fertnstert.2017.09.009

[11] Liu J, Lin Q, Blazek K, Liang B, Guan X. Transvaginal Natural Orifice Transluminal Endoscopic Surgery Myomectomy: A Novel Route for Uterine Myoma Removal. J Minim Invasive Gynecol. 2018;25(6):959-960. doi:10.1016/j.jmig.2018.01.011

Figure1

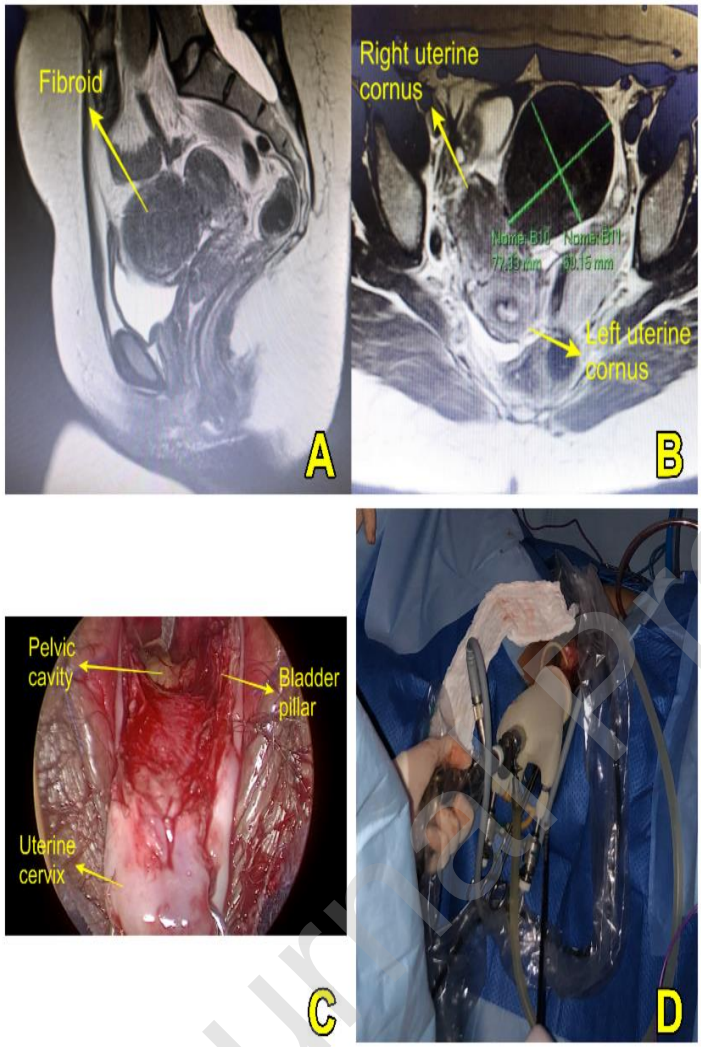

Figure 2