International Surgery Journal
Sridhar M et al. Int Surg J. 2016 Feb;3(1):296-300
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20160246

Research Article

Comparison of open abdominal hysterectomy and total laparoscopic hysterectomy: a study in a teaching hospital

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Received: 31 December 2015
Revised: 13 January 2016
Accepted: 16 January 2016

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ABSTRACT

Background: Abdominal and vaginal hysterectomies were the most common type of surgeries till the advent of laparoscopic surgery. , we compared the open abdominal hysterectomy to the total laparoscopic hysterectomy in this prospective randomized study.
Methods: 157 women aged between 35 – 75 years who were diagnosed with abnormal bleeding, enlarged uterus, endometrial carcinoma, sarcoma or hyperplasia and posted for hysterectomy were included into the study. The patients were assigned into 2 groups based on the clinical presentation. Group ABH consisted of patients undergoing open abdominal hysterectomy and Group TLH consisted of patients undergoing total laparoscopic hysterectomy.
Results: The average time for operation for total laparoscopic hysterectomy and abdominal hysterectomy was 109 minutes and 123 minutes respectively. The blood loss was significantly more in abdominal surgery of over 200ml to that of about 55ml in laparoscopic surgery as was the duration of hospital stay of the patients. The prevalence of complications was 34.9% in the ABH Group and 21.1% in the TLH group.
Conclusions: Laparoscopic hysterectomy was better than open abdominal hysterectomy with respect to lesser hospital stay, blood loss and number of complications. Although the procedural cots are higher, the duration of hospital stay and the lesser complications compensates the expense and makes the procedure comparable to the abdominal procedure.

Keywords: Laparoscopic, Open abdominal, Hysterectomy

INTRODUCTION

Hysterectomy is one of the most common surgeries performed in the world. Benign diseases are the most common cause with more than 70% of them resulting in hysterectomies. These include menstrual disorders, fibroids, pelvic pain and uterine prolapse[1]. Although the rates of hysterectomies are decreasing in the Western countries due to the practice of more conservative approach, this surgery is still widely performed[2]. It is estimated that, 600,000 hysterectomies are performed every year,[3] with 5.4 women out of every 1000 women[4] in USA, 3.7 per 1000 in Italy[5] and about 1.2 in 1000 in Norway[6] undergo this operation.

Although not a threat to life, hysterectomy may cause discomfort and inconvenience, with symptoms affecting the daily routine, general health and sense of well being[7].

For a number of years, abdominal and vaginal hysterectomies were the most common type of surgeries till the advent of laparoscopic surgery. The use of total

laparoscopic hysterectomy has increased tremendously and accounted for 11.8% of all the hysterectomies in 2003.[3]

Though the abdominal hysterectomy was an accepted approach, it was associated with substantial morbidity and wound problems to incisional hernias in the long run[8-11]. Laparoscopic approach has been found to be a better alternative as it has the advantage of laparotomy i.e. possibility of thorough abdominal inspection to assess the abdominal cavity for extra-uterine spread and collection of peritoneal fluid for cytology. Moreover the abdominal wound in this case is very small thereby resulting in lesser complications, shorter hospital stay, and faster return to the daily life.[8,9]

One of the main reasons for its lesser use is the inexperience of the surgeons. There are few surgeons who perform this procedure though now this gap is being steadily bridged.[12] Another disadvantage is the requirement of expensive equipment which results in higher operative costs. But this is compensated by the lesser number of hospital days and other complications.

Hence, we compared the open abdominal hysterectomy to the total laparoscopic hysterectomy in this prospective randomized study.

METHODS

This study was conducted by the department of Surgery andOBGY at Shadan Institute of Medical Sciences & Research centre, between Sep 2012 to aug 2014. 157 women aged between 35 – 75 years who were posted for hysterectomy were included into the study. All the women were diagnosed with abnormal bleeding, enlarged uterus, endometrial carcinoma, sarcoma or hyperplasia. Those with metastatic disease confirmed clinically or by radiological methods were not included in the study.

Detailed demographic details were taken from all the patients followed by complete physical and clinical examination. The patients were assigned into 2 groups based on the clinical presentation. Group ABH consisted of patients undergoing open abdominal hysterectomy and Group TLH consisted of patients undergoing total laparoscopic hysterectomy.

The criteria for Group ABH was severe adhesions freom a previous surgery, a large uterus that would not fit thorugh the vagina without morcellation, or severe asthma or significant Chronic obstructive pulmonary disease or women who opted for open abdominal surgery. All the other women were assigned into group TLH.

The procedures were properly explained to the patients and informed consent was taken. Routine blood examinations were performed before surgery.

For the surgical procedures, the patients were kept in the lithotomy position with legs 600 apart, under general anaesthesia and endotracheal intubation. A foley's catheter was also inserted for collection of urine during and after the procedure. After the creation of CO_2 pneumoperitoneum, a 10mm trocar was inserted into the umbilical site along with the laparoscope and the camera. 3 side trocars were inserted suprapubically.

The ureter at the pelvic brim was properly inspected and any adhesions were lysed. The uterus was then mobilized and the ureto-ovarian ligament of the infundibulopelvic ligament was coagulated and the round ligament was incised and sectioned at around 3 cm from the uterus which was pushed to the cephalad, to elevate the uterine arteries along the lower cervix, away from the ureters to prevent bleeding from the superior uterine blood vessels.

The operation then continued in a downward direction. A bladder flap was incised and the anterior cervical fascia was exposed and this dissection continued form the low uterine segment to the upper part of the vagina. Care was taken to avoid any bladder injury. The utero-sacral ligaments were then coagulated and separated, thereby separating the ureter from the uterus. The uterine arteries were coagulated and cut very carefully as many ureteral injuries occur at this juncture. Then, the cardinal ligaments were coagulated and incised posterior to the uterosacral ligaments and inferior to the cervivovaginal margin.

Circular colpotomy was then performed ant the uterus was removed through the vagina. Thois was immediately weighed and sent for histological examination. In case of a large uterus which cannot be removed from the vagina, it is morcellated transvaginally. Finally, the vaginal vaiult was suruted and pelvis was checked to ensure haemostasis. Vaginal irrigation was done to remove any blood clots. Bladder injuries and other complications were checked for.

For abdominal hysterectomy, the modified Richardson technique of intrafascial hysterectomy is used, as recommended for benign disease, with A Pfannenstiel incision.

Time taken for the surgical procedures, blood loss of the patient during the procedures was noted. An analgesic was given to the patients for postoperative pain. Post operative pain was assessed for 3 days after the surgery by the VAS or the Visual analogue scale was considered as no pain to 10 which was considered as the maximum pain.

A fever of >380C on the second day of surgery was considered as significant postoperative fever. Level of Hb, duration of hospital stay was also noted. Fischer's exact test was used for statistical analysis. The significant p value was < 0.05.

RESULTS

Out of the 157 women posted for hysterectomy, 71 (45.2%) were performed by open abdominal method and 86 (54.8%) by Laparoscopic method.

The mean age of the women was 61.1 and 65.2 in the Group TLH and ABH respectively BMI was above 25 in both the groups. There was no significant difference in the parity or the menopausal status of all the women (Table 1).

Table 1: Baseline features of the patients.

Baseline features	Group ABH (n=71)	Group TLH (n=86)	Significant/ not significant
Age in yrs (±SD)	65.2 ± 6.9	61.1 ± 4.7	NS
Body Mass Index (±SD)	25.2 (± 3.6)	25.7 (± 3.1)	NS
Parity 0 1 2 3 >3	 0 2 35 23 11	 1 7 41 28 9	NS
Menorrhagia; Premenopausal Postmenopausal	1 (1.4%) 70 (98.6%)	2 (2.3%) 84 (97.3%)	NS

The average time for operation for Total laparoscopic hysterectomy and abdominal hysterectomy were 109 minutes and 123 minutes respectively with the difference not being significant. While blood loss was far more in abdominal surgery of over 200ml to that of about 55ml in laparoscopic surgery and so was the duration of hospital stay which also significant (Table 2).

Table 2: Perioperative analysis.

	Group TLH	Group ADH	Significant value
Duration of surgery	109 min	123 min	NS
Average Loss of blood	55 ml	204 ml	p <0.001
No of transfusions	4	1	P < 0.001
Average Hospital stay	1.9 days	3.8 days	p <0.001

The prevalence of complications was 34.9% in the ABH group and 21.1% in the TLH group. Bladder perforation was observed in 4 cases in laparoscopic group and 5 in the abdominal hysterectomy group. While there was no bowel perforation in the TLH group, there were 2 such cases in the abdominal group with 1 being fatal. There were 4 cases of urinary retention in the TLH group and 6 in ABH Group while there were 3 cases of UTI in ABH Group (Figure 1).

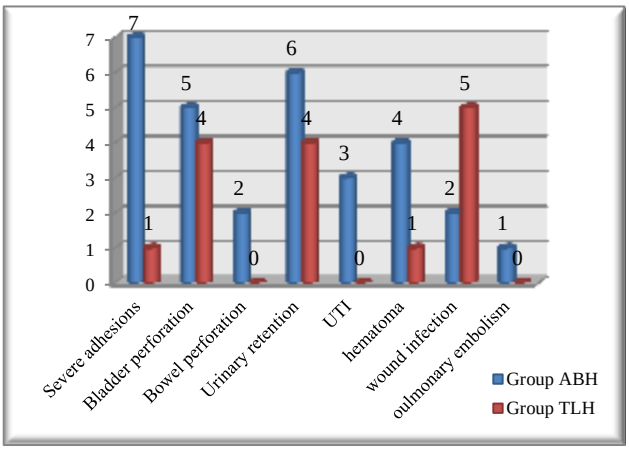

Figure 1: Postoperative complications.

DISCUSSION

A hysterectomy is a safe procedure with a low mortality rate, estimated at 0.12 to 0.34 per 1000 surgeries[13]. Ever since its first report, the advantages of Laparoscopic surgery have been widely reported.[14] In the earlier days the duration of surgery was longer in the laparoscopic surgery rather than the abdominal surgery although after laparoscopic surgery patients had less pain, a shorter hospital stay and a quicker resumption of their normal activities.[15-17] But in the recent years, with the development of the procedure, this time has considerably.[18]

In our study we found no significant difference in the baseline characteristics of the patients like age, BMI, parity and pre or post menopausal state. These results were corroborated by other researchers in similar studies.[19,20]

The duration of surgery was slightly lesser in the abdominal hysterectomy than laparoscopic surgery, but there was considerable difference in the amount of blood loss. There was significantly less blood loss in the laparoscopic group as compared to the open abdominal patients. Similar was the case with the duration of hospital stay which was lesser with the patients undergoing laparoscopic surgery than those with abdominal hysterectomy.[21]

Many researchers showed similar results. In a nonrandomized cohort study by Paraiso et al and Klauschie et al, less blood loss and shorter hospital stay was observed in accordance to our study.[22,23]

Similar results was shown by another study by Freeman et al.[24]

In the first few studies, more number of complications were observed among the patients who had undergone laparoscopic surgery rather than abdominal hysterectomy.[15,25] In a study by Perino et al, there was no significant difference in the complications in both the surgeries.

In the present study, the complications were lesser among the laparoscopic group (21.1%) as compared to the group which underwent abdominal surgery (34.9%). The most common complication on our study was adhesions in the ABH group. This was in accordance to a similar study by Anne-Lotte et al who found the prevalence to be 18.6% and 33.3% in the Laparoscopic and abdominal hysterectomies respectively. In contrast, two large trials of Garry et al.[26] and Maresh et al.[27] showed a significantly higher complication rate in the laparoscopic hysterectomy group. Bowel symptoms were observed in 2 cases in the abdominal group while no cases were seen in the laparoscopic group in our study. In contrast to our study, more numer of defecation problems were seen in the laparoscopic group in other studies rather than in abdominal hysterectomies.[19-21] In another study by Perino et al, there was no significant difference in the complications between the two groups.[28]

CONCLUSION

Our study showed that laparoscopic surgery today is better than abdominal surgery, with lesser blood loss and recovery time during and post surgery. Although there was no significant difference in the operative time, with more experience and time, that will also be comparative to that of the abdominal hysterectomy.

The complications in the laparoscopic hysterectomy were lesser than in many of the other studies, which show that there is a lot of scope for improvement in the surgeries which requires time and experience.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

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Cite this article as: Sridhar M, Susmitha C. Comparison of open abdominal hysterectomy and total laparoscopic hysterectomy: a study in a teaching hospital. Int Surg J 2016;3:296-300.