

Evaluation of factors related to total operative time for benign total laparoscopic hysterectomy

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Introduction

Overall operating theatre efficiency is complex and multifactorial (1). While non-surgical factors contribute, operating time is a controllable factor with significant impact on overall productivity (2).

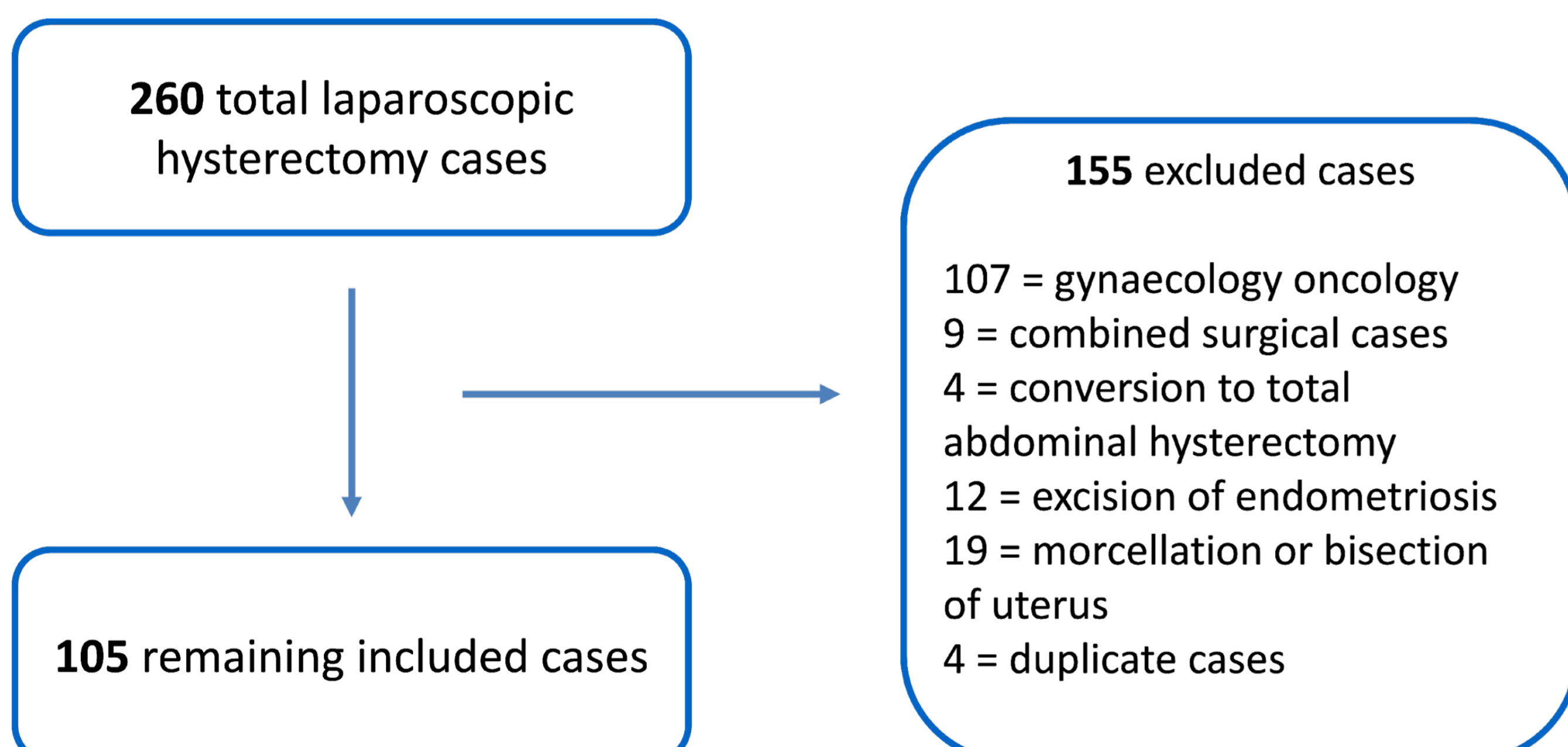
Past research identified numerous predictors of longer operative time, including older age, higher body mass index (BMI), lower pre-operative haematocrit, diabetes mellitus, hypertension, larger uterine size, previous surgery and lack of surgeon experience (3, 4).

Objectives

- Evaluate total laparoscopic hysterectomy (TLH) operating time and factors influencing it.
- This will facilitate implementation of changes to improve theatre efficiency, running costs and patient care.

Methodology

Retrospective chart audit with ethics exemption.



Review of medical records to obtain operative time, and other factors thought to be related to operative time. Data was analysed with simple descriptive statistics, univariate analysis and multivariate modelling.

Results

Operative time ranged from **35 to 240 minutes** (mean = 108 minutes).

Consultant	Number of TLHs performed	Mean operating time (hours)	Standard deviation operating time (hours)
1	10	2.58	0.499
2	47	1.09	0.404
3	6	2.86	0.687
4	7	1.86	0.329
5	3	2.96	0.876
6	13	2.23	0.474
7	3	2.66	0.092
8	3	2.68	1.184
9	5	2.75	0.305
10	2	2.01	0.577
11	6	1.79	0.265

Results cont...

There was no significant difference between consultants, other than "consultant 2".

On univariate analysis, other factors affecting operative time included **age, BMI and intraoperative suspected bladder injuries**. Previous caesareans, abdominal surgery, hypertension, diabetes, haemoglobin, hematocrit, uterus size, post-operative complications, adhesions and other intra-operative complications did not have a significant effect.

On multivariate modelling, factors with a significant effect on operating time were '**Consultant 2**', BMI and suspected bladder injury.

After adjusting for these other factors, 'Consultant 2' had an **operating time 1.28 hours less than all other consultants**.

Complications rates were not increased for Consultant 2.

Discussion & Conclusion

The reduced operating time for 'Consultant 2' is thought to be due to consistency in staff, and optimised operating technique. 'Consultant 2' organised to have a consistent surgical and anaesthetic team on each list, with the registrar generally performing most of the surgery.

While 'Consultant 2' performed a higher volume of cases (n=47), the efficiency of this theatre list allowed more cases to be booked; usually three TLHs per list.

TLH is usually performed by a registrar and consultant and for the purpose of this analysis it was assumed that the registrar completed at least 50% of the surgery, as this was not clear from the medical records for all cases.

In an era of scarce resources, improvements in theatre efficiency and turnover are essential. The introduction of **consistent theatre teams** can be considered, as well as implementing **simpler surgical techniques**.

There may be a role for **surgical coaching** (with consultants operating together) due to the difference in operating time, as well as **laparoscopic simulation** training, which has been performed within the department for other gynaecological surgeries.

Future research could include a formal health economic analysis, improving theatre team dynamics, turnover time and optimising operating list order. Further analysis over a longer period could also be considered.

References

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