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Gynaecological Complications in General Surgery Unit: A Single-Center Study

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Abstract: Introduction: This study aims to investigate the frequency of gynaecological complications reported during emergency and elective general surgeries. **Methodology**: This is a cross-sectional study, data were collected retrospectively, approximately 500 patients went through surgical management in the general surgery department while only 125 reported associated issues requiring surgical management and required gynaecological interventions. Data was entered & analyzed using SPSS version 22. Frequency and percentage were calculated for quantitative variables such as presenting complaints, reported gynaecological issues, required intervention, and reported associated problems. **Results**: A total of 125 patients were enrolled in the study with the most commonly reported presenting complaint being pain with the vaginal discharge with vomiting documented in 72(57.5%) of patients. Puss discharge from wounds, peritonitis, and abdominal swelling were other frequently reported issues in 14(11.2%), 11 (8.7%), and 11 (8.7%) patients respectively. 98(78%) were discharged after successful management of gynaecological as well as general surgical problems, 25(20%) were referred to tertiary care health care setup for more appropriate care and 1(1%) had a burst abdomen. Only 1 (1%) out of 125 patients expired during the study period.
Conclusion: Gynaecological complications have been markedly reported in the general surgery unit, necessitating general surgeons to intercede and deliver significant benefits in terms of lowering morbidity, mortality, postoperative complications, and length of hospital stay from a diagnostic and therapeutic point of view.

Keywords: General surgeon, Gynaecological issues.

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Introduction

The importance of a tertiary care setup comes into play where all the department and subspecialty surgeons are available round the clock and therefore can manage the complications timely [1]. Our study emphasizes the role of a general surgeon in the gynecology and obstetrics issues identified during general surgeries. A general surgeon today not only explores the area of gastrointestinal or colorectal domains, but he or she also has command over hepatobiliary, vascular, and breast [2]. Gynaecological surgeries are mostly limited to the complex areas of the pelvis where the rectum and sigmoid colon reside very close to the uterus and adnexa.

A general surgeon can operate on all the viscera as a part of his or her training and curriculum. In rural areas[2], where subspecialty surgeons may not be available, a general surgeon may be required to perform emergency Caesarian sections or hysterectomies secondary to refractory post-partum hemorrhage. Not only are the emergency procedures done by a general surgeon but also they may opt to perform elective surgeries like planned C- sections, Bilateral sapingo oopherectomies, total

abdominal hysterectomies, and bilateral tubal ligation as per their expertise and the patient's trust [3].

General surgical training emphasizes a lot on Laparoscopic surgery or minimally invasive surgery (MIS) and with recent advances, Laparoscopic Gynaecological procedures are being done on regular basis. A trained laparoscopic surgeon who is comfortable with pelvic anatomy can flawlessly perform Laparoscopic Hysterectomies and Bilateral salpingo opherectomies.

A similar edge can be given to a robotics-trained surgeon where he can perform gynaecological procedures via a robot that would not require separate training if he is already an expert in pelvic anatomy and robot handling.

Similarly, a surgeon expert in endoscopic maneuvers can also help with hysteroscopies and scope-assisted procedures of the uterine cavity.[4]

Recently, talks have been generated regarding pushing gynecology as a subspecialty of general surgery, therefore, making gynecology-trained surgeons more experienced in abdominopelvic visceral intervention [4]. Surgeries for malignancies are very extensive and require the utmost attention. A surgical oncologist who is primarily trained in general surgery performs pelvic exenteration and is very capable of dealing with uterine malignancies which may be adherent to the rectal or enteric wall and will be therefore very tricky to dissect [5].Not only can a general surgeon take part in rural or deficient settings, but also during iatrogenic complications, a general surgeon is urgently called for emergent management. During emergency C-sections, urinary bladder or ureters can be ligated or cut warranting the involvement of a general or a urological surgeon. The rectum may be perforated in posterior vaginal wall repairs while uterine mobilization and cervical dissection during hysteropexies can cause damage to the sigmoid colon. Mishandling of the gut during emergency procedures can cause irreversible damage further leading to the morbidity of the patient [6]. Similar to other procedures of other specialties, any improper drain or mesh placement, or forgetting a foreign body (gossipybioma) can cause erosion of the abdominopelvic structures by pressure necrosis or lead to the development of intra-abdominal abscesses [7]. Poor or faulty techniques of closure or inappropriate septic measures can further lead to post-operative sepsis [8]. It can also cause the development of intra-abdominal abscesses or collections, wound dehiscence, or burst abdomen, all of these will eventually be dealt with by a general surgeon through an abdominal washout and exploration [9]. This can also cause weakness of the rectus sheath leading to divarication of recti or incisional hernias which will again be managed by a general surgeon in form of mesh repairs or plication as the patient will be a victim of poor cosmesis or abdominal wall defects [10]. Damage to the perineal floor can also cause enterocele or rectocele in the long run.

Furthermore, ileus in the postoperative period can again spark a need for a general surgeon who will diagnose and manage it either conservatively or intervene if needed as post-operative adhesions warrant an adhesiolysis after exploration. Obstruction may or may not lead to resection and anastomosis or exteriorization of the bowel in the same seating. Vascular complications demand another long discussion and can also be well managed by a trained general or vascular surgeon [9]. This study aims to investigate the frequency of gynaecological complications reported during general surgeries and contribution of a general surgeon in gynaecological procedures requiring emergency intervention.

Methodology:

This is a retrospcetive, cross-sectional study, data were collected retrospectively from data files of patients admitted to the general surgery unit of Shaheed Muhtarma Benazir Bhutto Medical University (SMBBMU) during one year 2021-2022. During this year 500 patients went through gynaecological management in the general surgery department while only 125 reported associated issues requiring surgical management and needed general surgeon intervention.

Approval was taken by the departmental head of general surgery to collect and present data on 21.10.2022, and the confidentiality of the patients was ensured by the primary investigator by keeping the identification of patients hidden and allotting respective case numbers to all cases.
Data was entered & analyzed by using SPSS version 22. The normality of data was checked with the help of the Shapiro-Wilk test. Frequency and percentage were calculated for quantitative variables such as presenting complaints, reported gynaecological issues requiring intervention, and reported associated issues requiring general surgery. The type of surgery and outcome of the intervention was also evaluated in frequency and percentage.

Results:
A total of 125 patients were enrolled in the study with a mean age of 31.66 ± 10.6 years, all patients were admitted for gynaecological management. The presenting complaint documented as pain with vaginal discharge & vomiting was reported in 72(57.5%) of patients. Puss discharge from wounds, peritonitis, and abdominal swelling were other frequently reported issues in 14(11.2%), 11 (8.7%), and 11 (8.7%) patients respectively. (Table 01)

Table 1: Presenting complaints reported by study participants

Presenting Complaint	Frequency n(%)
Pain, Discharge & vomiting	72 (57.5%)
Peritonitis	11 (8.7%)
Fecal incontinence	6 (4.8%)
Abdominal swelling	11 (8.7%)
Puss discharge from the wound	14 (11.2%)
Acute intestinal obstruction	2 (1.6%)
Missed abortion History	1 (0.8%)
Breast swelling	1 (0.8%)
CA ovary	1 (0.8%)
Sub-acute intestinal obstruction	1 (0.8%)
Acute abdomen	5 (4%)

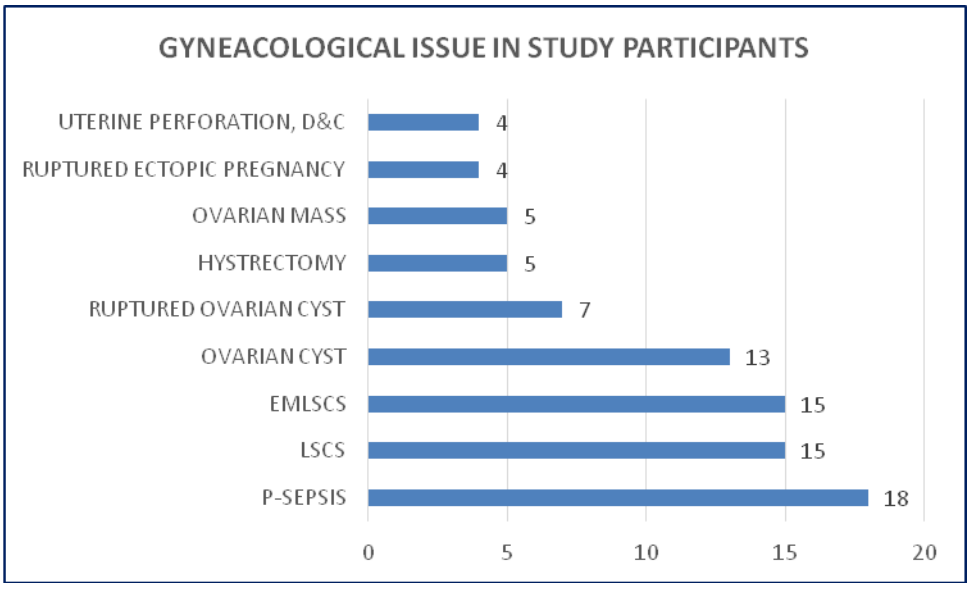

Figure 1: Frequency of reported gynaecological issues (n=125)

The most frequently reported gynaecological issue requiring immediate intervention is puerperal sepsis in 18 (14.3%) patients following LSCS (Lower segment cesarean section) in 15 (12%) and EMLSCS (emergency lower section caesarian section) in 15 (12%) of patients. The ovarian cyst was reported in 13 (10.4%) and a ruptured ovarian cyst was reported in 7 (5.6%) patients. Hysterectomy, ovarian mass, ruptured ectopic pregnancy, and Uterine perforation with D&C was reported in 5(4%), 5(4%), 4(3.2%) & 4 (3.2%) of patients respectively. (Figure 01) Different gynaecological diagnoses were reported with less frequency in study participants, including Recto Vaginal Fistula, Abortion, 4th and 7th Month pregnancy, uterovaginal prolapse, ovarian mass including adenocarcinoma, Cervix carcinoma, torsion of ovaries, ruptured ovary and ruptured uterus after home delivery were documented.

The overall management of associated issue reported after gynaecological interventions were documented and the most frequently reported general surgery procedure performed was Adhesiolysis with the surgical toilet in 18 (14.3%) of patients followed by cystectomy 8 (6.4%) and debridement 6(4.8%) of patients. Salpingectomy, Oophorectomy, diverting colostomy, appendectomy, and subtotal hysterectomy was performed in 5(4%), 5(4%), 4(3.2%), 3(2.4%) and 3(2.4%) of patients respectively. (Figure 02)

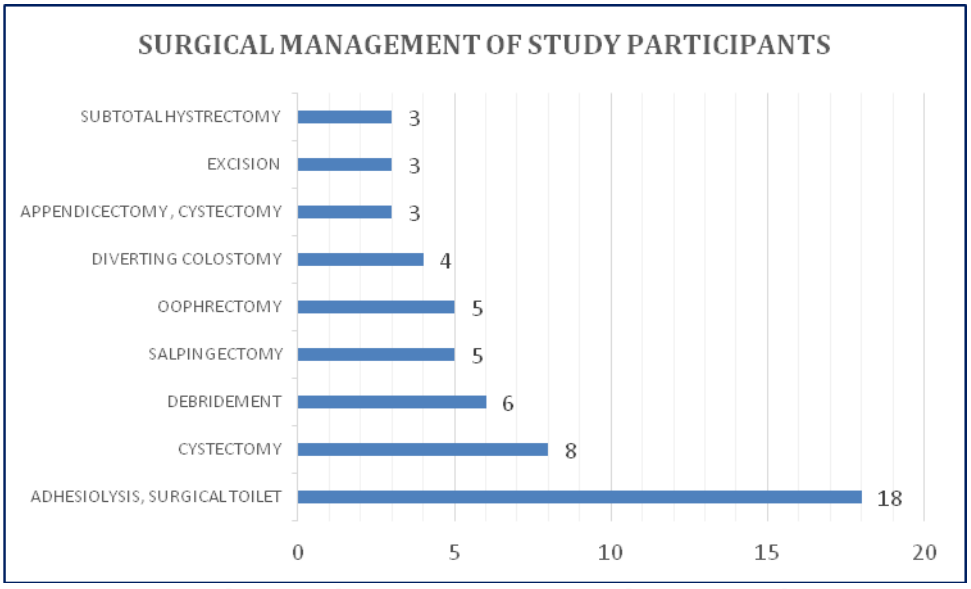

Figure 2: General surgical interventions required in gynaecology patients (n=125).

Ileostomy, re-suturing, and removal of the swab were documented in 2(1.6%), 2 (1.6%), and 1 (0.8%) of patients, along with Lap, Chole, and colostomy in 2(1.6%) and 1(0.8%).

Upon analyzing the outcomes of surgeries, 98(78%) were discharged after successful management of gynaecological as well as general surgical problems, 25(20%) were referred to tertiary care health care setup for more appropriate care and 1(1%) had burst abdomen. Only 1 (1%) out of 125 patients expired during the study period. (Figure 03)

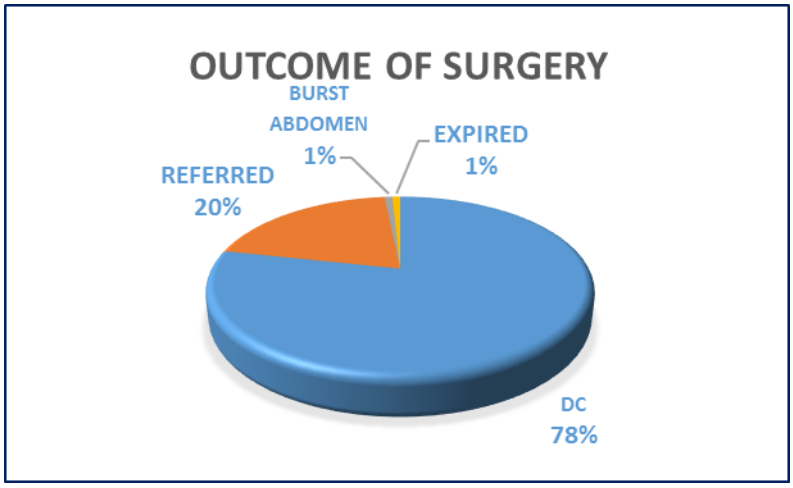

Figure 3: Overall surgical results (n=125).

Discussion:

Laparoscopic surgery, during pregnancy, is a dilemma to deal with as the creation of pneumoperitoneum is hazardous at times for the mother and the fetus [11-13]. Further, port placement is a tricky matter, and supine or Trendelenburg positioning of the mother during surgery for prolonged hours can decrease venous return and can cause pooling and inappropriate perfusion. Furthermore, the point to be remembered is the mode of presentation of patients. Not only are these calls given by the gynaecology department during emergencies or elective procedures from on the table but also some patients tend to present in the ER or Outpatient basis for the above-mentioned complications after long periods after discharge. Then these Patients are catered to from the beginning as a new case and as a post-surgical complication as their presenting complaint. In our setup, we had patients who presented with peritonitis, abdominal pain, wound discharge, vomiting, breast swelling, or with life-threatening acute abdomen.

These patients were seen till the end and helped via exploration, conservative management, and resection anastomosis, where whichever seemed suitable for the patient. Up to 11 patients out of a total of 125, had presented with the life-threatening state of peritonitis. The causes were intra-abdominal collection and ileal perforation. Retained swab or appendicitis. The patients had to undergo exploration with or without washout for further management [14].

a study under discussion reported in 2018 by Ortiz Martinez[15], has evaluated 519 patients out of which 1.8% patients had to undergo redo laparotomy or reoperation due to multiple reasons. Our study revealed a whopping 67.2% of patients demanding exploration after a gynaecological procedure. And 39 patients have required to receive conservative treatment while the remaining two received Incision and drainage or needed just a trucut biopsy for finding a breast mass.

A study by Unar F. et al published in 2020, reported ovarian cyst rupture or torsion as the highest reported cause of exploration and call given for a general surgeon [4].

Our study showed a need for emergency interventions done with a frequency of 77.6% and 22.4% as elective procedures therefore further reinforcing the fact that the majority of general surgical complications occur during emergency gynaecological or obstetrics procedures. Also, emergency procedures pose a higher risk of urological and self-gynaecological complications as well[16]this is due to the haste and the heat of the environment in the operating room that could lead to such complications. A 10-year review by Wichendu PN demonstrated a detailed review of general surgical encounters in gynaecology and obstetrics. They mentioned the incidence of incisional hernia as the highest while our study showed only 0.8% of our 125 participants needed mesh repair afterward. Further, their numbers coincide with the number of Cesarean sections as being the highest among performed procedures in our study. Such incidence is due to faulty or hurried

closure of the rectus sheath or poor closure of muscles that lead to muscle weakness and incisional hernia follows. The areas of expertise requiring conservative treatment after gynaecological procedures do make up a small number of the general surgeon's involvement in the field. Post-operative ileus is a neglected and very commonly occurring disorder that is encountered on regular basis, especially after Cesarean section [18]. The simple management requires the monitoring of electrolytes and the due replacement, which may require nasogastric intubation and bowel rest. It can mimic mechanical intestinal obstruction and hence needs the insight of a general surgeon to rule out any mechanical cause if present on a clinical basis as this demarcates a fine line between exploration vs. expectant management. 6 of our patients also needed surgical toilet as is the need after surgical site infections. The rate of these infections does not differ among specialties and is not specific to gynaecology and obstetrics but is a common complication that is cumbersome to treat and is faced by all kinds of surgeons, the management of SSIs includes a broad spectrum antibiotic coverage as per cultures, removing the source via debridement or washout and dealing with all the implications of sepsis.

Similarly, bleeding in form of hemoperitoneum is another complication faced by all abdominal and pelvic surgeons. It can be primary, secondary, or tertiary. Any hidden bleeding during the intraoperative time or a small bleeder with no pooling at that time may be ignored during emergency surgeries in a hurry to close the case. In setups with the increased influx of patients and lesser resources, these incidences are reported more [19].

4.8% of our patients had to face the disturbing complication of stoma formation. The need to be careful during dissection and handling of the gut is therefore essential as a woman who came with a gynaecological issue when returns with an intestinal stoma face a lot of emotional and social distress and is severely affected in terms of mental health [20]. The cause could be gut necrosis after prolonged air exposure, pressure necrosis by drains or mesh or rough holding or mistakenly taking a tie with the gut along with any other structure, mesenteric injury, or gut perforation during fine dissection.

Surgeries of malignancies and large tumors pose a higher risk for intraoperative complications. Adherence and frailty of tissues, poor demarcation of planes, heavily oozing tissues and prolonged time of surgery all contribute to any mishap that may be caused. The rectum lies in proximity to the uterus and could be invaded by uterine cancer and can therefore call for a general surgeon on board to help with his area of expertise. The tumor may also have upstaged on exploration as compared to the preoperative radiological assessment further increasing the surgical challenge. We had 12 patients (0.096%) who were known cases of gynaecological malignancy and landed in a general surgical intervention.

Also, the incidence of gossypiboma or retained gauze is another cause of re-exploration. The gauze piece could be left in the retro uterine space in an attempt to retract the gut. This accounts for vigilant eyes and mind during surgery, especially during emergency procedures. As this complication can be devastating for the patients as well as the practicing surgeon.

Conclusion:

This study concludes that a significant incidence of gynaecological issues has been reported in the general surgery unit, requiring general surgeons to intercede and deliver significant benefits in terms of lowering morbidity, mortality, postoperative complications, and length of hospital stay from a diagnostic and therapeutic point of view.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

HUMAN AND ANIMAL RIGHTS

No animals were used in this study. The study on humans was conducted in accordance with the ethical rules of the Helsinki Declaration and Good Clinical Practice.

CONSENT FOR PUBLICATION
Not applicable.

AVAILABILITY OF DATA AND MATERIALS
None.

FUNDING
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CONFLICT OF INTEREST
The authors declare no conflict of interest, financial or otherwise.

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