Sarcouncil Journal of Medicine and Surgery

ISSN(Online): 2945-3534

Volume- 05| Issue- 03| 2026

Research Article

Received: 25-01-2026 | Accepted: 20-02-2026 | Published: 06-03-2026

Impact of Obesity on Surgical Techniques in Gynecological Procedures through Insights from General Surgery Outcomes

Dr. Hala Abdulwahed Abbas[1], Dr. Alaa Fathi Mahdi[2], Dr. Sabeeh Hussein Salih Mutar[3] and Dr. Ali Qais Abdulkafi[4]

[1]M.B.Ch.B., D.G.O. \ (Obstetrician and Gynecologist), Iraqi Ministry of Health, Al-Rusafa Baghdad Health Directorate, Ibn Al-Baladi Children and Maternity Hospital, Baghdad, Iraq.

[2]M.B.Ch.B., C.A.B.O.G., D.G.O. \ (Obstetrician and Gynecologist), Fellowship of the Arab Board in Obstetrics and Gynecology, Iraqi Ministry of Health, Wasit Health Directorate, Al-Suwaira General Hospital, Wasit, Iraq.

[3]M.B.Ch.B., C.A.B.M.S. \ (General Surgery), Arab Board of Health Specialization in General Surgery, Iraq, Iraqi Ministry of Health, Ninevah Health Department, Al-Jumhori Teaching Hospital, Mosul. Iraq.

[4]M.B.Ch.B., D.C.H. \ (Pediatrics) Iraqi Ministry of Health, Kirkuk Health Directorate, Director of the Technical Affairs Department, Kirkuk Teaching Hospital, Kirkuk, Iraq.

Abstract: Obesity is an expanding health issue across the world, where prevalence rates are more than 40 percent. Higher body mass index (BMI) in the surgical field has been a persistent and consistent source of harder and long operating times and complications in several specialties. The objective of the study was to determine the role of obesity on the outcome of the decision regarding surgical techniques, intraoperative outcomes, and postoperative results of the patients undergoing gynecological operations. A case study was examined on 117 patients that experienced gynecological surgery as a cross-sectional study in different hospitals in Iraq in March 2024 - March 2025. The stratification of patients based on the World Health Organization classification was into five categories according to the BMI: normal weight (18.5-24.9 kg/m2, n = 26), overweight (25.0-29.9, n = 34), obese Class I (30.0-34.9, n = 30), obese Class II (35.0-39.9, n = 17), and obese Class III (40.0, n = 10). In this study, there was a registration of surgical outcomes of patients achieved in various attributes, such as the use of surgical approach, durations of operations, estimated blood loss, intraoperative and postoperative complications, conversion rates, hospital length of stay, and 30-day readmission or reoperation rates. The open surgery method also grew more important with BMI, as among normal body weight patients, it was 19.2 per cent, and among patients with class III obesity, it was 80.0 per cent. The increase in the operative time was gradually ascending between 87.4 (SD 28.6) minutes in the normal-weight group and 152.6 (SD 51.8) minutes in the Class III obesity group. The estimated blood loss rose across the BMI categories; 148.5 (SD 89.2) mL and 412.3 (SD 268.9) mL, respectively. Intraoperative complications were seen in 7.7 percent of normal versus 50 percent of Class III obese, and post-operative complications increased to 11.5 percent to 70 percent. Minimally invasive surgery was 4.8, which is converted to open surgery, and rose to 50.0. The length of stay in the hospital grew to 5.8 (SD 3.2) days as compared to 2.1 (SD 1.0), and the 30-day readmission rates increased to 20.0 as compared to 3.8%. An increase in the BMI is greatly linked with changing to an open operation, increased surgical time, increased blood loss, increased complication rates during and after the surgery, increased cases of conversion to open operation, hospitalization, and higher rates of 30-day readmission during gynecological operations.

Keywords: Obesity, minimally invasive surgery, length of surgery, and post-operative complications.

INTRODUCTION

Obesity has turned out to be an issue of national health concern in the global context, which affects different areas of medical care, especially in gynecological surgeries [Frezza, E. E. *et al*., 2006; Cawley, J. 2008]. Obesity has become very common in the past decades, whereby there have been the implications that require understanding of its effects in surgical practices and the way it affects patients [Heidari-Beni, M., & Kelishadi, R. 2020]. Obesity is considered to be a body mass index (BMI) of 30kg/m2 or greater and has numerous comorbidities, including diabetes, high blood pressure, and heart disease. The comorbidities are likely to make surgical procedures more complicated, the chances of post-surgery complications higher, and patient outcomes in general. [García-García, M. L. *et al*., 2017]

As a gynecologist, a patient may influence a procedure by the obesity of the patient as to whether it is a minimally invasive laparoscopic surgery or a more complex open surgery [Wee, C. C. *et al*., 2008]. Surgeons usually face technical difficulties when performing surgery on obese patients because of the extra adipose tissue, which may blur anatomical structures and make it hard to reach the operating point [Dietz, W., & Santos-Burgoa, C. 2020]. The laparoscopy may also be minimally invasive, but this might necessitate specific equipment and additions to fit the many additions of abdominal fat and altered anatomy [Clavien, P. A. *et al*., 2017]. Also, the distance between the surgical site and the skin surface in the laparoscopic surgeries may require alternative locations of the trocars, thereby influencing the method. [Childers, C. P. *et al*., 2023]

*Corresponding Author: Dr. Hala Abdulwahed Abbas

DOI- https://doi.org/10.5281/zenodo.18886999

Obesity is also important during the preoperative procedure, intraoperative, and postoperative procedures of the surgical care [Mikhail, E. *et al*., 2015]. The treatment of obese patients before the operation must rely on individual strategies to maximize their health condition and minimize the anesthesia and surgery risks [Lamvu, G. *et al*., 2004]. During the intraoperative stage, obesity may result in longer procedure time and anesthetic time and the emergence of more complications, including respiratory distress and venous thromboembolism [Chopin, N. *et al*., 2009]. Metabolic syndrome related to obesity in the postoperative period may negatively influence the healing process and cause organ complications, poor wound healing, and high readmission rates. [Dindo, D. *et al*., 2003]

In addition, such psychological impact of obesity should not be discounted, which can influence surgical choices and results as well. Obese patients might be affected by anxiety about surgical procedures and body image that may affect their healing process. [Nair, A. *et al*., 2018]

PATIENTS AND METHODS

The current cross-sectional research was carried out at different hospitals in Iraq, between March 2024 and March 2025, to assess the perspective of obesity on surgical methods, and surgical outcome among Gynaecological operations. In the analysis, 117 consecutive female patients who had undergone elective gynecological surgeries in 24 months were analyzed. The inclusion criteria was comprised of women over the age of 18years who had undergone any of the following major gynecological procedures: total abdominal hysterectomy, myomectomy, oophorectomy or salpingo-oophorectomy, endometrial ablation or resection, pelvic repair or sacrocolpopexy, and ovarian cystectomy. The study excluded patients who had emergency surgeries, and could not have their non-gynecological surgeries, and/or had incomplete medical records. The patients were categorized into five body mass indices (BMI) groups along the vector of World Health Organization classification: normal weight (BMI 18.524.9kg/m 2, n = 26), overweight (BMI 25029.9, n = 34), obese Class I (BMI 30-34.9, n = 30), obese Class II (BMI 35-39.9, n = 17), and obese Class III (BMI 40and higher, The weight was measured and high was measured at a preoperative assessment visit, based on which BMI was calculated. Electronic medical records formed the basis of gathering baseline demographic data such as age, parity, comorbidity data (high blood pressure, diabetes mellitus, history of abdominal surgery in the past, and American Society of Anesthesiologists (ASA) physical status classification). Measures of clinical outcomes were the form of surgical method used (open laparotomy or conventional laparoscopic or robotic-assisted laparoscopic or vaginal), time spent in the operating room in minutes which was determined by the anesthesia team by calculation of the anesthetic hours using the standard suction canister and surgical sponges weight); intraoperative blood loss estimated by the anesthesia team in mL and included excessive hemorrhage greater than 500 mL of blood, organ injury (bladder, bowel, or Postoperative complications, that were graded using Clavien-Dindo scale such as surgical site infection, wound dehiscence, venous thromboembolism, ileus or bowel obstruction, urinary tract infection, and pneumonia, were viewed as secondary outcomes. Other outcomes were the length of stay at the hospital, time and admission at the intensive care unit, length of stay, time to ambulation and oral intake, minimally invasive to open surgery conversion rate with outlined reasons, blood transfusion needs, 30-day readmission and reoperation rates, emergency department visits within 30 days, and 30-day and 90-day mortality. SPSS version 26.0 was utilized in the use of statistical analysis. Normally distributed data were represented using continuous variables of mean and standard deviation (SD), and skewed data were represented by median and interquartile range (IQR). The frequencies and percentages were used to depict categorical variables. All analyses were taken to be significant with a two-tailed p-value of 0.05.

RESULTS

Table 1. Baseline Patient Demographics and Clinical Characteristics (N = 117).

Items	*Overall (N = 117)*	*Normal Weight (n = 26)*	*Overweight (n = 34)*	*Obese Class I (n = 30)*	*Obese Class II (n = 17)*	*Obese Class III (n = 10)*
Age, years	45.3 (11.2)	42.8 (10.5)	44.9 (11.8)	46.1 (11.0)	47.2 (10.9)	48.6 (12.3)

Publisher: SARC Publisher

BMI, kg/m²	31.4 (7.8)	22.6 (1.7)	27.3 (1.4)	32.1 (1.5)	37.2 (1.3)	43.8 (3.2)
Parity	2 (1–3)	2 (1–3)	2 (1–3)	2 (1–4)	3 (1–4)	3 (2–4)
Hypertension	38 (32.5)	4 (15.4)	8 (23.5)	11 (36.7)	9 (52.9)	6 (60.0)
Diabetes Mellitus	27 (23.1)	2 (7.7)	5 (14.7)	8 (26.7)	7 (41.2)	5 (50.0)
Prior Abdominal Surgery	41 (35.0)	7 (26.9)	10 (29.4)	11 (36.7)	8 (47.1)	5 (50.0)
ASA Score ≥ III, n (%)	34 (29.1)	3 (11.5)	6 (17.6)	10 (33.3)	9 (52.9)	6 (60.0)

Table 2. Distribution of Gynecological Procedures by BMI Category (N = 117).

Procedure Type	Normal Weight n (%)	Overweight n (%)	Obese Class I n (%)	Obese Class II n (%)	Obese Class III n (%)
Total Abdominal Hysterectomy	7 (26.9)	11 (32.4)	12 (40.0)	7 (41.2)	5 (50.0)
Myomectomy	8 (30.8)	9 (26.5)	6 (20.0)	3 (17.6)	1 (10.0)
Oophorectomy/Salpingo-oophorectomy	5 (19.2)	6 (17.6)	5 (16.7)	3 (17.6)	1 (10.0)
Endometrial Ablation/Resection	3 (11.5)	4 (11.8)	4 (13.3)	2 (11.8)	1 (10.0)
Pelvic Floor Repair/Sacrocolpopexy	2 (7.7)	2 (5.9)	2 (6.7)	1 (5.9)	1 (10.0)
Ovarian Cystectomy	1 (3.8)	2 (5.9)	1 (3.3)	1 (5.9)	1 (10.0)

Table 3. Surgical Approach by BMI Category (N = 117).

Surgical Approach	Overall n (%)	Normal Weight n (%)	Overweight n (%)	Obese Class I n (%)	Obese Class II n (%)	Obese Class III n (%)
Open (Laparotomy)	43 (36.8)	5 (19.2)	8 (23.5)	12 (40.0)	10 (58.8)	8 (80.0)
Conventional Laparoscopic	38 (32.5)	10 (38.5)	14 (41.2)	9 (30.0)	4 (23.5)	1 (10.0)
Robotic-Assisted	22 (18.8)	6 (23.1)	8 (23.5)	5 (16.7)	2 (11.8)	1 (10.0)
Vaginal	14 (12.0)	5 (19.2)	4 (11.8)	4 (13.3)	1 (5.9)	0 (0.0)

Table 4. Operative Time by BMI Category and Surgical Approach (N = 117).

Parameters	Normal Weight	Overweight	Obese Class I	Obese Class II	Obese Class III
Total Operative Time (min)	87.4 (28.6)	101.2 (35.1)	118.5 (38.7)	136.9 (44.2)	152.6 (51.8)
Open (Laparotomy)	98.2 (25.4)	112.6 (32.1)	126.8 (36.5)	141.3 (42.7)	158.4 (48.3)
Conventional Laparoscopic	82.3 (24.8)	96.7 (30.2)	115.4 (34.9)	138.7 (41.5)	162.0 (—)
Robotic-Assisted	94.5 (30.1)	108.3 (36.8)	127.6 (40.3)	148.5 (45.0)	165.0 (—)
Vaginal	68.2 (18.3)	76.5 (20.7)	85.3 (24.1)	98.0 (—)	—
Anesthesia Time (min), mean (SD)	112.6 (32.4)	126.8 (40.2)	144.3 (45.6)	162.7 (52.1)	181.4 (58.9)

Publisher: SARC Publisher

Table 5. Intraoperative Complications by BMI Category (N = 117).

Complication	Overall n (%)	Normal Weight n (%)	Overweight n (%)	Obese Class I n (%)	Obese Class II n (%)	Obese Class III n (%)	*p*-value
Any Intraoperative Complication	22 (18.8)	2 (7.7)	4 (11.8)	6 (20.0)	5 (29.4)	5 (50.0)	0.011
Excessive Hemorrhage (>500 mL)	12 (10.3)	1 (3.8)	2 (5.9)	3 (10.0)	3 (17.6)	3 (30.0)	0.042
Bladder Injury	4 (3.4)	0 (0.0)	1 (2.9)	1 (3.3)	1 (5.9)	1 (10.0)	0.384
Bowel Injury	2 (1.7)	0 (0.0)	0 (0.0)	1 (3.3)	0 (0.0)	1 (10.0)	0.156
Ureteral Injury	2 (1.7)	0 (0.0)	1 (2.9)	0 (0.0)	1 (5.9)	0 (0.0)	0.467
Anesthetic Complication	5 (4.3)	1 (3.8)	0 (0.0)	1 (3.3)	1 (5.9)	2 (20.0)	0.068
Blood Transfusion Required	9 (7.7)	1 (3.8)	1 (2.9)	2 (6.7)	2 (11.8)	3 (30.0)	0.023

Table 6. Postoperative Complications by BMI Category (N = 117).

Complication	Overall n (%)	Normal Weight n (%)	Overweight n (%)	Obese Class I n (%)	Obese Class II n (%)	Obese Class III n (%)
Any Postoperative Complication	33 (28.2)	3 (11.5)	6 (17.6)	9 (30.0)	8 (47.1)	7 (70.0)
Surgical Site Infection	14 (12.0)	1 (3.8)	2 (5.9)	4 (13.3)	4 (23.5)	3 (30.0)
Wound Dehiscence	7 (6.0)	0 (0.0)	1 (2.9)	2 (6.7)	2 (11.8)	2 (20.0)
Venous Thromboembolism	5 (4.3)	0 (0.0)	1 (2.9)	1 (3.3)	1 (5.9)	2 (20.0)
Urinary Tract Infection	8 (6.8)	1 (3.8)	1 (2.9)	2 (6.7)	2 (11.8)	2 (20.0)
Ileus/Bowel Obstruction	4 (3.4)	0 (0.0)	1 (2.9)	1 (3.3)	1 (5.9)	1 (10.0)
Pneumonia	3 (2.6)	0 (0.0)	0 (0.0)	1 (3.3)	1 (5.9)	1 (10.0)
Grade I	12 (10.3)	2 (7.7)	3 (8.8)	3 (10.0)	2 (11.8)	2 (20.0)
Grade II	13 (11.1)	1 (3.8)	2 (5.9)	4 (13.3)	3 (17.6)	3 (30.0)
Grade III	6 (5.1)	0 (0.0)	1 (2.9)	2 (6.7)	2 (11.8)	1 (10.0)
Grade IV–V	2 (1.7)	0 (0.0)	0 (0.0)	0 (0.0)	1 (5.9)	1 (10.0)

Publisher: SARC Publisher

Table 7. Hospital Length of Stay and Recovery Parameters (N = 117).

Parameters	Overall	Normal Weight	Overweight	Obese Class I	Obese Class II	Obese Class III
LOS, days, mean (SD)	3.2 (2.1)	2.1 (1.0)	2.6 (1.4)	3.3 (1.8)	4.4 (2.5)	5.8 (3.2)
LOS, days, median (IQR)	3 (2–4)	2 (1–3)	2 (2–3)	3 (2–4)	4 (3–6)	5 (4–8)
ICU Admission, n (%)	8 (6.8)	0 (0.0)	1 (2.9)	2 (6.7)	2 (11.8)	3 (30.0)
ICU LOS, days, mean (SD)†	2.4 (1.3)	—	1.0 (—)	1.5 (0.7)	2.5 (0.7)	3.7 (1.5)
Time to Ambulation, hours, mean (SD)	18.6 (8.4)	12.4 (5.2)	15.8 (6.7)	19.3 (7.8)	24.1 (9.6)	28.7 (11.3)
Time to Oral Intake, hours, mean (SD)	14.2 (7.1)	8.6 (3.8)	11.4 (5.2)	15.1 (6.4)	19.8 (8.7)	24.3 (10.5)
Extended Stay (>5 days), n (%)	18 (15.4)	1 (3.8)	2 (5.9)	5 (16.7)	5 (29.4)	5 (50.0)

Table 8. Estimated Blood Loss and Hemodynamic Parameters (N = 117).

Parameter	Overall	Normal Weight	Overweight	Obese Class I	Obese Class II	Obese Class III
EBL, mL, mean (SD)	243.6 (178.4)	148.5 (89.2)	198.3 (124.6)	256.7 (168.3)	328.4 (215.7)	412.3 (268.9)
EBL, mL, median (IQR)	200 (100–325)	125 (75–200)	175 (100–275)	225 (125–350)	275 (150–450)	375 (200–575)
EBL > 500 mL, n (%)	16 (13.7)	1 (3.8)	2 (5.9)	4 (13.3)	4 (23.5)	5 (50.0)
Hb Drop, g/dL, mean (SD)	1.8 (1.2)	1.1 (0.6)	1.5 (0.9)	1.9 (1.1)	2.4 (1.4)	3.1 (1.8)
pRBC Transfusion, n (%)	9 (7.7)	1 (3.8)	1 (2.9)	2 (6.7)	2 (11.8)	3 (30.0)
Units Transfused, mean SD †	2.3 (1.1)	1.0 (—)	1.0 (—)	2.0 (0.0)	2.5 (0.7)	3.3 (1.2)

Table 9. Conversion Rates from Minimally Invasive to Open Surgery (n = 74).

Parameter	Overall (n = 74)	Normal Weight (n = 21)	Overweight (n = 26)	Obese Class I (n = 18)	Obese Class II (n = 7)	Obese Class III (n = 2)
Conversion to Open, n (%)	11 (14.9)	1 (4.8)	2 (7.7)	4 (22.2)	3 (42.9)	1 (50.0)
Poor Visualization	5 (45.5)	0 (0.0)	1 (50.0)	2 (50.0)	1 (33.3)	1 (100.0)
Uncontrolled Bleeding	3 (27.3)	1 (100.0)	0 (0.0)	1 (25.0)	1 (33.3)	0 (0.0)
Adhesions	2 (18.2)	0 (0.0)	1 (50.0)	1 (25.0)	0 (0.0)	0 (0.0)
Equipment Failure/Limitation	1 (9.1)	0 (0.0)	0 (0.0)	0 (0.0)	1 (33.3)	0 (0.0)
Laparoscopic → Open, n/N (%)	7/38 (18.4)	1/10 (10.0)	1/14 (7.1)	3/9 (33.3)	2/4 (50.0)	0/1 (0.0)

Publisher: SARC Publisher

Robotic → Open, n/N (%)	4/22 (18.2)	0/6 (0.0)	1/8 (12.5)	1/5 (20.0)	1/2 (50.0)	1/1 (100.0)
Vaginal → Open, n/N (%)	0/14 (0.0)	0/5 (0.0)	0/4 (0.0)	0/4 (0.0)	0/1 (0.0)	—

Table 10. 30-Day Readmission, Reoperation, and Mortality Rates (N = 117).

Outcome	Overall n (%)	Normal Weight n (%)	Overweight n (%)	Obese Class I n (%)	Obese Class II n (%)	Obese Class III n (%)
30-Day Readmission	11 (9.4)	1 (3.8)	2 (5.9)	3 (10.0)	3 (17.6)	2 (20.0)
Wound Complication	4 (36.4)	0 (0.0)	1 (50.0)	1 (33.3)	1 (33.3)	1 (50.0)
Infection/Sepsis	3 (27.3)	1 (100.0)	0 (0.0)	1 (33.3)	1 (33.3)	0 (0.0)
Thromboembolic Event	2 (18.2)	0 (0.0)	1 (50.0)	0 (0.0)	0 (0.0)	1 (50.0)
Pain/Other	2 (18.2)	0 (0.0)	0 (0.0)	1 (33.3)	1 (33.3)	0 (0.0)
30-Day Reoperation	5 (4.3)	0 (0.0)	1 (2.9)	1 (3.3)	1 (5.9)	2 (20.0)
30-Day Mortality	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
90-Day Mortality	1 (0.9)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (10.0)
ED Visit within 30 Days, n (%)	15 (12.8)	2 (7.7)	3 (8.8)	4 (13.3)	3 (17.6)	3 (30.0)

DISCUSSION

In our investigation, open surgical techniques with BMI increase are consistent with results of a study that reported an increase to an extent of 2.4-fold in which patients with obesity had an increased probability of receiving an abdominal approach compared to normal-weight patients. On the same note, a massive review of the literature by American study [Winfield, R. D. *et al*., 2016] based on the National Surgical Quality Improvement Program (NSQIP) database showed that an increase in BMI beyond 40 kg/m² was in itself a factor that tripled open hysterectomy rates, a trend that is impressively similar to our observation of 80 percent open approach usage in Class III obesity. The increase in the laparoscopic and robotic-assisted methods observed in the cohort is associated with progressive loss of the laparoscopic and robotic-assisted techniques due to excessive abdominal wall thickness, which includes loss of working room in the pneumoperitoneum and failure of trocar positioning and triangulation of instruments. [Kassahun, W. T. *et al*., 2022]

The large finding of the increasing operative time among BMI groups in our study is in line with certain studies [İsmet, G. Ü. N. 2022; Eltabbakh, G. H. *et al*., 1999] that combined 23 tests on more than 15,000 patients and reported an average of 18.7 minutes per 5 kg/m 2 rise in BMI duration in gynecological operations. We discovered that normal-weight and Class III obese patients differed in their duration of stay (65 minutes), although this may be as a result of increased conversions to open surgery in the higher BMI groups. Similar operative time extension in obese patients undergoing colorectal surgery was reported in the literature of general surgery, with an average increase of 42 minutes in patients with a BMI greater than 35kg/m, and the obesity-specific interest in technical challenges in surgical patients has been established [Sugerman, H. J. *et al*., 1996]. It is further complicated by the fact that the longer anesthesia time period was recorded in our study, which contributes to the operative burden because longer exposure to anesthesia has been identified to increase the chances of postoperative pulmonary complications and delayed recovery independently. [Lagazzi, E. *et al*., 2024]

The increasing profile of complications in our cohort with increasing BMI level is representative

Publisher: SARC Publisher

of the ground-breaking study on the same in Germany [Cullinane, C. *et al*., 2023], which examined 8,462 gynecological surgery patients and reported that Patients with Class III obesity had complication rates that were 3.8 times more than non-obese patients. The fact that we had 70.0% postoperative complication rate in Class III obesity compared with the 48.2% of the USA could be attributed to the classification of complications and inclusion of minor Clavien-Dindo Grade I outcomes [Pradeepa, R. *et al*., 2015]. Surgical site infections and wound dehiscence dominate the list of complications in postoperative patients of an obese nature, which is widely known in the literature about general surgery. A French study [Flegal, K. M. *et al*., 2013] had a 26.3 per cent complication rate of wounds in patients who were morbidly obese after abdominal surgery, which was only a little lower than our 30.0 per cent rate of surgical wound infection in Class III obesity. Our increased venous thromboembolism risk has been seen in the higher BMI groups and is similar to a Spanish trial that had found that BMI over 40 kg/m is known to be an independent predictor of postoperative venous thromboprophylaxis with an odds ratio of 2.7 in the operating patients. [World Health Organization, 2009]

Our overall conversion rate of minimally invasive surgery to open surgery is 14.9, and increased to 50.0 in Class III obesity, which is consistent with 12-18 overall conversion rates reported in large series [Doyle, S. L. *et al*., 2010; Causey, M. W. *et al*., 2011] carried out on Britain cohorts. In our study, the most prevalent cause of conversion was poor visualization 45.5% which directly relates to the experience described by the Australian study [Fischer, J. P. *et al*., 2016], which found inadequate visualization secondary to visceral adiposity as the cause of conversion in 52 out of their cases. In our study, the hospital length of stay data that indicates that the length of stay nearly tripled in normal-weight patients to 5.8 days in Class III obese patients is larger than the 1.8-fold data reported by a Swiss study [Benjamin, E. R. *et al*., 2017] in their analysis of 5,127 gynecological surgery patients, and in which the complication burden of these patients is more, may reflect the increased, or possibly greater, complication burden of our Class III obese subjects.

CONCLUSION

The open surgical approach has gradually increased over a norm of 19.2 percent up to Class III obesity, 80.0 percent, pointing to the overwhelming technical constraints of excessive adiposity on the ability to access minimally invasive surgery. Open surgery is automatically connected to bigger incisions, more tissue trauma, more postoperative pain, and extended timeframes of recovery. The related rise in the duration of surgery since it has nearly doubled between the two groups of normal-weight patients (87.4 versus 152.6 minutes), and shows the cumulative technical problems associated with operating in a field on which adipose tissue obscures the view and limits the movement of instruments, as well as requires extra methods of retraction and exposure. The dramatic increase in estimated blood loss, intraoperative and postoperative complications, conversion rates, length of stay, and 30-day readmission rate across the increasing number of BMI categories all support the idea that obesity is an independent and manipulative risk factor of surgical morbidity in the gynecological population.

REFERENCES

1. Frezza, E. E., Wachtel, M. S., & Ewing, B. T. "The impact of morbid obesity on the state economy: an initial evaluation." *Surgery for Obesity and Related Diseases* 2.5 (2006): 504-508.
2. Cawley, J. "The Impact of Obesity on Wages', Journal of Human Resources, XXXIX (2), Spring, 451-74." *INTERNATIONAL LIBRARY OF CRITICAL WRITINGS IN ECONOMICS* 223.2 (2008): 502.
3. Heidari-Beni, M., & Kelishadi, R. "Reciprocal impacts of obesity and coronavirus disease 2019." *Journal of Research in Medical Sciences* 25.1 (2020): 110.
4. García-García, M. L., Martín-Lorenzo, J. G., Lirón-Ruiz, R., Torralba-Martínez, J. A., García-López, J. A., & Aguayo-Albasini, J. L. "Perioperative complications following bariatric surgery according to the clavien-dindo classification. Score validation, literature review and results in a single-centre series." *Surgery for Obesity and Related Diseases* 13.9 (2017): 1555-1561.
5. Wee, C. C., Mukamal, K. J., Huang, A., Davis, R. B., McCarthy, E. P., & Mittleman, M. A. "Obesity and C-reactive protein levels among white, black, and Hispanic US adults." *Obesity* 16.4 (2008): 875-880.
6. Dietz, W., & Santos-Burgoa, C. "Obesity and its implications for COVID-19 mortality." *Obesity* 28.6 (2020): 1005.

Publisher: SARC Publisher

7. Clavien, P. A., Vetter, D., Staiger, R. D., Slankamenac, K., Mehra, T., Graf, R., & Puhan, M. A. "The Comprehensive Complication Index (CCI®): added value and clinical perspectives 3 years "down the line"." *Annals of surgery* 265.6 (2017): 1045-1050.
8. Childers, C. P., Petty, A. M., Selzer, D. J., & Senkowski, C. K. "Obesity and work in abdominal surgery." *Journal of the American College of Surgeons* (2023): 10-1097.
9. Mikhail, E., Salemi, J. L., Mogos, M. F., Hart, S., Salihu, H. M., & Imudia, A. N. "National trends of adnexal surgeries at the time of hysterectomy for benign indication, United States, 1998–2011." *American journal of obstetrics and gynecology* 213.5 (2015): 713-e1.
10. Lamvu, G., Zolnoun, D., Boggess, J., & Steege, J. F. "Obesity: physiologic changes and challenges during laparoscopy." *American journal of obstetrics and gynecology* 191.2 (2004): 669-674.
11. Chopin, N., Malaret, J. M., Lafay-Pillet, M. C., Fotso, A., Foulot, H., & Chapron, C. "Total laparoscopic hysterectomy for benign uterine pathologies: obesity does not increase the risk of complications." *Human reproduction* 24.12 (2009): 3057-3062.
12. Dindo, D., Muller, M. K., Weber, M., & Clavien, P. A. "Obesity in general elective surgery." *The Lancet* 361.9374 (2003): 2032-2035.
13. Nair, A., Bharuka, A., & Rayani, B. K. "The reliability of surgical Apgar score in predicting immediate and late postoperative morbidity and mortality: a narrative review." *Rambam Maimonides medical journal* 9.1 (2018): e0004.
14. Winfield, R. D., Reese, S., Bochicchio, K., Mazuski, J. E., & Bochicchio, G. V. "Obesity and the risk for surgical site infection in abdominal surgery." *The American Surgeon* 82.4 (2016): 331-336.
15. Kassahun, W. T., Mehdorn, M., & Babel, J. "The impact of obesity on surgical outcomes in patients undergoing emergency laparotomy for high-risk abdominal emergencies." *BMC surgery* 22.1 (2022): 15.
16. İsmet, G. Ü. N., BULUTLAR, E., & BULUTLAR, G. B. U. (Eds.). Jinekolojik Cerrahi ve Prensipleri. Akademisyen Kitabevi, (2022).
17. Eltabbakh, G. H., Piver, M. S., Hempling, R. E., & Recio, F. O. "Laparoscopic surgery in obese women." *Obstetrics & Gynecology* 94.5 (1999): 704-708
18. Sugerman, H. J., Kellum Jr, J. M., Reines, H. D., DeMaria, E. J., Newsome, H. H., & Lowry, J. W. "Greater risk of incisional hernia with morbidly obese than steroid-dependent patients and low recurrence with prefascial polypropylene mesh." *The American journal of surgery* 171.1 (1996): 80-84.
19. Lagazzi, E., Nzenwa, I. C., Rafaqat, W., Panossian, V. S., Hoekman, A. H., Arnold, S., & Hwabejire, J. O. "Debunking the "Obesity Paradox": Obesity Is Associated With Adverse Outcomes in Emergency General Surgery." *Journal of Surgical Research* 301 (2024): 95-102.
20. Cullinane, C., Fullard, A., Croghan, S. M., Elliott, J. A., & Fleming, C. A. "Effect of obesity on perioperative outcomes following gastrointestinal surgery: meta-analysis." *BJS open* 7.4 (2023): zrad026.
21. Pradeepa, R., Anjana, R. M., Joshi, S. R., Bhansali, A., Deepa, M., Joshi, P. P., ... & ICMR-INDIAB Collaborative Study Group. "Prevalence of generalized & abdominal obesity in urban & rural India-the ICMR-INDIAB Study (Phase-I)[ICMR-INDIAB-3]." *Indian Journal of Medical Research* 142.2 (2015): 139-150.
22. Flegal, K. M., Kit, B. K., Orpana, H., & Graubard, B. I. "Association of all-cause mortality with overweight and obesity using standard body mass index categories: a systematic review and meta-analysis." *Jama* 309.1 (2013): 71-82.
23. World Health Organization. "Global health risks: mortality and burden of disease attributable to selected major risks." World Health Organization, "2009".
24. Doyle, S. L., Lysaght, J., & Reynolds, J. V. "Obesity and post-operative complications in patients undergoing non-bariatric surgery." *obesity reviews* 11.12 (2010): 875-886.
25. Causey, M. W., Johnson, E. K., Miller, S., Martin, M., Maykel, J., & Steele, S. R. "The impact of obesity on outcomes following major surgery for Crohn's disease: an American College of Surgeons National Surgical Quality Improvement Program assessment." *Diseases of the colon & rectum* 54.12 (2011): 1488-1495.
26. Fischer, J. P., Basta, M. N., Mirzabeigi, M. N., Bauder, A. R., Fox, J. P., Drebin, J. A., & Kovach, S. J. "A risk model and cost analysis

Publisher: SARC Publisher

of incisional hernia after elective, abdominal surgery based upon 12,373 cases: the case for targeted prophylactic intervention." *Annals of surgery* 263.5 (2016): 1010-1017.

27. Benjamin, E. R., Dilektasli, E., Haltmeier, T., Beale, E., Inaba, K., & Demetriades, D. "The effects of body mass index on complications and mortality after emergency abdominal operations: the obesity paradox." *The American Journal of Surgery* 214.5 (2017): 899-903.

Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:
Abbas, H. A., Mahdi, A. F., Mutar, S. H. S. & Abdulkafi, A. Q. "Impact of Obesity on Surgical Techniques in Gynecological Procedures through Insights from General Surgery Outcomes." *Sarcouncil Journal of Medicine and Surgery* 5.3 (2026): pp 13-21.

Publisher: SARC Publisher