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DAY CARE LAPAROSCOPIC SURGERY IN GYNAECOLOGY AT A DEDICATED UNIT IN NAIROBI, KENYA

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ABSTRACT

Objective: To evaluate and audit the outcomes of Gynaecological Day care Laparoscopic Surgery in Nairobi, Kenya

Design: Retrospective case analysis

Setting: The International Centre for Minimal Access Surgery, Nairobi

Subjects: one thousand three hundred and seventy nine patients undergoing Laparoscopic Surgery

Results: Between January 2011 to December 2015 a total of 1,379 Laparoscopic procedures were undertaken during the reporting period of which 1,121 (88.5 %) were done as day procedures. In total 137 patients (9.9 %) spent one night at ICMAS, 21 (1.5 %) were transferred to a Major Hospital and 41 patients (2.9 %) underwent conversion to Laparotomy. There were two Hospital re-admissions (0.14 %) and one complication (0.07%), a bladder injury was encountered.

Conclusions: Daycare surgery is a continually evolving speciality being competently performed by several units by various disciplines world over, including Kenya. In recent years the complexity of the procedures has increased with a wider range of patients being considered for challenging surgeries including those presenting with acute conditions. Our experiences have been favourable.

INTRODUCTION

Surgical Institutions, Organisations, Third Party payers and Individuals have a moral obligation and imperative to define the competencies expected of Surgeons to best meet the needs of their patients (1). Over the last 20 to 25 years innovative newer and safer techniques of Surgical intervention have been advocated replacing the large, painful and cosmetically unacceptable procedures (2). The advantages of Laparoscopic surgery are smaller cosmetically acceptable incisions, developing good tissue planes, reduced infections, reduced tissue trauma, less scarring, less post-operative pain, less use of antibiotics and analgesics, reduced overall hospital stay and less ward congestion. Faster recovery and quicker return to work make these procedures 25 to 30% cheaper in the long run (3-6). In competent, well trained and experienced hands in dedicated facilities unto 98 to 99% of all Gynaecological procedures can now be performed Laparoscopically (5, 6).

Day care surgeries in Gynaecology involving Laparoscopy are rapidly evolving in modern day surgical practice. Although the skills of the surgeon are paramount, the need for adequate anaesthetic practice, adequate analgesia, limiting post-operative nausea & vomiting, ensuring a stable haemodynamic environment, minimal complications, rapid recovery and early ambulation, are equally important (7). Wig reported that the success of day care surgery is invariably attributed to advances in surgical technologies and in the field of anaesthesiology and revolve around good patient selection, adequate patient information, complete pre-operative assessment, investigations, exemplary anaesthetic and post-anaesthetic care, patient acceptability and regular audits (8). Hedayati *et al* in a retrospective audit of 300 day care laparoscopic gynaecological procedures noted that the commonest reason for readmission was post-operative emesis (9).

The International Centre for Minimal Access Surgery (ICMAS) was established in January 2011

as a dedicated state of the art Laparoscopic Surgery unit and a suitable training facility .

MATERIALS AND METHODS

A retrospective case analysis of all Laparoscopic Surgeries done at the International Centre for Minimal Access Surgery (ICMAS) in Nairobi, Kenya between January 2011 and December 2015 was conducted. During this period a total of 1,551 surgical procedures were undertaken at ICMAS of which 1,379 (88.9 %) were performed Laparoscopically for gynaecological conditions. The other 172 procedures were Laparoscopic General Surgical procedures and non Laparoscopic cases including Breast lumpectomies, hernia repairs, lipomas and secondary suturing.

The inclusion criteria were all gynaecological patients whose records were complete and follow up was regular. No exclusion criteria based on previous scars, obesity or underlying co – morbid pathology was considered and all women were included in the study. The General surgical procedures were excluded.

Pre-operatively all the patients underwent a detailed anaesthetic review and were all within the American Society of Anaesthesiologists Classification I & II. Routine investigations were carried out and all patients underwent either a transvaginal or abdominal ultrasound before surgery.

After the various gynaecological procedures were undertaken all patients underwent a TAP (Transverses Abdominis Plane) block under ultrasound guidance at reversal of anaesthesia. On discharge patients were reviewed at one week and three months.

The Laparoscopic towers mounted on Boom Arms, 3 High Definition Monitors, a 3 Chip Olympus Camera, an Olympus Xenon light source, an Olympus electronic endoflator, a high frequency diathermy unit and an aquapurator were used for all the cases. Morcellation was achieved by a new generation Rotocut. In addition the Ligasure, Harmonic Scalpel, PKGyrus Bipolar and the Thunderbeat were available when required. All the cases were recorded and archived.

RESULTS

Between January 2011 to December 2015, a total of 1,379 Laparoscopic procedures were undertaken during the reporting period of which 1,221 (88.5 %) were done as day procedures.

In total 137 patients (9.9 %) spent one night at ICMAS, 21 (1.5 %) were transferred to a Major Hospital and 41 patients (2.9 %) underwent conversion to Laparotomy. There were two Hospital re-admissions (0.14 %) and one complication, a bladder injury (0.07 %) was encountered.

The Anaesthetic management of day care patients is crucial . For prophylaxis to prevent post-operative nausea and vomiting all the patients received intravenous Ondasteron approximately 30 minutes before induction. Post-operative pain control was enhanced by 5mgs Inj Morphine Iv 30 mins before surgery and a Diclofenac 100mgs suppository at induction. This was followed by a Transverses Abdomens Plane (TAP) block immediately after surgery after the ports sites were closed. A solution of 0.25% plain Marcaine is injected under ultrasound guidance bilaterally.

The patients were discharged a combination of tab. Ondesterone 4mgse eight hourly, tab. Tramadol 50 to 100 mgs eight hourly. hourly for three days, and tab Diclofenac and or Tab Paracetamol for an additional five days.

Table 1 indicates all the Laparoscopic procedures undertaken, a total of 489 (35.4 %). Laparoscopic Myomectomies were undertaken, starting from 16 cases in the first year to 246 procedures by 2015. The uterine size varied from bulky to 28 weeks, the dominant fibroid on pre-operative ultrasound being 2 cms to 26.4 cms. The number of fibroids harvested was from 2 to 17, five patients were converted to Laparotomy (1.06 %). The fibroid weight ranged from 20 grams to 2920 grams. Of the Laparoscopic Myomectomies 456 (93.2 %) were performed as day procedures. There were no hospital transfers or re-admissions following a Laparoscopic Myomectomy.

In our review a total of 387 Total Laparoscopic Hysterectomies were performed during the reporting period. The uterine size ranged from 40grams to 3,270 grams. Of these 365 (94.3 %) Hysterectomies were

done as day procedures. There were no re-admissions or Hospital transfers. The operating time ranged from 13 mins to three hours and ten minutes. No patients were converted and none were transfused. One bladder injury (0.25 %) was encountered and the cystotomy was repaired laparoscopically.

Table 1
Laparoscopic Surgery in Gynaecology (Procedures performed)

		Laparoscopic Surgery (n = 1,379)
Gynaecology :	(Diagnostic Hysteroscopy) *	(1,645)
	(Operative Hysteroscopy) *	(313)
	Bilateral Tubal Ligation	29
	Adhesiolysis, Tuboplasty, Salpingectomy	212
	Ovarian biopsy, cystectomy, drilling	196
	Oophorectomy	16
	Myomectomy	489 (35.4 %)
	Total Laparoscopic Hysterectomy	387 (28.0 %)
	Laparoscopic Subtotal Hysterectomy	12
	Sacrocolpopexy	29
	Radical Hysterectomy,	11
	BTL reversal,	14
	Metroplasty	2

() * Not included separately

General Surgery : Appendicectomy, Cholecystectomy, Hernioraphy, Laparoscopic Neissens Fundoplication
Laparoscopic Hemicolectomy, Laparoscopic Gastric Sleeve (excluded in the study)

Table 2
Laparoscopic Daycare Surgery in Gynaecology

	Number	Percentage
Cases successfully done as Day cases	1221	88.5%
Laparoscopy cases converted to Inpatient 1 night at ICMAS	137	9.9%
Transferred to major Hospital	21	1.5%

Table 3
Complications of Day care Laparoscopic Surgery

	Number	Percentage
Conversion to Inpatient	138	11.4 %
Conversion to Laparotomy	41	2.9 %
Re admission	2	0.14%
Surgical complication (Bladder injury)	1	0.07%

Figure 1
Laparoscopic Surgery at ICMAS, Nairobi
(n = 1,379)

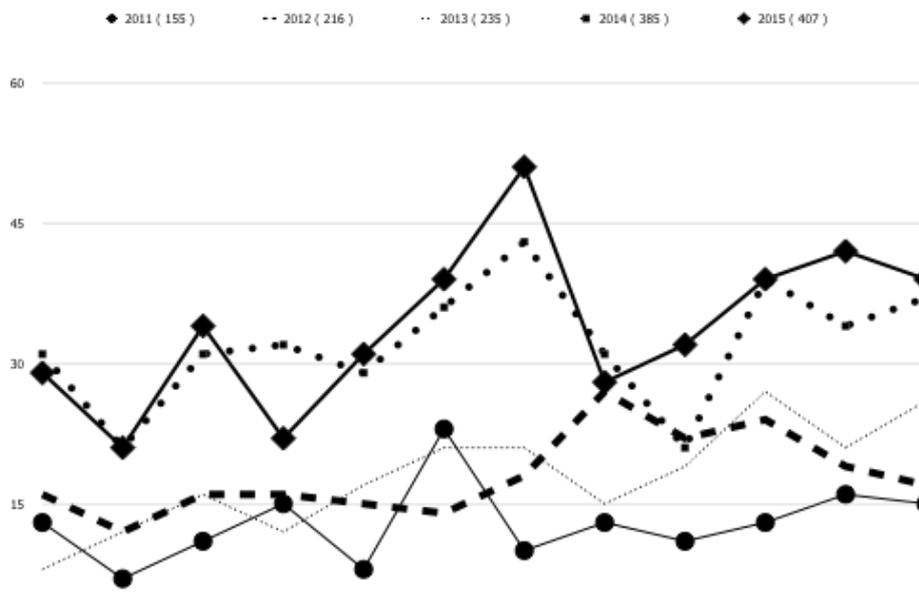
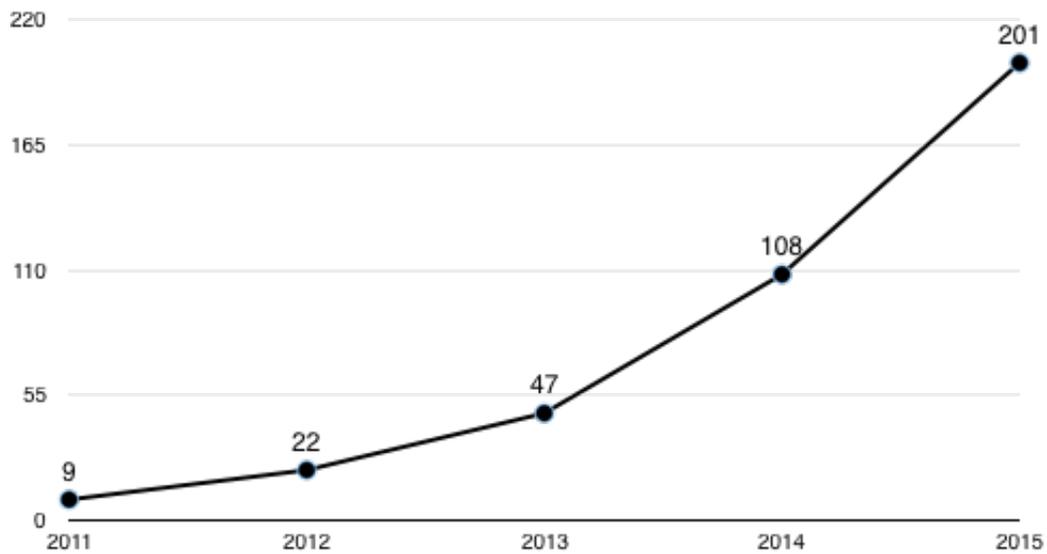


Figure 2
The progression of Total Laparoscopic Hysterectomy at ICMAS



DISCUSSION

Daycare surgery is a continually evolving speciality being competently performed by several units by various disciplines world over. In recent years the complexity of the procedures has increased with a wider range of patients being considered for challenging surgeries including those presenting with acute conditions (10). The British Association of Day Surgery in their directory of recommended procedures include Laparoscopic Cholecystectomy, Appendicectomy and the management of Ectopic pregnancy (11). At our unit we undertook 155 procedures in 2011 which gradually increased to 407 by 2015. The procedures undertaken are indicated in Table 1 which over a period of five years included more complex surgeries. Overall 1,221 patients (88.5%) were discharged on the same day as the procedure.

Apart from the surgical intervention post-operative pain management is of major concern. All our patients underwent a TAP block under ultrasound guidance before reversal of anaesthesia. The Transverses Abdominis Plane (TAP) block is a regional analgesic adjuvant technique that has made a significant breakthrough in post-operative pain management. El Bayoumy *et al* in a consecutive cohort of 50 patients undergoing day case laparoscopic surgery, including endometriosis surgery and ovarian cystectomy, concluded that the patients undergoing TAP blocks had significantly lower pain scores during recovery ($0.25 + 0.07$ vs $0.94 + 0.21$; $p = 0.01$) and on day 1, compared to the control group. The mean hospital stays in the TAP group were significantly low ($3.41 + 0.71$ vs $32.51 + 5.1$; $p = 0.001$) (12).

In our audit we performed 387 (28.0%) Total Laparoscopic Hysterectomies as day procedures with no re admissions. All the patients reviewed after one week were satisfied with their recovery. In a retrospective cohort study of patients undergoing Total Laparoscopic Hysterectomy as day procedures for benign uterine pathologies, between 2010 and 2011, Thyagaraju *et al* reported the mean operating time for a Total Laparoscopic Hysterectomy was dependant on the uterine size the mean of 52.43 mins for uteri less than 12 weeks and a mean of 68.23 mins for larger uteri ($p = 0.000$) in size. The mean hospital stay of 8.2 hours with a readmission rate of 4% and concluded that Laparoscopic Hysterectomy is a safe and feasible option as a day case and is solely dependant on the skill and experience of the surgeon (13). In a similar study O'hanlan *et al* reported shorter operating times, averaging 97 min for uterine sizes less than 250 grams and 135 mins if larger with the median hospital stay being one day and concluded that day care laparoscopic hysterectomy was safe with minimal operating times, minimal blood loss, shorter hospital stays and fewer complications (14). In their review of 66 patients undergoing outpatient

Hysterectomy, Thiel *et al* reported that six patients (7.5%) spent one night in hospital, one patient developed a cuff haematoma and DVT and 95% of the patients were satisfied with their procedure (15). In a randomised trial of day case versus inpatient laparoscopic supracervical hysterectomy, Kistic-Trope *et al* concluded that the women discharged 5 hours after surgery were as satisfied as the women hospitalised overnight, however the quality of life did appear to be compromised in the day case group since there was a significant trend of anxiety in this group (16). Several reviews have confirmed that Total or Sub-total Laparoscopic Hysterectomy is safe and feasible as a day procedure (17-19).

In addition we performed 489 (35.4%) Laparoscopic Myomectomies as day procedures with remarkable success and outcomes.

The surgical complication rates of Laparoscopy in this study was 0.07% which is lower than the French collaborative in advance laparoscopic surgery, which found an overall complication rate of 0.89% and a major complication rate of between 0.22% to 0.34% (20,21). The complications of laparoscopic surgery include bowel, bladder, ureteric, vascular and abdominal wall injury (23). In this study there was only one complication of a bladder injury and no mortality. The conversion rate to laparotomy in this study was 2.9% and was lower than a similar study by Sokol *et al* who had a conversion rate of laparoscopy to laparotomy of 6.3% (23). All the women undergoing laparoscopic surgery should be adequately counselled for the unintended laparotomy which is an inherent risk in addition to the morbidity over laparoscopy alone (23).

Overall the initial higher costs of establishing a laparoscopic facility along with the initial operating costs over laparotomy are compensated by no costs of hospital stay, less morbidity and early return to work.

In conclusion in our review the surgical complications encountered and the lower conversion rates to inpatients and laparotomy were lower than similar studies. This can be explained by the fact that they were older studies and the technology and safety along with skills acquisition in laparoscopic surgery has significantly improved more recently.

CONCLUSION

Laparoscopic Surgery may face many challenges but day care surgery is a safe, effective, feasible and a cost effective option to the traditional open modalities of Surgery in a developing Country with minimum surgical complications, conversion to laparotomy, inpatient admission and readmission. With adequate pre operative assessment and developing sound surgical skills Day Care Surgery is a suitable option in Gynaecology. The training of Surgeons and support

staff has to be made a priority. The General Surgical cases and Hysteroscopies were excluded from the study .

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