OUTCOMES OF LAPSROSCOPIC HYSTERECTOMY

A REGIONAL PERSPECTIVE

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A follow up study of 'Laparoscopic hysterectomy versus abdominal hysterectomy – a New Zealand regional hospital experience

INTRODUCTION

The laparoscopic hysterectomy has been performed since 1989[1]. Previously, a study was conducted in Northland to investigate the differences in surgical outcomes and patient experiences with total laparoscopic hysterectomy or abdominal hysterectomy. This study aimed to follow on from the original study, to evaluate the complications of laparoscopic hysterectomy at a regional hospital and identify strengths and areas for further improvement.

OBJECTIVES

This audit aimed to examine the outcomes of laparoscopic hysterectomy performed by surgeons in a New Zealand regional hospital and to evaluate and compare surgical outcomes or complications to previous laparoscopic hysterectomy performed in the same hospital. It will evaluate complications of laparoscopic hysterectomy including conversion to open procedure, return to theatre, ureteric injury, red blood cell transfusion, post-operative infection and miscellaneous complications to evaluate progress and further areas for development.

METHODS

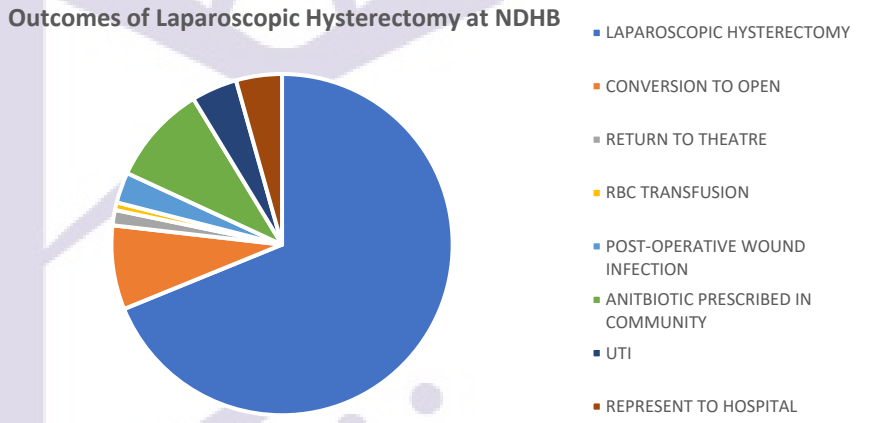
The population for the study consisted of patients who underwent laparoscopic hysterectomy with or without the removal of adnexa by the gynaecology team at Whangarei Hospital between 1st December 2014 to 17th March 2021. Cases were identified from the Northland DHB clinical coding service using headings including "TLH", "LAVH", "Laparoscopic Hysterectomy", "Laparoscopy converted to open procedure". The audit consisted of 95 cases, with 28 cases performed with surgeon A as the lead surgeon, assisted by surgeon B, and 33 cases with surgeon B leading and surgeon A assisting. Two further cases were performed by surgeon A with surgeon C assisting, and eight cases were performed with surgeon C as the lead surgeon and surgeon A or B assisting. The remaining 24cases were performed by surgeon B on their own, or surgeon A or B assisted by another surgeon. It is also important to note that usually laparoscopic hysterectomy is performed with a senior house officer (SHO) assisting. The 95 cases were then analysed retrospectively. Exclusion criteria included vaginal hysterectomy or abdominal hysterectomy. The researcher then went though the operation notes, discharge summaries, clinic letters, emergency department (ED) transfer of care notes, admission notes, laboratory results and community dispensing relating to the operation and in the the post-operative period. This allowed for identification of complications at the time of surgery such as conversion to open procedure, ureteric injury and red blood cell transfusion, as well as post-operative complications such as return to theatre, readmission and post-operative infection. In some cases, post-operative infection was identified by presentation to ED or readmission which explicitly described the infection. In other cases, post-operative infection was identified by community dispensing of antibiotics which may have been to treat a wound infection, a urinary tract infection related to an indwelling catheter, or alternatively, may have been a course of antibiotics for an unrelated cause. However, for the interest of this data, antibiotics dispensed within the four weeks post-surgery were presumed to be for the treatment of a surgical complication.

LITERATURE

In 2004 the eVALuate study showed a higher incidence of blood transfusion, haematoma requiring surgical drainage, bowel/bladder/ureteric injury, pulmonary embolism, major anaesthetic complications and wound dehiscence associated with laparoscopic hysterectomy (LH) when compared to open procedures[2]. However, overtime the laparoscopic technique has evolved and the LH has undergone a number of modifications, for example, a common technique (which is applied in Northland) is the placement of a cup over the cervix, held in place by a balloon which moves the ureters laterally, thus reducing the incidence of ureteric injury[3]. In addition, the eVALute study noted conversion to open procedure as a major contributing factor to increased complications associated with laparoscopic hysterectomy in that study[2]. One reason for this may be due to surgeon inexperience, thus converting to a procedure they are more familiar with in earlier times. Several studies discuss the learning curve of LH as being completed after 30 procedures, and thus there is likely to be an improvement in surgical outcome over time if sufficient procedures are being performed[3].

RESULTS

Of 95 planned laparoscopic hysterectomies, 11 required conversion to open, (11.6%). 9 of the operations that converted to open were related to access, one related to bleeding, and one secondary to difficult ventilation and therefore reduced intraabdominal pressure. Over 50% of the laparoscopic converted to open hysterectomy occurred in 2020 or 2021, this may be secondary to the increasingly comorbid population. Another hypothesis may be that noted by E Hunter(3) and that there are more surgeons performing laparoscopic hysterectomy in Northland compared to the original two surgeons who were audited in a previous study, and therefore those with less experience may have a lower threshold of converting to an open procedure. Only two out of 95 cases required a return to theatre, one for cystoscopy and placement of JJ stent for ureteric injury and one for mucosal dehiscence requiring oversewing of the vaginal vault. Furthermore, only one of the patients included in the audit required red blood cell transfusion, and that was secondary to an estimated blood loss of 2000mL following conversion to total abdominal hysterectomy and a recorded post-operative haemoglobin of 75. There were four confirmed post-operative wound infections which were identified by representation or wound swabs sent to the laboratory. A further 13 patients a broad spectrum antibiotic in the community which may have been for the treatment of a wound infection. Alternatively agents such as Augmentin may be prescribed for treatment of pneumonia or urinary tract infection, which may or may not be a complication of surgery. Six patients were dispensed Trimethoprim or had a midstream urine sample indicative of a urinary tract infection. 16 patients represented to ED or were readmitted. Five of the admissions were for abdominal pain, with two of the cases found to have pelvic collections. Three of the repeat admissions were for vaginal bleeding, one of whom was found to have a discharging vaginal haematoma. Two of the readmissions were for fevers, one readmission for urinary retention, one for syncope. There was one readmission or chest pain and a negative CTPA, and another for a confirmed pulmonary embolus. Two of the patients had nonspecific repeat admissions. In addition to complications, the average operating time was reviewed as well as the length of stay. For these results, only the laparoscopic cases were reviewed, and the laparoscopic converted to open cases were excluded from the calculations. The mean operating time for laparoscopic hysterectomy between December 2014 and March 2021 was 120 minutes. In contrast the mean operating time for laparoscopic hysterectomy documented in a previous audit between 2014 and 2016 was 137.6 minutes. This shows a significant reduction in operating time in recent years which suggests an improvement in Laparoscopic hysterectomy technique at Northland DHB. Twijnstra et al. conducted a nationwide multivariate one-year cohort analysis with gynaecologists who perform laparoscopic hysterectomy and defined a 'successful procedure' as lasting less than 120 minutes which Whangarei is now meeting[4]. In addition, the length of stay post-operatively was reviewed. The mean length of stay following laparoscopic hysterectomy between December 2014 and March 2021 was 2.58 days, compared to 2.9 days between 2014 and 2016, once again supporting refined surgical technique and improved patient outcomes in a regional hospital setting.



CONCLUSION

Although laparoscopic hysterectomy is associated with the following complications; conversion to open procedure, return to theatre, ureteric injury, bleeding, post-operative wound infection and readmission to hospital, it is a favourable operation for both surgeons and patients. This audit has demonstrated that a significant proportion of complications occurred in the cases which were converted to open, with the most common reason for this being difficult access. This is likely associated with increasing obesity and comorbidity in Aotearoa, as well as more surgeons joining the learning curve for LH. Auditing of laparoscopic hysterectomy, complications, operative time and hospital stay allows individual and departmental refection and improvement in practice. In comparison to a previous Northland DHB study, this audit has demonstrated an improvement in operating time and hospital stay, thus demonstrating refined surgical technique in a regional hospital resulting in improved patient outcomes and economic benefit.

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