Case Report Research Journal of Health Sciences

First laparoscopically-assisted vaginal hysterectomy in a tertiary health facility in Abeokuta, Nigeria: A case report

***Jimoh O.S.[1], Ogunfunmilayo T.A.[1], Waheed S.A.[2], Lemboye-Bello R.T.[1], Taiwo N.A.[1], Oladosu-Aderolu A.O.[1], Igbo A.M.[1], Odunola A.A.[1]**

Abstract

Background: Laparoscopic surgery as a form of minimal access operation has been performed for decades in the developed world, but is now gaining popularity in the developing countries including Nigeria. The recent rise in minimal access surgery in low-resource settings may be attributed to increasing expertise, growing awareness among patients and relatively reducing cost.

Case report: Although laparoscopically-assisted vaginal hysterectomy (LAVH) has been documented from some centres in Nigeria, we are reporting the first case of this highly-technical surgery in our centre. Mrs. GJ was admitted with second degree uterine prolapse and had LAVH with a smooth post-operative recovery. She had reduced hospital stay as she was discharged on the first post-operative day and was satisfied with her choice of surgery as well as the outcome. There were no immediate or late post-operative complications.

Conclusion: The success of this procedure further emphasize the feasibility of minimal access surgery in resource-poor settings.

Keywords: Laparoscopically-assisted vaginal hysterectomy, minimal access surgery, uterine prolapse

***Corresponding author**
Jimoh, O.S.
ORCID-NO: https://orcid.org/0000-0002-1016-8355
Email: jsaheed81@gmail.com

[1]Department of Obstetrics and Gynaecology, Federal Medical Centre, Abeokuta, Nigeria.
[2]Department of Surgery, Federal Medical Centre, Abeokuta, Nigeria.

Received: January 12, 2023 *Accepted: April 20, 2023* *Published: Deceember 15, 2023*

http://dx.doi.org/10.4314/rejhs.v11i4.10

Rapport de Cas

Research Journal of Health Sciences

Hystérectomie vaginale assistée par laparoscopie dans un établissement de santé tertiaire à Abeokuta, Nigéria : à propos d'un cas

***Jimoh O.S.[1], Ogunfunmilayo T.A.[1], Waheed S.A.[2], Lemboye-Bello R.T.[1], Taiwo N.A.[1], Oladosu-Aderolu A.O.[1], Igbo A.M.[1], Odunola A.A.[1]**

Résumé

Contexte général de l'étude: La chirurgie laparoscopique en tant que forme d'opération d'accès minimal est pratiquée depuis des décennies dans le monde développé, mais elle gagne maintenant en popularité dans les pays en développement, dont le Nigéria. L'augmentation récente de la chirurgie à accès minimal dans les milieux à faibles ressources peut être attribuée à l'augmentation de l'expertise, à la sensibilisation croissante des patients et à la réduction relative des coûts. Rapport de cas : Bien que l'hystérectomie vaginale assistée par laparoscopie (HVL) ait été documentée dans certains centres au Nigéria, nous rapportons le premier cas de cette chirurgie hautement technique dans notre centre. Mme GJ a été admise avec un prolapsus utérin au deuxième degré et a eu une HVL avec une récupération postopératoire en douceur. Elle avait réduit son séjour à l'hôpital car elle était sortie le premier jour postopératoire et était satisfaite de son choix de chirurgie ainsi que du résultat. Il n'y a pas eu de complications postopératoires immédiates ou tardives.

Conclusion : Le succès de cette procédure souligne davantage la faisabilité d'une chirurgie à accès minimal dans les milieux à faibles ressources.

Mots-clés : Hystérectomie vaginale assistée par laparoscopie, chirurgie à accès minimal, prolapsus utérin

***Corresponding author**
Jimoh, O.S.
ORCID-NO: https://orcid.org/0000-0002-1016-8355
Email: jsaheed81@gmail.com

[1]Department of Obstetrics and Gynaecology, Federal Medical Centre, Abeokuta, Nigeria.
[2]Department of Surgery, Federal Medical Centre, Abeokuta, Nigeria.

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INTRODUCTION

Hysterectomy is the second most frequently-performed major surgical procedure among reproductive-aged women (1). Traditionally, hysterectomy is performed through the abdominal route and in the presence of significant uterine prolapse, vaginal approach has been the preferred option (2). Laparoscopy-Assisted Vaginal Hysterectomy (LAVH) has been widely reported to offer benefits such as shorter hospital stays, quicker recovery, lesser postoperative pain and lower complication rates when compared with abdominal hysterectomy hence is a viable option in patients scheduled for hysterectomy with uterine size less than 16 weeks (3). Despite, the introduction of LAVH as a surgical alternative to conventional vaginal hysterectomy, there are conflicting reports regarding the superiority of the former over the latter with both demonstrating comparable clinical outcomes from the available meta-analysis (4).

CASE REPORT

Mrs. GJ was a 65-year-old grandmultiparous and post-menopausal woman who presented with history of protrusion of a mass through the vagina of three years duration. The mass was first noticed while she strained to pass stool and usually became prominent during exertive efforts such as micturition, defeacation and coughing. The mass was also prominent in the erect position and reduced on lying down. Mrs. GJ had associated pelvic pain, as well as urinary frequency, urgency and incontinence but there was no change in bowel activities. She had no history of chronic cough, constipation or abdominal swelling and there was no vaginal bleeding, discharge, ulcer or odour. She had no previous surgery or instrumental delivery despite six vaginal deliveries in the past. Mrs. GJ had no chronic medical condition, she was a widow and neither smoked cigarettes nor drank alcohol. There was no family history of similar condition.

Physical examination revealed an elderly woman, not pale, not jaundiced and afebrile (T - 36.9^{0}C). There was no pedal oedema and no significant peripheral lymphadenopathy. She weighed 59kg, her height was 1.67m and Her Body Mass Index was thus 21.2kgm^{-2}. The respiratory rate was 20 cycles/minute and breath sounds were vesicular. The pulse was 82 beats per minute, regular and of normal volume. The blood pressure was 120/70 mmHg, heart sounds were normal and no murmur was heard. The abdomen was full, soft, moved with respiration and there were no visible or palpable cough impulses at the hernial orifices. There was no area of tenderness, the liver, spleen as well as the kidneys were not enlarged and no palpable abdominal masses.

Perineal examination revealed a normal vulva with no demonstrable stress incontinence. A fleshy mass was at the level of the introitus, and on straining, it protruded slightly further out. The mass was identified to be the uterus as it was obvious the cervix was the leading point of the protusion. Part of the uterus was still in the vagina. The cervix was healthy looking, no decubitus ulceration or bleeding. Mrs. GJ was put in Sim's position, a cystocoele was observed in the anterior wall, it was reducible and no rectocele or enterocele demonstrated.

A diagnosis of second-degree uterovaginal prolapse with cystocele was made. The findings and probable aetiology were explained to her as well as the decision to perform a laparoscopically-assisted vaginal hysterectomy, bilateral salpingo-oophorectomy and anterior colporrhaphy. She consented and was investigated on outpatient basis. All the investigations including electrocardiogram and papanicolaou's smear were normal. However, abdominal ultrasonography showed a 60 by 50mm right ovarian mass.

Mrs. GJ eventually had surgery with intra-operative findings of normal vulva and vagina, second-degree uterine prolapse with cystocele, grossly normal cervix, atrophic uterus, slightly enlarged right ovary about 6 by 6cm with atrophic left ovary, healthy-looking fallopian tubes, clear post-operative urine and estimated blood loss was 300mls.

The improvised uterine manipulator (vulsellum screwed to the Spacksman cannula) was applied for mobilization of the uterus. The patient was then placed in Lloyd-Davies position under general anesthesia and pneumoperitoneum was created with carbon dioxide using the Veress needle method following routine cleaning and draping. A 5mm transverse stab wound was made through the upper border of the umbilicus. The anterior abdominal wall was digitally grasped and elevated on both sides of the umbilicus and the Veress needle inserted through the skin incision down to the fascia into the peritoneal cavity. The Veress needle, which was held like a dart, was pointing towards the sacral promontory at an angle 45^0. Successful insertion was tested using the aspiration as well as “hanging drop” test. This is very necessary to prevent wrong insufflation of the gut and subcutaneous emphysema. The rubber tubing from carbon

dioxide insufflator was then connected to the Veress and pneumoperitoneum established while monitoring the pressure gauge during the insufflation at a preset pressure of 15 mmHg. The Veress needle was subsequently removed and the umbilical incision enlarged to 1cm. The anterior abdominal wall was similarly digitally grasped and elevated on both sides of the umbilicus and 10mm trocar and cannula inserted through the incision with a twisting motion as far as the rectus sheath then angled towards the pelvis and a short quick stabbing motion was used to penetrate the rectus fascia with the peritoneum all at once. The trocar was then removed and proper placement confirmed with the escape of gas. A "0^0 10mm" telescope was inserted and a panoramic viewing of the abdomen was done beginning with the entry point. Two other 5mm secondary ports were created on both sides under direct vision of the telescope at points about 5cm inferior to the umbilicus on the midclavicular lines. The direct visualization of the abdominal entry is very important to prevent injuries to vital structures. Bowel loops were retracted superiorly with the aid of a grasper and the uterus was mobilized to visualize the appendages as well as other pelvic structures (figure 1). Following the elevation of the uterus, the round ligaments were dessicated and divided bilaterally using the harmonic scalpel. Having recognized the course of the ureters, the infundibulopelvic ligaments were carefully identified, also dessicated and divided bilaterally. The anterior leaf of the broad ligament and uterovesical peritoneum were dissected and reflected carefully, then, the perineal approach to the surgery started with bladder emptying. The cervix was grasped with two Vulsellum forceps, one to each lip. The sub epithelial tissues were infiltrated with about 10mls of (1:100,000) diluted adrenaline solution to define tissue planes and cause vasoconstriction. A circumferential incision was made on the cervix 2cm below margin of the bladder. The incision was extended vertically upward on the anterior vaginal wall up to the suburethral region. With blunt and sharp dissection, the vaginal skin was reflected off the cervix anteriorly, laterally and posteriorly (figure 2). Under direct vision of the laparoscope, the bladder was dissected free of the cervix and pushed up until the utero-vesical pouch of peritoneum was seen. The direct visualization was to ensure proper dissection of the uterovesical peritoneum without any injury to the bladder. The posterior vaginal wall was also reflected off the cervix until the posterior layer of the peritoneum was exposed and opened with significant loss of carbon dioxide gas. ThE cardinal and uterosacral ligaments were identified clamped and transfixed with vicryl 1 suture and the pedicle held with artery forceps bilaterally. The peritoneum of the utero-vesical pouch was also opened. The uterine vessels were clamped, cut and ligated with vicryl 1suture bilaterally and the uterus with its appendages were delivered (figure 3). The uterosacral and cardinal ligament bundles were approximated by tying their stay sutures together and anchored to the lateral angles of the vagina. Then, the vagina vault was closed with vicryl 0 sutures. The redundant anterior vaginal skin that was separated from the underlying bladder was removed and the prolapsed bladder wall supported by approximating the intervening pubocervical fascia with buttress sutures using vicryl 0 (Kelly's plication). The anterior vaginal wall was then closed with vicryl 0 suture (figure 4). An in-dwelling Foley's catheter was inserted in the bladder and the vagina was packed with gauze. Pneumoperitoneum was re-created and the pelvis visualized (figure 5), irrigation and suction done after haemostasis was secured. The ports were removed under direct vision and the wounds were closed with vicryl sutures.

Postoperatively, she was placed on intravenous fluid, antibiotics and analgesics. Subsequently, vaginal packs and urethral catheter were removed as she was discharged on the first postoperative day. Mrs. GJ had two follow-up visits and her general physical condition was satisfactory. Histology showed features of postmenopausal uterus, cervix and left ovary with benign right ovarian cyst.

DISCUSSION

Globally, hysterectomy ranked among the most frequently-performed gynaecological surgeries (5). It is a typical gynaecological procedure performed for varying indications using abdominal (56%), vaginal (19%), laparoscopic (20%), and robotic (5%) approaches (6). The first laparoscopic hysterectomy was performed by Harry Reich in Pennsylvania, USA in 1989(7). Developments in gynaecologic surgeries have led to more minimally invasive options for hysterectomy (6). Minimal access procedures are typically preferable to more invasive procedures, where possible. Generally, less invasive techniques are recommended for most benign lesion within the pelvis but the applicability and appropriateness of this innovation should be the determining factor (6). A 14-year review of gynaecological surgeries

performed at the Obafemi Awolowo University Teaching Hospital, Ile-Ife between 2005 and 2018 showed that vaginal hysterectomy accounted for 0.8% of gynaecological admissions with a rate of 2.3% of the major gynecological operations (8).

The first laparoscopically-assisted vaginal hysterectomy performed in the South-Eastern region of Nigeria was reported by Ikechebelu et al in 2009 (9). Successful Laparoscopic hysterectomy requires good understanding of pelvic anatomy, proficiency in the safe use of energy sources, as well as laparoscopic suturing and knotting techniques (10). Laparoscpically-assisted vaginal hysterectomies offer an additional advantage of direct visualization of the abdominopelvic structures as well as performing some steps intra-abdominally before completion of the surgery through the vaginal route (11). Although advancement in the field of gynaecological endoscopy has been relatively lagging in Sub-Saharan Africa, total laparoscopic hysterectomy has been reported in Ile-Ife, South-Western Nigeria (10). Total Vaginal Hysterectomy (TVH) and LAVH are associated with reduced pain, shorter hospital stay as well as better cosmetic values when compared with total abdominal hysterectomy but limited operation field remains a major challenge in TVH while attendant cost of LAVH is still a considerable drawback (12). Our patient was discharged on the first postoperative day without any complications.

The main advantage of minimally invasive surgery (MIS) is the absence of a large abdominal wound, which results in fewer wound-related complications, less postoperative pain, and a shorter hospital stay(13). Indications for LAVH are not well-defined but factors such as uterine size, experience of surgeon, pelvic adhesions, adnexal pathology, previous surgeries and endometriosis would determine the success of the procedure (11,14). Our patient had an atrophic uterus and qualified for the procedure as uterine size of less than 12-weeks was said to be appropriate for LAVH (11). Additionally, LAVH is preferred to total vaginal hysterectomy in cases of planned concomitant salpingo-oophorectomy and possibility of abdomino-pelvic visualization as well as exploration as seen in Mrs GJ, a postmenopausal woman with enlarged right ovary(15)(16).

CONCLUSION

The safety of Laparoscopically-assisted vaginal hysterectomy is well-established (17). It is quite alarming that laproscopic procedures including LAVH are not available, accessible and affordable in most centres in the developing countries despite all the established superiorities over the open surgeries (10). There is also an underwhelming level of expertise but this could improve if the government and relevant stakeholders could sponsor the training of more laparoendoscopic surgeons and subsidize these procedures to the level within the reach of the lower economic class.

Ethical consideration: Written informed consent for publication was obtained from the patient whose management is being reported.

Conflicts of interest: The authors declare no conflicts of interest in the publication of this case report.

Financial supports and sponsorship: The authors did not receive any financial support for this publication.

Acknowledgement: We appreciate the Management of Federal Medical Centre, Abeokuta as the surgical fee was greatly subsidized for our patient and full dedication as well as co-operation of the theatre support staff was also acknowledged.

Author's contribution: The medical history taking of the patient were done by Jimoh OS, Ogunfunmilayo TA, Lemboye-Bello RT. Ogunfunmilayo TA, Jimoh OS, Taiwo NA, Lemboye-Bello RT did the pre-operative ward rounds/ reviews of the patient. The surgery was performed by Jimoh OS, Waheed SA, Ogunfunmilayo TA, Oladosu-Aderolu OA while the interpretation of surgical findings were done Jimoh OS, Ogunfunmilayo TA, Lemboye-Bello RT, Waheed SA. The post-operative reviews/ follow-up was conducted by Jimoh OS, Taiwo NA, Igbo AM, Oladosu-Aderolu OA, Odunola AA. The case report writing was done by Jimoh OS, , Oladosu-Aderolu OA, Igbo AM, Odunola AA, the editing was done by Waheed SA, Ogunfunmilayo TA, Lemboye-Bello RT, Taiwo NA and the proofreading before final submission was executed by Jimoh OS, Igbo AM.

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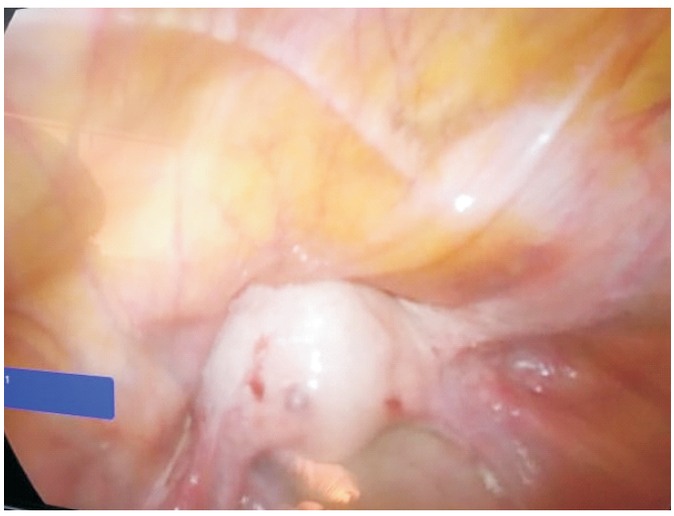

Figure 1: Laparoscopic view of the pelvis

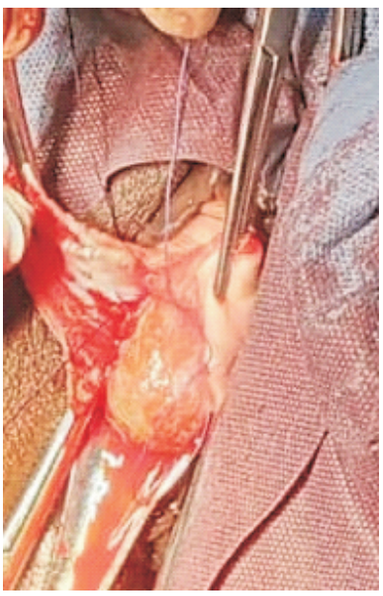

Figure 2: Dissection of the vaginal skin from the bladder

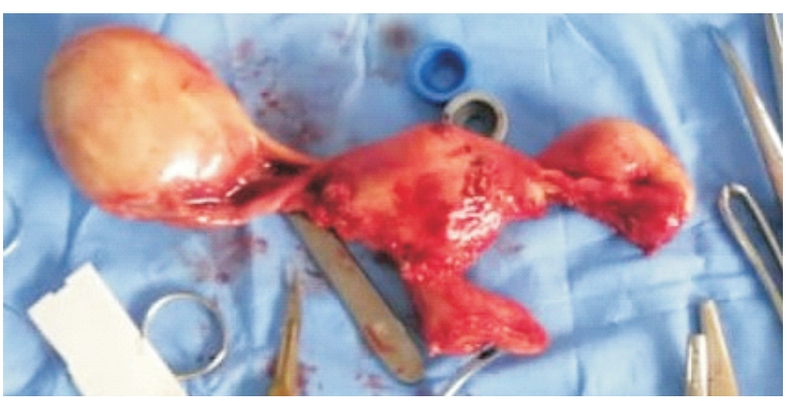

Figure 3: Uterus and appendages

Figure 4: Anterior vaginal wall after colporraphy

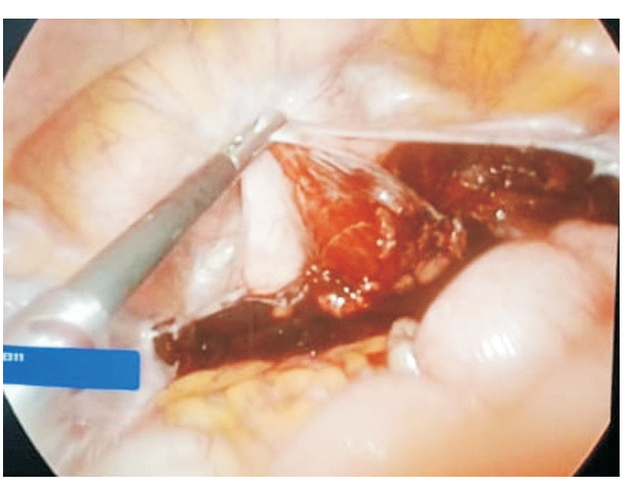

Figure 5: Inspection of the pelvis before irrigation and suction