

# Trends in vaginal hysterectomy in a Nigerian teaching hospital: A 14-year review

EMEKA P. IGBODIKE, CLEMENT A. ADEPITI, AKANINYENE E. UBOM, KAYODE O. AJENIFUJA, OLABISI M. LOTO, OLUSOLA B. FASUBAA, UCHE ONWUDIEGWU, OKECHUKWU E. ORJI

Department of Obstetrics, Gynaecology, and Perinatology, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Osun State, Nigeria

## ABSTRACT

**Background:** The procedure of vaginal hysterectomy is a fast disappearing art. This study looks at 14 years' experience of vaginal hysterectomy in Ile-Ife, Nigeria.

**Objectives:** To determine and compare the rate, indications, and complications of vaginal hysterectomy over a 14-year period at Ile-Ife, Nigeria.

**Methods:** The medical records of patients managed with vaginal hysterectomies performed from 1<sup>st</sup> January 2005 to 31<sup>st</sup> December 2018 were reviewed. The demographics and indications for vaginal hysterectomy were extracted. Data were analyzed using Statistical Package for Service Solutions – IBM version 22. Frequencies and percentages were calculated and associations compared where applicable using Chi-square with level of significance set at <0.05.

**Results:** Pelvic organ prolapse accounted for 0.8% of gynecological admissions and vaginal hysterectomy accounted for 2.3% of major gynaecological operations. The mean age was  $66.1 \pm 9.2$  years with a mean age of menopause of  $15.2 \pm 7.1$  years. The mean parity was  $6.2 \pm 1.6$ . Pelvic organ prolapse was the commonest indication. The mean blood loss at surgery was  $314.2 \pm 184.8$  ml. The modal post-operative complication was post-operative anemia, and hypertension was the commonest comorbidity. The mean duration of surgery was  $3 \pm 0.9$  h and the mean duration of admission was  $5.4 \pm 2.7$  days.

**Conclusion:** The rate of vaginal hysterectomy is on the decline. This may be due to case under reporting, limiting of family size, or low uptake of farming occupation in our society.

**Key words:** Comorbidities; complications; incidence; indications; vaginal hysterectomy.

## Introduction

Vaginal hysterectomy is defined as the removal of the uterus through the vaginal route and subsequently approximating the space previously occupied by the uterus with a shelf of tissue derived from the lateral attachments of the uterus.<sup>[1-7]</sup>

The saying that the vaginal route is the preferred gynaecologist's route of surgery still stands in modern day

gynaecological practise.<sup>[1,7]</sup> Historical perspective has it that vaginal hysterectomy was first described in the days of Soranus of Ephesus in 120 AD. The credit however goes to Langenbeck as the first to perform a vaginal hysterectomy in 1813.<sup>[8]</sup>

**Address for correspondence:** Dr. Emeka P. Igbodike, Department of Obstetrics, Gynaecology and Perinatology, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Osun State, Nigeria.  
E-mail: dr.igbodike@gmail.com

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In 1939, Doyen insisted in his classics that no one could call himself a gynaecologist until he has performed a vaginal hysterectomy.<sup>[1,9]</sup>

The commonest indication for vaginal hysterectomy remains the treatment for pelvic organ prolapse.<sup>[1,7]</sup> There are however other indications which include dysfunctional uterine bleeding, cervical polyps, carcinoma *in situ* of the cervix, and endometrial malignancy.<sup>[1]</sup>

The known contraindications to vaginal hysterectomy include uterus more than 12 weeks' size, restricted uterine mobility, limited vaginal space, adnexal pathology, vesicovaginal fistula repair, a cervix that is flushed with the vagina, and invasive cancer of the cervix.<sup>[1]</sup>

Compared with the abdominal approach, in vaginal hysterectomy, there is early return of bowel function due to lesser bowel handling, with better tolerance by elderly and obese women. Vaginal hysterectomy leaves no visible scar, has little risk of later complications such as adhesions, intestinal obstruction and hernia, with a shorter convalescence, shorter hospital stay, reduced cost to the patient, and decreased operative blood loss.<sup>[1]</sup>

In addition, vaginal hysterectomy is safer than abdominal hysterectomy and carries a lower mortality rate (0.1%)<sup>[1]</sup> with negligible discomfort and less analgesia requirement.

Abdominal or vaginal hysterectomy however may be associated with depression and altered self-image,<sup>[1,10]</sup> with a relatively low acceptance rate for hysterectomy among Nigerian women, as our women treasure their uteri and are not ready to part with this God-given organ.<sup>[1]</sup>

## Materials and Methods

### Objectives

To determine and compare the rate, indications, and associated complications of vaginal hysterectomy over a 14-year period at Ile Ife, Nigeria.

### Study design

The medical records of patients who had vaginal hysterectomy over a 14-year period (2005-2018) were retrieved after obtaining ethical clearance from the institution's ethical committee.

### Methods

The case records of the vaginal hysterectomies performed from 1<sup>st</sup> January 2005 to 31<sup>st</sup> December 2018 were retrieved and reviewed. Out of 52 cases managed within the study

period, only 46 case files were retrieved from the records department and suitable for analysis, giving a retrieval rate of 84.6%. The sociodemographic characteristics, indications for vaginal hysterectomy, average size of the uterus, duration of the procedure, extent of surgery performed, type of pelvic floor repair, amount of blood loss, and the duration of hospital stay were extracted using a purpose-designed proforma.

### Statistics

The data were analyzed using Statistical Package for Service Solution IBM version 22. Frequencies and percentages were calculated and the results were presented in tables and graphs where applicable. Data obtained seven years before and seven years after were compared using independent Student's *t* test for continuous variables and chi-square for categorical variables. Test of significance was set at *P* value <0.05.

Seven years before was defined as between 2005 and 2011 study period, whereas seven years after was defined as between 2012 and 2018 of the study period.

## Main Outcome Measures

The main outcome measures were rate of vaginal hysterectomy, whereas the secondary outcome measures were the indications for vaginal hysterectomy, extent of surgery, volume of blood loss, complications of vaginal hysterectomy, associated morbidity, duration of surgery, and the length of hospital stay. Cases involving abdominal hysterectomy, vaginal hysterectomy done outside the hospital, wrongly coded case notes (patients with different diagnosis or from other departments or empty case notes), and lost to follow-up cases were excluded.

## Results

During the 14-year period under review, there were a total of five thousand, four hundred and fifty-six (5,456) gynecological admissions, of which two thousand and ten (2,010) were major gynaecological surgeries, in which forty-six (46) were eligible vaginal hysterectomies. Vaginal hysterectomy accounted for 0.8% of gynaecological admissions with a rate of 2.3% of the major gynecological operations.

Majority of the patients 21 (45.6%) were within the age range of 60–79 years, with a mean age of 66.1 ± 9.2, whereas the least number of patients were seen among 30–39 years and 40–49 years 1 (2.2%), respectively, as shown in Table 1.

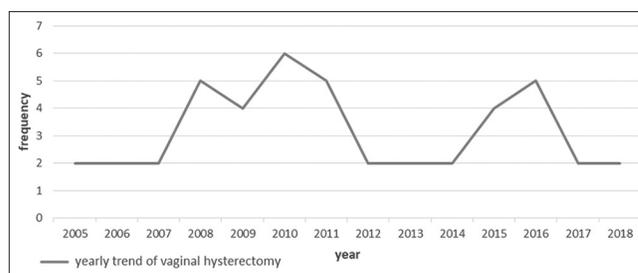
**Table 1: Sociodemographic characteristics of the patients [n=46]**

Characteristics	Frequency, n=46	Percentage
<b>Age (years)</b>		
30-39	1	2.2
40-49	1	2.2
50-59	2	4.3
60-69	21	45.6
70-79	17	37.0
80-89	4	8.7
<b>Parity</b>		
3-4	6	13.0
5-6	21	45.7
7-8	17	37.0
9-10	2	4.3
<b>Occupation</b>		
Trading	28	60.9
Tailoring	3	6.5
Farming	3	6.5
Teacher	2	4.3
Cleaner	1	2.3
Retired civil servant	1	2.3
Not specified	8	17.4
<b>Yearly trend of vaginal hysterectomy</b>		
Year		
2005	2	4.3
2006	2	4.3
2007	2	4.3
2008	5	10.9
2009	4	8.9
2010	6	13.0
2011	5	10.9
2012	2	4.3
2013	2	4.3
2014	2	4.3
2015	4	8.9
2016	5	10.9
2017	2	4.3
2018	3	6.5
Total	46	100.0

All the patients were multiparous and none of them was nulliparous. The modal parity was seen in para 5 to para 6 (45.7%) of patients and the least parity in para 10 (4.3%) with a mean parity of  $6.2 \pm 1.6$ . More than half of the study group were traders 28 (60.9%), whereas the least occupation was seen among the retired civil servants and cleaners 1 (2.2%), respectively. The occupation history of 8 (17.4%) patients was not documented in their case records.

All the patients presented with varying degrees of pelvic organ prolapse with a common symptom of fleshy mass protruding from the vagina.

The rate of vaginal hysterectomy in the period under review peaked in 2016, 6 (13.0%), followed by 2008, 5 (10.9%), 2011,



**Figure 1: Yearly trend of vaginal hysterectomy: 14 year review**

5 (10.9%), and 2016, 5 (10.9%), respectively. On average, 3.3 (46/14) vaginal hysterectomies were performed per year. This was represented in Figure 1.

All the vaginal hysterectomy operations were performed by consultant gynaecologists and none of the uteri was greater than 12 weeks size.

Table 2 showed the complications and comorbidities in women who had vaginal hysterectomy. The complication rate in this study was 10.9% with postoperative anemia being the modal complication 3 (6.5%). Majority of the patients 41 (89.1%) had no complications both intra- and postoperatively.

Sixteen (34.8%) patients had concurrent medical illnesses, with hypertension only, 12 (26.1%), being the modal. Majority of the patients, 30 (65.2%), had no comorbidity.

Table 3 showed distribution of indications for surgery, extent of surgery performed, estimated blood loss, duration of surgery, and duration of hospital stay. Second-degree uterovaginal prolapse only 15 (32.6%) was the commonest type of pelvic organ prolapse seen among the study group.

There were only six (13.6%) patients among the study group who had bilateral salpingoophorectomy, despite the fact that majority of them were above 40 years old.

Most intraoperative blood loss was less than 500 ml, 39 (84.8%). Only one (2.2%) patient had more than one litre of blood loss. The mean estimated blood loss was  $314.2 \pm 184.8$  ml. There was no mortality among the study population.

Most patients had a hospital stay of 4-5 days, whereas the least population had 2-3 days' hospital stay. The mean duration of in-patient stay was  $5.4 \pm 2.7$  days.

Most of the surgeries lasted between 3 and 4 h 59 minutes, with a mean duration of surgery of  $3 \pm 0.9$  hours.

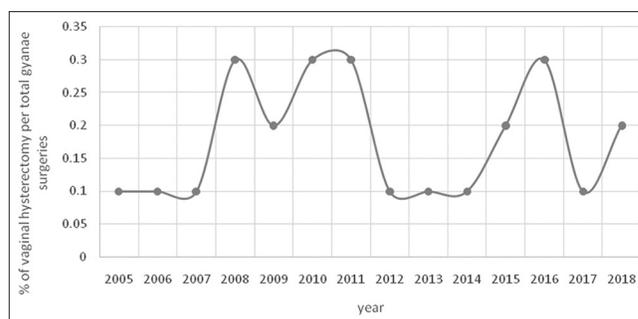
**Table 2: Distribution of complications and comorbidities in women who had vaginal hysterectomy**

Characteristics	Frequency	Percentage
<b>Complications</b>		
No	41	89.1
Postop anemia	3	6.5
Cystostomy alone	1	2.2
Cystostomy + ureteric injury	1	2.2
<b>Comorbidities</b>		
Nil	30	65.2
Hypertension	12	26.1
Diabetes mellitus	2	4.3
Hypertension + diabetes	1	2.2
Hearing impairment + osteoarthritis	1	2.2
<b>Total</b>	<b>46</b>	<b>100</b>

**Table 3: Distribution of indications for surgery, extent of surgery performed, estimated blood loss, duration of surgery, and duration of hospital stay**

Characteristics	Frequency	Percentage
<b>Indication for surgery</b>		
Cystocele only	1	2.2
First-degree UVP only	4	8.7
First-degree UVP + rectocele + cystocele	1	2.2
Second-degree UVP only	15	32.6
Second-degree UVP + cystocele	3	6.5
Second-degree UVP + cystocele + rectocele	1	2.2
Third-degree UVP only	14	30.4
Third-degree UVP + cystocele	1	2.2
Third-degree UVP + cystocele + rectocele	1	2.2
Procedentia only	3	6.5
Procedentia + cystocele	1	2.2
UVP degree not specified	1	2.2
<b>Extent of surgery performed:</b>		
<b>Bilateral salpingo-oophorectomy</b>		
Yes	6	13.0
No	40	87.0
<b>Estimated blood loss (ml)</b>		
<500	39	84.8
500-1000	6	13.0
>1000	1	2.2
<b>Hospital stay (days)</b>		
2-3	7	15.2
4-5	23	50.0
>5	16	34.8
<b>Duration of surgery (hours)</b>		
1-2:59	20	43.5
3-4:59	23	50.0
≥5	3	6.5
<b>Total</b>	<b>46</b>	<b>100</b>

Table 4 was a crosstab of seven years before and seven years after, comparing the age, parity, and occupation of women who had vaginal hysterectomy. The figures obtained for age, parity, and occupation were comparable with no statistically



**Figure 2: Yearly comparison of the % of vaginal hysterectomies per total gynaecological surgeries**

significant differences over the years. The *P* values were 0.507, 0.305, and 0.153, respectively.

### Discussion

In the period of study, there were a total of 46 vaginal hysterectomies done in the Obafemi Awolowo University Teaching Hospitals Complex, Ife Hospital Unit, Ife Hospital Unit.

This number was higher than an earlier 10-year review of vaginal hysterectomies done in the same hospital by Owolabi *et al.* in which 44 vaginal hysterectomies were retrospectively studied<sup>[3]</sup>; also less than figures obtained in a study at Ibadan in which 61 cases of vaginal hysterectomies were performed over a 5-year period by Adeleye and Osinusi.<sup>[11]</sup>

A look at the trend over a 14-year period revealed a peak period in 2010, 6 (13.0%) while 2008, 2011 and 2016 shared similar number of patients 5 (10.9) who underwent vaginal hysterectomy. There is no particular identifiable reason for the surge in 2010. What is however obvious, is the reduced uptake of vaginal hysterectomy across board. This may follow the almost pain-free presentation of most pelvic organ prolapse. The age at presentation may also play a vital role. Comparing the yearly percentage vaginal hysterectomy done per total gynaecology surgeries revealed a near sinusoidal pattern with troughs at 2005, 2006, 2007, 2012, 2013, 2017 at 2 (0.1%) respectively and 2018, 3 (0.1%) whereas peaks were seen at 2008, 2010, 2015 and 2016 at 5 (0.2%), 6 (0.3%), 4 (0.2%) and 5 (0.2%) respectively as depicted in Figure 2.

Vaginal hysterectomy during the 14-year period of study accounted for 2.3% of major gynecological surgeries (46/2,010), which was less than 3.3% of major gynecological operations by Owolabi *et al.*<sup>[3]</sup> It was not clearly obvious why the decline occurred, but could be due to the increase in the number of specialist hospitals in the region and the frequent disruptions of hospital services by industrial actions.

**Table 4: Crosstab of seven years before and seven years after vaginal hysterectomy as regards age, parity, and occupation**

Characteristics	7 years before	7 years after	p
<b>Age (years)</b>			
30-39	1 (2.2)	0 (0.0)	0.507
40-49	0 (0.0)	1 (2.2)	
50-59	2 (4.3)	0 (0.0)	
60-69	12 (26.1)	10 (21.7)	
70-79	10 (21.7)	7 (15.2)	
80-89	1 (2.2)	2 (4.3)	
Total	26 (56.5)	20 (43.5)	
<b>Parity</b>			
3-4	4 (8.7)	2 (4.3)	0.305
5-6	10 (21.7)	11 (23.9)	
7-8	10 (21.7)	7 (15.2)	
9-10	2 (4.3)	0 (0.0)	
Total	26 (56.5)	19 (41.3)	
<b>Occupation</b>			
Trading	12 (26.1)	16 (34.8)	0.153
Tailoring	2 (4.3)	1 (2.2)	
Farming	2 (4.3)	1 (2.2)	
Teacher	1 (2.2)	1 (2.2)	
Not specified	6 (13.0)	2 (4.3)	
Retired civil servant	1 (2.2)	0 (0.0)	
Cleaner	1 (2.2)	0 (0.0)	
Total	25 (54.3)	21 (45.7)	
Total	46	100	

Seven years before is defined as between 2005 and 2011, whereas seven years after is defined as between 2012 and 2018

Majority of the patients 21 (45.6%) were between ages 60 and 79 years, this was less than that observed by Owolabi *et al.* where 37 (78.3%) of the patients were above 50 years. In this study, the modal parity was between para 5 and 6 at a frequency of 21 (45.7%), which was less than 36 (97.3%) observed by Owolabi *et al.*

Almost all patients had vaginal hysterectomy following varying degrees of pelvic organ prolapse. That probably determined the mean age of  $66.1 \pm 9.2$  years and the preponderance of grand multiparous patients in the study. All presented with a fleshy mass protruding from the vagina. This was higher than the figure reported by Owolabi *et al.* where 35 (94.6%) out of the 44 patients had their indication for vaginal hysterectomy based on uterovaginal prolapse.

As similarly reported by Owolabi *et al.*, there was no nulliparous woman in this study. This may partly have been due to anticipation of lack of mobility and descent of the uteri in these nulliparous women. However, an examination under anaesthesia prior to surgery might have shown them to be suitable for vaginal hysterectomy. As also observed by Owolabi *et al.*, none of the uteri in this study was more than 12 weeks' size.

Majority of the patients engaged in active trading 28 (60.8%), which may have involved carrying of heavy load; an identifiable risk for pelvic organ prolapse.

Table 2 showed the distribution of complications and comorbidities in women who had vaginal hysterectomy. The complication rate in this study was 10.9% which was significantly less than the complication rate of Owolabi *et al.* series in this centre at 45.9% and that reported by Adeleye and Osinusi in Ibadan at 45.9%.<sup>[3,11]</sup> There is indeed a downward trend in complication rate probably following the fact that all the surgeries were performed by consultants only but still high when compared with values of 0.26% obtained in the western world.<sup>[7]</sup>

This may be associated with intercurrent morbidity in our study population, such as pelvic inflammatory disease and adhesions which is minimal in the western world.<sup>[1,12]</sup>

About a third of the population 16 (34.8%) of the study group had at least one medical disorder with hypertension 12 (26.1%) being the commonest. This is not surprising due to age group under study. There is need for proper evaluation and control of these comorbidities to minimize their input into postoperative outcome.

Urinary tract infection has been documented as a common complication of vaginal hysterectomy, as surgery impairs urinary drainage for 3 to 4 days.<sup>[13]</sup> Paradoxically, it has been reported to be worse with indwelling catheterization.<sup>[11]</sup> Adeleye and Osinusi reported a urinary tract infection rate of 29.5%, proven by positive urine culture, in Ibadan.<sup>[11]</sup> None of the patients in this study had urinary tract infection, even though they were all routinely catheterized.

They all, however, had antibiotics throughout the in-patient period. This reduction may reflect a liberal use of potent antibiotics in the perioperative period in these patients. There was no vault prolapse in this study, as compared to the 25% documented by Cohen and group which might have been due to better techniques of anchoring the vaginal vault.<sup>[14]</sup> The commonest complication in this study was postoperative anaemia, 3 (6.5%).

Table 3 showed distribution of indications for surgery, extent of surgery performed, estimated blood loss, duration of surgery, and duration of hospital stay. Second-degree uterovaginal prolapse only 15 (32.6%) was the commonest type of pelvic organ prolapse seen among the study group. There were only six (13.6%) patients among the study group who had bilateral salpingoophorectomy, despite the fact

that majority of them were above 40 years old. This was similar to report by Owolabi in which only 5 (13.5%) had bilateral salpingoophorectomy.

It has been advocated that prophylactic oophorectomy should be offered to all women over 40 years scheduled for hysterectomy and recommended to all such women over 45 years due to the potential of the ovaries becoming malignant with ageing.<sup>[15]</sup>

It is technically, however, more difficult to remove ovaries vaginally, though success rates in excess of 90% have been reported.<sup>[17]</sup> However, this can be attempted only if transvaginal oophorectomy or salpingoophorectomy can be performed safely and under vision.<sup>[16]</sup>

This was probably the reason it was not done in most cases. A local study has ascribed severe pelvic adhesions to most Nigerian women, making mobilization of the ovaries difficult during vaginal hysterectomy.<sup>[11,12]</sup>

Most intraoperative hemorrhage was less than 500 ml 39 (84.8%) which was similar with the Owolabi *et al.* series in this centre.<sup>[3]</sup> This further supports the assertion that blood loss is less in vaginal than in abdominal hysterectomy, even if an enlarged uterus is being morcellated transvaginally.<sup>[17]</sup>

Based on current knowledge, it is no longer ethically acceptable for a surgeon to select the route of hysterectomy by mere discretion but rather on the best available evidence.<sup>[18]</sup>

In our environment, some women believe that the absence of menstruation translates to the loss of femininity, while others view menstruation as a process whereby the body rids itself of “bad blood”. There is therefore need to carefully select individuals that need hysterectomy.

Women in our environment tend to cope better after hysterectomy possibly due to the support structure from both the immediate and extended family.<sup>[20]</sup> This may serve as a good reference point during consent for surgery.

In this era of minimally invasive surgery, Laparoscopy-assisted hysterectomy may improve diagnostic accuracy of endometriosis, pelvic inflammatory disease, chronic pelvic pain, and adnexal pathology, which can contraindicate vaginal hysterectomy. Needful to say that, bimanual pelvic examination under anaesthesia may not be a reliable way of determining pelvic pathology.<sup>[21]</sup>

There was no mortality among the study population which was similar in Owolabi study.<sup>[3]</sup> The absence of mortality in this study is similar with other studies, which have reported rates of less than 0.1%,<sup>[17]</sup> buttressing the relative safety of vaginal hysterectomy.<sup>[11]</sup>

Most patients had an average hospital stay of 4-5 days, whereas the least population had 2-3 days hospital stay. This may have followed correction of the comorbidities among the study group.

Most of the surgeries lasted between 3 and 4 h 59 min. There was one case that lasted 16 h due to ureteric injury and inadvertent cystostomy which was repaired in one stage.

Table 4: Compared 7 years before and 7 years after vaginal hysterectomy as regards age, parity and occupation. The figures obtained for age, parity, and occupation were comparable with no statistically significance differences over the years *P* values – 0.507, 0.305, and 0.153, respectively.

#### Limitations of this Study

1. This is a hospital-based study and may not be representative of the widespread population.
2. Some case notes could not be retrieved or were incomplete, thus were excluded.
3. Many uterine sizes were recorded as atrophic and these were assumed to be less than 12 weeks.
4. Some estimated blood losses were recorded as minimal and these were assumed to be 100 ml.

#### Conclusion and Recommendation

The rate of vaginal hysterectomy in Obafemi Awolowo University Teaching Hospital Complex Ile-Ife (OAUTHC) appears to be declining. The commonest indication of vaginal hysterectomy is pelvic organ prolapse. There are some concerns as regards the decline in rate and reluctance to vaginal bilateral salpingoophorectomy despite the risk of malignant transformation in ages above 45 years. To keep this art, it is recommended that vaginal hysterectomy should be done more often to give opportunities to learning and perfecting this art of vaginal surgery.

Plans and efforts to encourage on-hands training sessions for residents in this surgical area should be enhanced. This is because many residents in training hardly perform vaginal hysterectomy and may not have watched or assisted in up to ten vaginal hysterectomies before the completion of their residency programmes.<sup>[1]</sup> This is completely inadequate for acquisition of proficiency.<sup>[20,22]</sup>

There is need for workshops, training, and retraining of residents in the field of vaginal surgeries to meet these challenges. This would definitely ensure production of quality gynecologists with skills and proficiency in vaginal surgery thus reversing the current low incidence of 10–25% of vaginal hysterectomy in many centres in Nigeria.<sup>[1]</sup>

Elective postings to high output centres will indeed increase and maintain the skill of vaginal hysterectomy among residents in various centres world over especially in sub-Saharan Africa.

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### Conflicts of interest

The authors declare no conflicts of interest with respect to the research or publication of this article. This work is an updated version of Gynaecological Commentary used for the award of Membership in National Postgraduate Medical College of Nigeria.

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