

# A Survey of Hysterectomy Patterns In Malaysia

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## Summary

A prospective cross-sectional study involving 14 government hospitals was undertaken for a period of 6 months in Malaysia to study the patterns of hysterectomy for gynaecological indications. A total of 707 patients were enrolled in the study consisting of 612 abdominal hysterectomies and 95 vaginal hysterectomies. Fibroids (47.6%) and uterovaginal prolapse (13.4%) formed the main indications for surgery. The initial preoperative diagnosis was accurate in 82.8% of cases. A different pathology from that initially suspected was noted in 118 cases. The overall complication rate was 7.9% but vaginal hysterectomies carried a statistically higher complication rate compared to abdominal hysterectomies. Urinary tract infection was significant in vaginal hysterectomies. Blood transfusion was required in 25.0% of abdominal and 6.3% of vaginal hysterectomies. There were no laparoscopic hysterectomies or mortality in this series.

**Key Words:** Hysterectomy patterns, Abdominal hysterectomy, Vaginal hysterectomy

## Introduction

The thought of undergoing major surgery is frightening to many people, yet for 37% of all women at least in the USA, this prospect is a reality by the time they are 60 years of age as a result of a single procedure-hysterectomy.<sup>1</sup> Hysterectomy is one of the most frequently performed surgical procedures in gynaecological practice. The surgical procedure was first described in the writings of Soranus and our pioneering forefathers had to contend with high mortality and morbidity rates. However currently the operation has become quite safe with a mortality rate of approximately 12 per 10,000.<sup>1</sup>

There is a marked international and regional variation in hysterectomy rates. The hysterectomy rates in USA are 3 times the rate in Britain, with Australian rates falling midway between the two.<sup>2</sup> As far as we are aware, other than isolated hospital based studies there are no national hysterectomy rates available for this country.

Many factors have contributed in forming new trends in hysterectomy. These have included the increasing use of

laparoscopy and diagnostic ultrasonography, advances in the medical treatment of endometriosis and dysfunctional uterine bleeding, selective ablation of cervical intraepithelial neoplasia (CIN) and the use of endometrial ablation for cases of menorrhagia. In these circumstances, alternatives to hysterectomy are being utilized.

The enormous differences between hysterectomy rates in different countries has led to speculation that in some countries gynaecological surgery is too frequently performed. In Malaysia, hysterectomy is performed in state hospitals, district hospitals and private health care facilities. Both the abdominal and vaginal approaches are practiced. Laparoscopic assisted vaginal hysterectomy (LAVH) is performed by a handful of gynaecologists in Malaysia. This study was undertaken to analyse the patterns of hysterectomy in Malaysia and it included all hysterectomies performed in 14 state and district government hospitals throughout Malaysia from 1<sup>st</sup> March 1996 - 31<sup>st</sup> August 1996. The correlation

between the preoperative diagnosis and the operative findings as well as the complication rates were also documented in this study.

### Materials and Methods

This was a multicentre, prospective cross-sectional study. All gynaecological hysterectomies performed in the 14 hospitals during the study period were included. Caesarian hysterectomies and radical hysterectomies were excluded. The completeness of data collection was cross-checked with the hysterectomy figures collected by the medical records officers in the hospitals concerned.

The data was obtained by means of a questionnaire which was designed to include demographic data (age, sex, parity, race), type of hysterectomy, nature of operation, antibiotic usage, complications, type of anaesthesia, blood loss, preoperative indications, operative findings and type of hospitals. These questionnaires were slotted in together with the case

notes to the operation theatre for the respective surgeons performing the hysterectomy to fill in. Subsequently the questionnaire was completed in the gynaecological clinic during the follow up visit. This questionnaire was pretested in Seremban Hospital before it was used in this study. The length of the follow-up varied between 6-12 weeks between the various hospitals.

The EPI Info 6 Statistical package was used to analyse the data. Statistical comparisons were made using the two-tailed student T-test, chi square test with Yates corrections and Fisher's exact test wherever applicable. A p value of < 0.05 was considered to be statistically significant.

### Results

There were 707 hysterectomies done in the hospitals responding during the study period. This was made up of 612 hysterectomies performed by the abdominal route and 95 vaginally. Distribution of the cases by state is as shown in Table I. The highest number of hysterectomies were recorded in the state of Sabah.

**Table I**  
**Hysterectomies by State and Route of Surgery**

| STATE        | Abdominal<br>Hysterectomy | Vaginal<br>Hysterectomy | Total            |
|--------------|---------------------------|-------------------------|------------------|
| KEDAH        | 80                        | 11                      | 91 (12.9%)       |
| PENANG       | 37                        | 25                      | 62 (8.8%)        |
| PERAK        | 69                        | 6                       | 75 (10.6%)       |
| TERENGGANU   | 26                        | 4                       | 30 (4.2%)        |
| SELANGOR     | 76                        | 21                      | 97 (13.7%)       |
| N. SEMBILAN  | 55                        | 13                      | 68 (9.6%)        |
| MELAKA       | 77                        | 7                       | 84 (11.9%)       |
| JOHOR        | 87                        | 6                       | 93 (13.2%)       |
| SABAH        | 105                       | 2                       | 107 (15.1%)      |
| <b>Total</b> | <b>612</b>                | <b>95</b>               | <b>707(100%)</b> |

The majority of hysterectomies were performed in the state hospitals (80.3%) while 125 abdominal and 13 vaginal hysterectomies were performed in the district hospitals (19.5%). Elective hysterectomies were predominant (96%) while emergency hysterectomies contributed to 3% (18 abdominal and even 1 vaginal hysterectomy!)

The age of patients ranged from 19 to 96 years. The mean age was 48. The youngest patient in this series was 19 years old who had a hysterectomy performed for malignancy. Most number of hysterectomies were performed in the age group 45-49 years (28%). The mean age of hysterectomy was analysed further for each race and type of hysterectomy. Generally, abdominal hysterectomy was performed in younger women. It was also noted that Indian women had vaginal hysterectomies performed at a younger age and this was statistically significant.

The abdominal route for surgery was preferred in 86% of cases. Vaginal hysterectomies constituted 14% of the

cases. There were no cases of laparoscopic hysterectomy reported during the study period. The majority of hysterectomies were performed in the parity group 1-4 (42.6%). The parity of the patients ranged from zero to nineteen with a mean of 3.75.

The Malays formed the majority of the cases in the abdominal hysterectomy group (46%) while vaginal hysterectomy was performed predominantly in the Chinese (38.9%). Overall, the majority of hysterectomies were performed on the Malay population (45%). The type of anaesthesia was decided by the anaesthetist. The majority of the cases were done under general anaesthesia (91.0%). Twenty-one cases of vaginal hysterectomy were performed under spinal anaesthesia and 18 were done under epidural. The majority of cases for vaginal hysterectomy (55) were still performed under general anaesthesia.

Simultaneous oophorectomy at the time of the hysterectomy was done in 398 cases (56%). The majority of cases undergoing a vaginal hysterectomy had the ovaries

**Table II**  
**Hysterectomies by Indication for Surgery**

| <b>Indication</b>           | <b>Abdominal<br/>Hysterectomy</b> | <b>Vaginal<br/>Hysterectomy</b> | <b>Total</b>      |
|-----------------------------|-----------------------------------|---------------------------------|-------------------|
| Fibroids                    | 338                               | 0                               | 338 (47.8%)       |
| Adenomyosis/ Endometriosis  | 38                                | 0                               | 38 (5.5%)         |
| Malignancy                  | 65                                | 0                               | 64 (9.1%)         |
| Benign Ovarian Cyst         | 84                                | 0                               | 84 (11.9%)        |
| D.U.B                       | 35                                | 0                               | 35 (5.0%)         |
| Pelvic Inflammatory Disease | 5                                 | 0                               | 5 (0.7%)          |
| Chronic Pelvic Pain         | 6                                 | 0                               | 6 (0.8%)          |
| Pre malignant condition     | 16                                | 0                               | 16 (2.3%)         |
| UV Prolapse                 | 0                                 | 95                              | 95 (13.4%)        |
| Others                      | 25                                | 0                               | 25 (3.5%)         |
| <b>Total</b>                | <b>612</b>                        | <b>95</b>                       | <b>707 (100%)</b> |

conserved (72 vs. 22 cases with simultaneous oophorectomies performed).

Antibiotics were used in the majority of the cases (93%). The type of use depended on the surgeon's preference. Antibiotics were given predominantly as prophylaxis in 71% of the cases.

The five most common indications for hysterectomies in our series were fibroids (47.6%), utero-vaginal prolapse (13.4%), benign ovarian cysts (12%), malignancy (9%) and adenomyosis (6%). (Table II)

A second diagnosis was listed in 72 cases (10%). Comparing preoperative diagnosis to post-operative diagnosis, it was found that post-operative diagnosis was similar to pre-operative diagnosis in 586 cases (82.8%). A different post-operative diagnosis was decided upon in 118 cases (16.7%). (Table III) illustrates the different post-operative diagnosis, which account for 16.7% (118 cases) of the hysterectomies done. In 8 cases, fibroids were diagnosed as benign ovarian cysts preoperatively.

All the 707 hysterectomies had a pathology confirmed on histological examination.

(Table IV) lists the complications encountered following the hysterectomy. Vaginal hysterectomies had a higher complication rate (13.6%) compared to abdominal hysterectomies (7%). This finding had statistical significance in our study ( $p < 0.05$ ). Urinary retention was a statistically significant complication in the vaginal group. The overall complication rate was low in our study. However it was interesting to note that vaginal hysterectomies appeared to have a higher complication rate compared to abdominal hysterectomy. There was no mortality in this series.

Blood loss is a complication of hysterectomy but here it was analysed separately as it turned out to be the most common complication. Blood loss requiring blood transfusion was 25.0% in abdominal hysterectomy and 6.3% in vaginal hysterectomy. (Table V) shows the mean blood loss by route of surgery. A detailed state analysis revealed interesting findings. Hysterectomies

**Table III**  
**Analysis of Hysterectomies with differing postoperative diagnosis**

| Different Post-operative Diagnosis | Abdominal Hysterectomy | Vaginal Hysterectomy | Total             |
|------------------------------------|------------------------|----------------------|-------------------|
| Fibroids                           | 19                     | 0                    | 19 (16.5%)        |
| Adenomyosis/ Endometriosis         | 57                     | 1                    | 58 (50.4%)        |
| Malignancy                         | 12                     | 0                    | 12 (10.4%)        |
| Benign Ovarian Cyst                | 11                     | 0                    | 11 (9.6%)         |
| D.U.B                              | 1                      | 0                    | 1 (0.9%)          |
| Pelvic Inflammatory Disease        | 1                      | 0                    | 1 (0.9%)          |
| Chronic Pelvic Pain                | 0                      | 0                    | 0 (0%)            |
| Premalignant conditions            | 1                      | 0                    | 1 (0.9%)          |
| UV Prolapse                        | 0                      | 1                    | 1 (0.9%)          |
| Others                             | 10                     | 1                    | 11 (9.6%)         |
| <b>Total</b>                       | <b>112</b>             | <b>3</b>             | <b>115 (100%)</b> |

**Table IV**  
**Complications encountered at and after surgery**

| Complications            | Abdominal<br>Hysterectomy | Vaginal                               | Total            |
|--------------------------|---------------------------|---------------------------------------|------------------|
| Urinary                  | 6                         | 3                                     | 9(1.3)           |
| Tract Infection          |                           | <b>p&lt;0.05</b>                      |                  |
| Wound Infection          | 11                        | 1                                     | 12 (1.7)         |
| Vault Infection          | 2                         | 1                                     | 3 (0.4)          |
| Intravenous              | 2                         | 0                                     | 2(0.3)           |
| Site Infection Pneumonia | 0                         | 1                                     | 1 (0.1)          |
| Severe Haemorrhage       | 5                         | 0                                     | 5 (0.7)          |
| Urinary Tract Injury     | 13                        | 2                                     | 15 (2.1)         |
| Urinary Retention        | 1                         | 5                                     | 6 (0.8)          |
| Relaparotomy             | 2                         | 0                                     | 2 (0.3)          |
| Others                   | 1                         | 0                                     | 1 (0.1)          |
| <b>Total</b>             | <b>43 (7%)</b>            | <b>13 (13.6%)</b><br><b>p&lt;0.05</b> | <b>56(7.9 %)</b> |

**Table V**  
**Mean Blood Loss by Route of Surgery**

| Blood Loss<br>(mls)                        | Abdominal<br>Hysterectomy<br>n=612 | Vaginal<br>Hysterectomy<br>n=95 |
|--|------------------------------------|---------------------------------|
| Amount                                     | 433.4                              | 243.7                           |
| SD   | 457.8                              | 158.1                           |
| Range                                      | 56 - 4200                          | 40 - 800                        |
| Patients<br>requiring blood<br>transfusion | 153 (25.1%)                        | 6 (6.3%)                        |

performed in the states of Johore and Sabah had a high proportion of blood transfusion (33 and 32 % respectively). The proportion for the other participating states ranged from 2-11%. Blood loss in emergency hysterectomy was higher (mean 1223 ml vs. 390 ml. for elective hysterectomies) but it was not statistically significant in our study. Abdominal hysterectomy was performed on women of lower parity (mean 3.4) but vaginal hysterectomy in women of higher parity (mean 5.6). This was statistically significant in our study.

### Discussion

In Malaysia, hysterectomy is performed in all state government hospitals and some of the district hospitals. In this study, only 9 states participated, out of a total of

13 states in Malaysia. Variation between these states could not be commented upon as there were some non-respondent district hospitals within each state. Data from only government hospitals were considered. There is at present no data on hysterectomies performed in private hospitals. Obviously most of the hysterectomies were performed at the state hospitals (80%), as these hospitals are usually the regional referral centres. In addition the state hospitals are better equipped in terms of blood transfusion services, availability of antibiotics and more importantly, specialist gynaecological services. The majority of the hysterectomies were performed as elective procedures (96%) as this study only included gynaecological hysterectomies. Obstetric hysterectomies were not included.

It was surprising to note that 84% of the women underwent abdominal hysterectomies. This is contrary to many recently published studies which claim fewer complications, morbidity and faster recuperation associated with vaginal surgery.<sup>3,4</sup>

The reasons for the abdominal prevalence is unclear, but a few theories can be proposed. These are the surgeon's familiarity with a procedure, physician preference, practice style and habits as well as non-availability of clear guidelines on selecting patients for vaginal surgery and finally the lack of patients' knowledge on the surgical options which are available.<sup>5,6</sup> Kovac developed and prospectively tested a guideline for selection of the approach to hysterectomy in 617 patients which revealed that vaginal hysterectomy was successful in 78.5% of the patients<sup>5</sup>. A similar guideline was also tested in France<sup>6</sup> and England<sup>7</sup>. Their conclusions were strikingly similar to Kovac.

One of the most commonly cited reasons for selecting the abdominal approach are a perceived uterine size more than 12 weeks gestation and the need to perform a simultaneous oophorectomy. Again such assumptions have not withstood scientific scrutiny<sup>8,9,10</sup>. In this era of evidence based medicine, there is enough evidence to show that vaginal hysterectomy is a more appropriate approach. A change in the national preference for abdominal hysterectomy will require more enthusiasm and training courses from competent vaginal surgeons in this country. There is obviously a need for gynaecologists in this country to review their practice patterns.

Laparoscopic hysterectomy is still at an infancy stage in Malaysia. There were no cases of laparoscopic hysterectomy in our series. It is performed by only a handful of surgeons in Malaysia. Laparoscopic hysterectomy is less likely to be an alternative to vaginal hysterectomy. In fact, introduction of laparoscopic hysterectomy has been associated with increased use of vaginal hysterectomy.

Overall, abdominal hysterectomy was performed on women of younger age while vaginal hysterectomy was predominantly performed in the older age group. It was interesting to note that Indians had vaginal hysterectomies performed at a younger age. This association is perhaps due to the fact that Indians attending government hospitals in Malaysia are usually from the lower socio-economic class. It is this group of the population which usually has decreased nutritional status and poor contraceptive practices with increased parity. Most of them are also manual workers. All the above mentioned factors which also happen to be the etiological factors for uterovaginal prolapse could explain the early presentation of Indians with pelvic relaxation in the gynaecology clinics in Malaysia.

Hysterectomy was most commonly performed in women between 45-49 years of age (27.9%). This is because menstrual disturbances are more likely to occur at this time and child bearing capability becomes less important.

As expected, the most common indication for hysterectomy in our series was uterine fibroids (47.8%). This was comparable to other studies where uterine fibroids were also the most frequent indication<sup>12,13</sup>. There were two pre-operative diagnoses listed in 10% of the cases. Pre-operative diagnosis had about 82.8% sensitivity as the correct diagnosis. Only in about 16.7% was there a different post-operative diagnosis. However, Reiter et al<sup>13</sup> suggested that listing of multiple pre-operative indications for hysterectomy is associated with both decreased appropriateness and decreased diagnostic accuracy. Gambone<sup>12</sup> further suggested the use of a single designated indication and reviewing only two documents - the pathology report and surgeons preoperative notes. This system was claimed to enable the quality assurance committee to monitor easily the appropriateness of hysterectomy indications for their institution. Although all the hysterectomies had

demonstrable pathology at the time of histological examination, the fact that in 17.2% of cases the preoperative diagnosis was not accurate is a cause for concern. This is an issue that should be taken up by quality assurance committees of the various hospitals in order to formulate appropriate indicators to bring down this percentage. Dysfunctional uterine bleed (D.U.B) was not a common indication for hysterectomy in our study (5.0%). This has usually been attributed to the use of medical management as the first line of treatment for D.U.B in Malaysia. Hysterectomy is only performed if medical methods fail.

In women during their fourth and fifth decades, incidental oophorectomy of a normal-appearing ovary during hysterectomy for benign disease continues to be a debatable issue. In a Malaysian study reported by Ravindran and Leow<sup>14</sup> in 1996, 55% of gynaecologists would remove normal ovaries at abdominal hysterectomy in women aged 40-44 years. The corresponding percentage in women aged 45-49 years and over 49 years was 90% and 95% respectively. In our series prophylactic oophorectomy was performed in 397 cases (56%). This percentage closely approximates the findings of the Malaysian study in 1996. The mean age for oophorectomy in abdominal hysterectomy in the present study was 48.2 years.

Analysis of complications still poses a sizeable problem as, to date, there is no universally accepted standard of morbidity or definition of major or serious complications regarding hysterectomy. The definitions used for complications in this study are listed in Appendix A and may not be acceptable for other settings but each complication was defined as objectively as possible to minimise the difference in diagnosis.

It is reported that in general about 25% to 50% of women undergoing hysterectomy will sustain one or more complications<sup>12</sup>. In our series the overall complication rate was 7% for women who underwent abdominal hysterectomy and 13.6% for women who underwent vaginal hysterectomy. The risk of having a complication for vaginal hysterectomy group was therefore 1.9 times the risk for the abdominal hysterectomy group. This rates and trends are of vast difference from other large studies. In 1982, a landmark study known as the Collaborative Review of Sterilisation (CREST)

study, was performed in nine institutions. Included in this study were 1,851 women undergoing elective hysterectomies for benign disease. The patients were followed up for twelve weeks. This study reported a complication rate of 42.8% and 24.5% for abdominal and vaginal hysterectomy respectively<sup>15</sup>. Amirikia & Evans reported complication rates of 16% for abdominal hysterectomy and 16% for vaginal hysterectomy<sup>16</sup>. The overall morbidity of vaginal hysterectomy was higher compared to abdominal hysterectomy in our study and this was statistically significant. The complication rates were also exceptionally low when compared to other studies. The low rates and reversed trends were attributed to the fact that febrile morbidity was not analysed as part of the hysterectomy complications which usually contributes to a significant proportion of the complications and the patients studied are not strictly comparable to the other studies.

As expected the complication rates for emergency hysterectomies were higher but it was not statistically significant. This non-significance is contributed to by the low number of emergency hysterectomies done. Infectious morbidity was 3% and 6% for abdominal and vaginal hysterectomy respectively. This increased morbidity in the vaginal group cannot be attributed to the lack of antibiotic usage as antibiotics had been used in almost 90% of vaginal hysterectomies. Urinary retention was also significantly higher in the vaginal group. Despite the low numbers of vaginal hysterectomies performed when compared to abdominal hysterectomies and the wide use of antibiotics in vaginal hysterectomies, morbidity with the vaginal group was higher. Perhaps this is an indication that gynaecologists in Malaysia should perform more vaginal hysterectomies, at least to be more proficient with this approach so that complication rates are brought down. There may be a need to change practice patterns in bladder drainage and vaginal packing following a vaginal hysterectomy.

The most common complication in our series was haemorrhage requiring blood transfusion (25% for abdominal hysterectomy and 6% for vaginal hysterectomy). The percentage of blood transfusion in the abdominal group was exceptionally high. Dicker et al reported 15.4%.<sup>15</sup> This practice of increased blood transfusion is contrary to the recently reported review by Wesley Harris<sup>17</sup> who concluded that the use of blood

transfusion has reduced over the past decade due to concern regarding Human Immunodeficiency Virus contamination. We suggest that more stringent measures be adopted in the use of blood products in this country. The use of autologous blood for transfusion should gain increased acceptance among gynaecologists. The high proportion of blood transfusions during hysterectomies in the state of Sabah could be attributed to the fact that anaesthesia is in a large proportion of cases provided by medical assistants. The similarly high incidence in Johore is more difficult to explain as in that state as well as throughout the Peninsular, anesthetic services are provided by medical officers under the supervision of specialists.

This study had several limitations. Firstly, the numerous centres involved, each with their own routines and policies, precluded a uniform protocol for the care of the patient. Secondly, there was some missing data in some sections. This was due to incompletely filled questionnaires and it was difficult to get back to the surgeons involved. Generally missing data did not exceed 5 patients for any particular response. The results of this study cannot be directly extrapolated to reflect hysterectomy patterns for the whole of Malaysia. Private medical centres were not included in this study. This study was initiated to include all government hospitals in Malaysia, but there were many non-respondents within the government sector. Finally it was disappointing that we could not obtain a denominator, i.e. the population of women which each particular centre served, hence hysterectomy rates per thousand women could not be calculated for comparative statistics.

### Conclusion

In the face of increasing evidence that patient care can be improved by increasing proportion of hysterectomies done vaginally, this study showed that abdominal hysterectomy is prevalent in Malaysia. Abdominal hysterectomy was much more common in younger women. Vaginal hysterectomy was performed more frequently in older women. Indians underwent vaginal hysterectomy at a younger age. Multiple preoperative indications had a sensitivity of 83.7%. Blood transfusion was still prevalent in spite of the fear of blood borne

communicable diseases. Antibiotics were used widely for both operations. Prophylactic oophorectomy was routinely done for all women above 45 years with a mean age of 48 years in our study. Vaginal hysterectomy had higher complication rates compared to abdominal hysterectomy.

It was a paradox that abdominal hysterectomy had less complications despite having a higher preponderance. Despite the fact that we have not evaluated febrile morbidity, perhaps this study indicates that the Malaysian gynaecologist has attained good proficiency in abdominal hysterectomies. Thus, there is a need to gain competence in vaginal hysterectomies to master this approach and to at least reduce the complication rates.

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### APPENDIX A

#### Definition of Complications

1. **Urinary Tract Infection:**  
Urinary symptoms accompanied by bacterial culture of > 100,000 colony count in a clean catch specimen.
2. **Wound Infection:**  
Drainage of purulent material with or without positive cultures.
3. **Vault Infection:**  
Presence of purulent vaginal discharge with or without positive cultures.



4. **Intravenous Site Infection:**  
Presence of erythema and tenderness at adjacent area or at area of intravenous puncture.
5. **Pneumonia:**  
Physical findings of pneumonia with a positive chest x-ray consistent with pneumonia.
6. **Severe Haemorrhage:**  
Intraoperative blood loss of more than 1,000 mls.
7. **Urinary Retention:**  
Patient requires recatheterisation after removal of the urinary catheter postoperatively.

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