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Original Research Article

Audit on gynaecological surgeries in Ramaiah medical college and hospital in year 2025

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ABSTRACT

Background: Surgical audit is a peer-reviewed process to assess surgical quality and improve patient outcomes. In gynaecology, common surgeries include hysterectomy, dilatation and curettage, prolapse repair, laparoscopy, and myomectomy. This study aimed to evaluate the effectiveness, efficiency, and outcomes of gynaecological surgeries performed at Ramaiah Medical College and Hospital, Bengaluru, from January to March 2025, and to identify areas for improvement in surgical practice.
Methods: This retrospective observational study included all patients who underwent gynaecological surgeries during the study period at Ramaiah Memorial Hospital. Data on demographics, indications, type of surgery, complications, anaesthesia, and hospital stay were collected and analysed using SPSS version 26.0.
Results: A total of 52 gynaecological surgeries were conducted. The majority of patients were aged 50-55 years. Abnormal uterine bleeding (38%) was the most common indication. Hysterectomy was the predominant surgery (46%), performed mainly via the vaginal route (50%). Endoscopic procedures constituted 50% of surgeries, including hysteroscopies (32%) and laparoscopies (17%). Spinal anaesthesia was used in 62% of cases. The main complication was intraoperative blood loss requiring transfusion. The mean hospital stay was longest for abdominal hysterectomies (3-5 days).
Conclusions: Most surgeries adhered to ACOG and RCOG recommendations, prioritising minimally invasive approaches. Vaginal and laparoscopic hysterectomies were preferred where feasible, reflecting evidence-based and patient-centred surgical practice.

Keywords: Gynaecological surgery, Hysterectomy, Laparoscopy, Patient outcomes, Surgical audit

INTRODUCTION

Surgical audit is an essential method for preserving clinical standards of surgical treatment. Surgical audit is a systematic, critical examination of surgical quality that is examined by peers against specified criteria or standard recognition, then utilised to further enhance surgical practice with the ultimate objective of increasing the quality of patient care.[1-3] The Institute of Internal Auditors (IIA) describes operational audits as a systematic method for assessing the efficiency, margin of improvement of an organisation's controlled operations and presenting the assessment findings for enhancement to relevant parties.[4,5] Gynaecological operations including hysterectomy, Dilation and curettage (D and C) biopsy, genital prolapse surgeries, laparoscopy and myomectomy are the most common operations in medical practice.[6,7] Gynaecological operations are carried outon the female reproductive system in non-gravid women. They are conducted for emergencies or on optional grounds. Procedures for emergencies include Bartholin's abscesses and defloration injuries amongst others, while optional procedures include

genital prolapse, obstetric fistulae as well as some cancerous abnormality.[8,9] The purpose of clinical audit is to improve the quality of patient care and outcomes through systematic evaluation of care against explicit criteria (setting a standard of care and measuring practice against this standard) and the implementation of change (improvement where possible).[10] The purpose of this work is to audit the gynaecological operations that were performed at Ramaiah Medical College and Hospital during the year of 2025 to assess their indications, complications and days of hospital stay for each type of operations.

METHODS

This retrospective observational audit was conducted in the Department of Obstetrics and Gynaecology at Ramaiah Medical College and Hospital, Bengaluru, Karnataka, India. The hospital is a tertiary care teaching institution that provides a wide range of obstetric and gynaecological services to both urban and semi-urban populations. The audit covered all gynaecological surgeries performed between 1st January and 31st March 2025, with the objective of evaluating surgical effectiveness, outcomes, and adherence to established clinical standards based on international guidelines such as those of the American College of Obstetricians and Gynecologists (ACOG) and the Royal College of Obstetricians and Gynaecologists (RCOG).

The study population consisted of all non-pregnant women who underwent gynaecological surgical procedures during the study period. Both elective and emergency cases were included, encompassing surgeries such as hysterectomy, myomectomy, prolapse repair, laparoscopy, hysteroscopy, cystectomy, and drainage of Bartholin abscesses. Obstetric surgeries, minor outpatient procedures not requiring anaesthesia or hospital admission, and patients with incomplete or missing medical records were excluded from the analysis. A total of 52 patients who met the inclusion criteria were identified using a convenience sampling method, and all were included in the audit. As this was an audit of all procedures performed within a fixed period, no formal sample size calculation was required.

Data were collected retrospectively from hospital medical records, operative notes, and discharge summaries. A structured proforma was designed to capture all relevant information, including demographic characteristics, comorbidities, presenting complaints, surgical indications, type and route of surgery, anaesthesia used, intraoperative and postoperative complications, and duration of hospital stay. To ensure accuracy, all data entries were verified independently by two investigators and cross-checked with the operation theatre registry. Intraoperative parameters such as estimated blood loss and transfusion requirements were also documented from anaesthesia and surgical records. Postoperative complications such as wound infection, urinary or bowel injury, and sepsis were reviewed from the case sheets and follow-up notes.

All surgical procedures were performed by qualified gynaecologists under aseptic precautions and in accordance with institutional protocols. The anaesthetic agents used included bupivacaine (AstraZeneca Pharma India Ltd., Bengaluru, India) for spinal anaesthesia and propofol (Fresenius Kabi India Pvt. Ltd., Pune, India) for general anaesthesia. Antibiotic prophylaxis was routinely administered using ceftriaxone (Sun Pharmaceutical Industries Ltd., Mumbai, India) intravenously prior to skin incision, as per hospital policy. Laparoscopic and endoscopic surgeries were conducted using standard instruments manufactured by Karl Storz GmbH & Co. KG (Tuttlingen, Germany), and electrosurgical units used were from Ethicon Endo-Surgery Inc. (Cincinnati, USA). No experimental drugs, chemicals, or unapproved devices were employed during the study period.

The primary outcome measures of the audit included the distribution and frequency of gynaecological surgeries performed; their clinical indications, intraoperative and postoperative complications, and duration of hospital stay. Secondary outcomes included comparison of the hospital's surgical practices with international standards, specifically those outlined in ACOG (2017) and RCOG (2020) guidelines, to evaluate adherence to recommended surgical routes and approaches for benign gynaecological conditions.

All data were entered into Microsoft Excel 2021 (Microsoft Corporation, USA) and subsequently analysed using IBM SPSS Statistics for Windows, Version 26.0 (IBM Corporation, Armonk, New York, USA). Descriptive statistical methods were applied to summarize the data. Categorical variables such as type of surgery, anaesthesia, and complications were expressed as frequencies and percentages, whereas continuous variables such as age and duration of hospital stay were summarized as mean with standard deviation. Graphical representations, including bar and pie charts, were generated where appropriate to illustrate the distribution of surgical categories and outcomes. As this was a retrospective audit without intervention or hypothesis testing, inferential statistics were not applied.

Ethical clearance for the study was obtained from the Institutional Ethics Committee of Ramaiah Medical College, Bengaluru. As the study involved retrospective review of medical records without any direct patient contact or intervention, the need for individual informed consent was waived. Confidentiality of patient identity and medical information was strictly maintained throughout data handling and analysis. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki (2013 revision) and the Indian Council of Medical Research (ICMR) National Ethical Guidelines for Biomedical and Health Research Involving Human Participants (2017).

All methodological details, including inclusion criteria, data extraction techniques, and statistical methods, have been described comprehensively to ensure that this audit can be reproduced by other investigators under similar institutional conditions. The data collection templates and analysis spreadsheets are available from the corresponding author upon reasonable request.

RESULTS

During the three-month study period from January to March 2025, a total of 52 gynaecological surgeries were performed at Ramaiah Medical College and Hospital. The majority of patients were in the age group of 50 to 55 years, accounting for 17% of the total cases. The most common presenting complaint among these patients was abnormal uterine bleeding, observed in 38% (n=17) of cases, followed by abdominal pain, which was reported by 23% (n=12) of patients.

Hysterectomy was the most frequently performed surgical procedure, comprising 46% of all gynaecological operations. Among these hysterectomies, abnormal uterine bleeding was the leading indication in 50% of cases. Endoscopic procedures represented 50% of all surgeries and included 17 hysteroscopic procedures (32%) and 9 laparoscopic procedures (17%). Abdominal surgeries accounted for 9 cases (17%), while 15 procedures (28.8%) were performed via the vaginal route. Robotic-assisted surgeries were relatively few, with only two cases (3.8%) recorded during the study period.

Table 1: Age distribution of patients (n=52).

Age group (years)	Frequency
25-30	3
30-35	3
35-40	5
40-45	7
45-50	5
50-55	9
55-60	7
60-65	3
65-70	4
70-75	2
75-80	2
>80	2

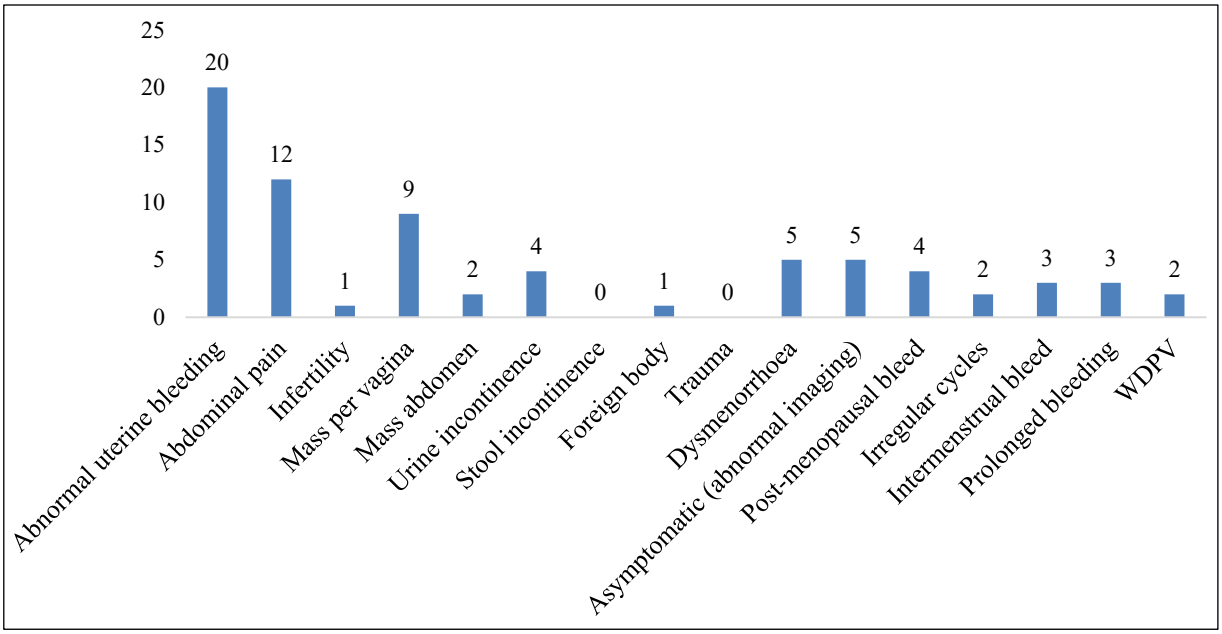

Figure 1: Presenting complaints and clinical symptoms (n=52).

With respect to the surgical route, hysterectomies were predominantly performed vaginally in 12 cases (50%), followed by the abdominal route in 7 cases (29%), and the remainder through laparoscopic and robotic approaches. Other miscellaneous procedures performed during the study included vaginal foreign body removal, vaginal cyst excision, myomectomy, cystectomy, and prolapse repair surgeries.

The most frequently encountered intraoperative complication was excessive blood loss necessitating blood transfusion, primarily observed in patients who were anaemic preoperatively. There were no major visceral injuries, sepsis, or mortality reported. The most commonly used form of anaesthesia was spinal anaesthesia, administered in 62% (n=32) of cases, especially for vaginal procedures. The mean duration of hospital stay varied according to the type of surgery, with the longest stays of approximately three to five days observed among patients who underwent abdominal hysterectomy, most of which were performed under spinal anaesthesia.

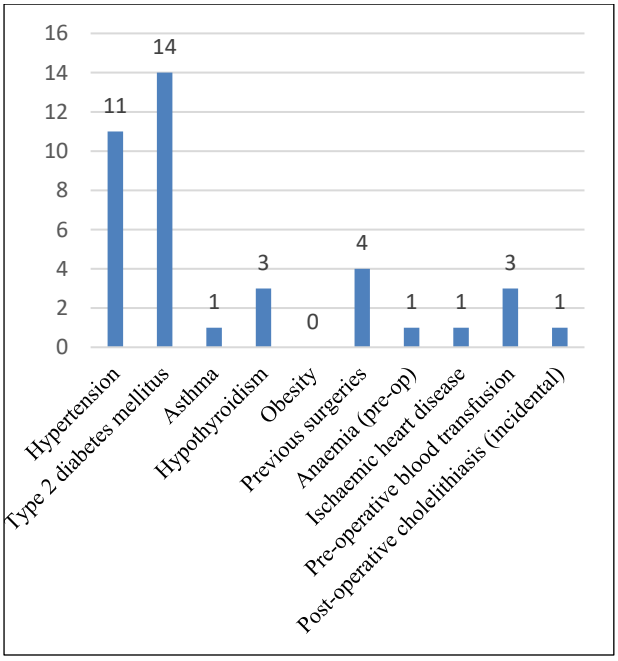

Figure 2: Co-morbidities and preoperative clinical parameters (n=52).

Table 2: Types of gynaecological surgeries performed (n=52).

Surgery type	Frequency
Abdominal	9
Endoscopic-laparoscopic	9
Endoscopic-hysteroscopic	17
Vaginal	15
Robotic	2

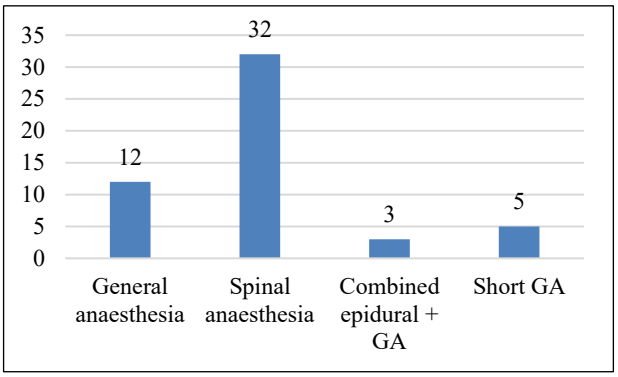

Figure 3: Types of anaesthesia used (n=52).

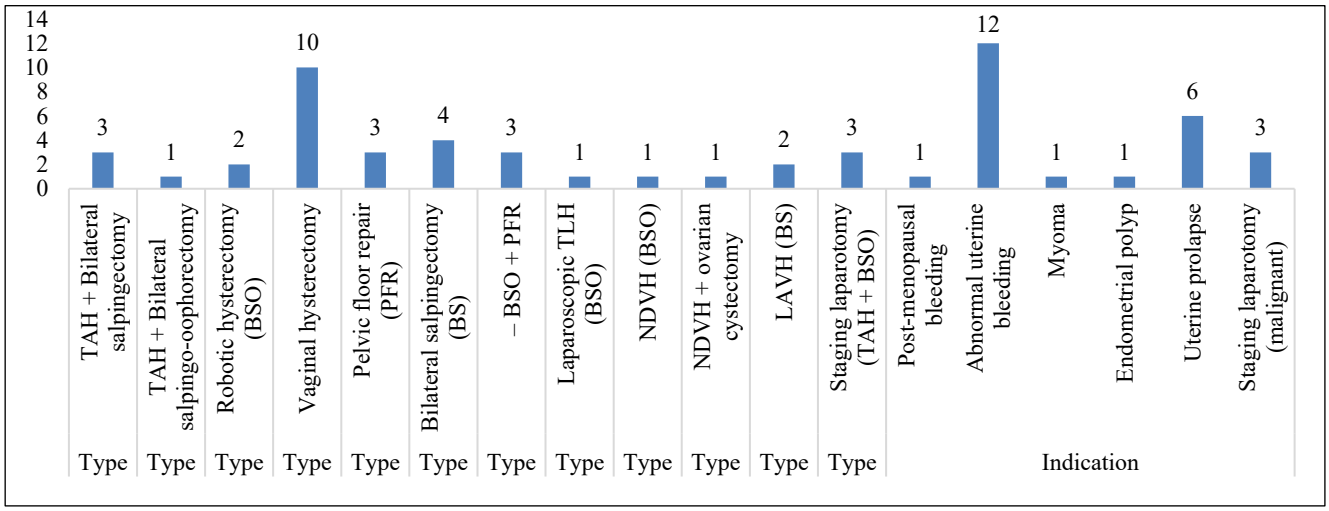

Figure 4: Hysterectomy-types and indications (n=24).

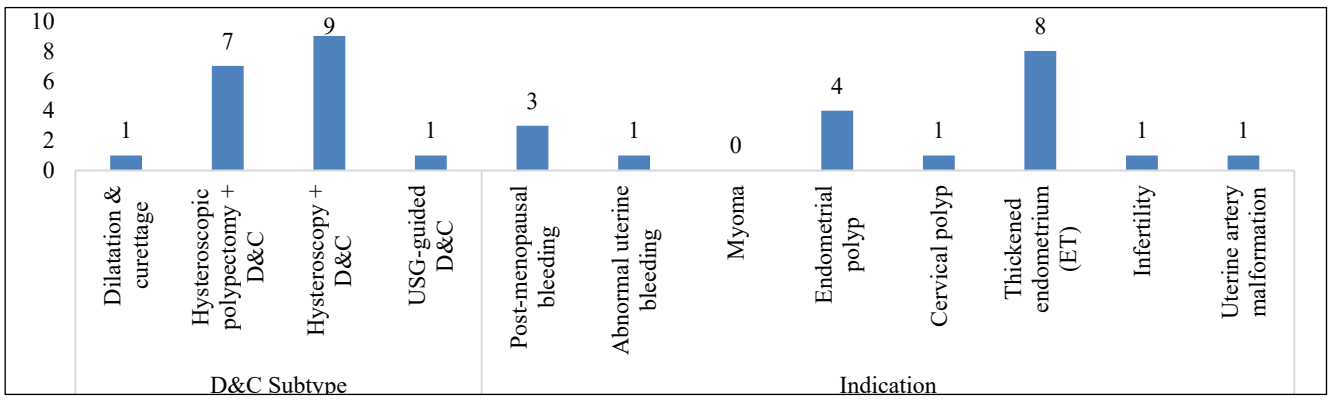

Figure 5: D&C procedures and indications (n=18 + 19).

Table 3: Laparoscopic indications (n=12).

Indication	Frequency
Fibroid uterus	2
Adnexal mass (torsion/dermoid)	3
Premalignant cervical lesion	1
Primary infertility	1
Secondary infertility	1
Endometrial polyp	1
Others-PMB/prolapse/adenomyosis/AUB	0

Table 4: Intraoperative and postoperative complications (n=52).

Complication	Frequency
Major intraoperative blood loss	1
Intraoperative blood transfusion	1
Post-operative blood transfusion	4
Visceral injury-bladder/ureter	0
Bowel injury	0
Sepsis	0

Table 5: Duration of hospital stay (n=52).

Duration of stay	Frequency
Day-care surgery	4
1-2 days	16
3-5 days	23
5-7 days	7
>7 days	2

DISCUSSION

The audit of 52 gynaecological surgeries performed at Ramaiah Medical College and Hospital over a three-month period (January-March 2025) provides meaningful insight into current surgical practice in a tertiary-care Indian setting. In our series, hysterectomy accounted for 46% of procedures, with abnormal uterine bleeding (AUB) as the leading indication (38% of cases; 50% among hysterectomies). This is broadly in line with existing literature: for example, a prospective non-randomised trial by Chen et al. found vaginal hysterectomy (VH) superior to abdominal hysterectomy (AH) in benign disease settings, reporting shorter hospital stay, less blood loss and fewer complications.[11]

The age distribution in our audit majority in 50-55 years reflects the typical perimenopausal/post-menopausal demographic, similar to findings from Panda et al in 2022 where non-descent vaginal hysterectomy (NDVH) and laparoscopic hysterectomy groups had mean ages in the mid-40s to 50s.[12]

Key in our findings is the surgical route: 50% of hysterectomies were via the vaginal route, followed by abdominal and laparoscopic/robotic approaches. This contrasts with older Indian audits where the abdominal route predominated (often >70%). Studies emphasise that VH should be the preferred approach when feasible, per the American College of Obstetricians and Gynecologists (ACOG) Committee Opinion No. 701, which states that VH has best outcomes among benign disease routes.[13]

Our endoscopic procedures (hysteroscopic + laparoscopic) accounted for 50% of total surgeries, indicating adoption of minimally-invasive techniques. Housmans et al systematic review on hysterectomy via vaginal natural orifice transluminal endoscopic surgery (vNOTES) compared with laparoscopic routes found that vaginal/natural-orifice techniques may offer shorter operating time and shorter hospital stay, although data are heterogeneous.[14] In our series, the shorter hospital stays observed for vaginal and endoscopic routes (1-2 days for endoscopic/day-care; 3-5 days for abdominal hysterectomy) mirror these global trends. A study comparing AH, VH and total laparoscopic hysterectomy (TLH) from Reddy & Reddy in 2016 found that laparoscopic hysterectomy had the least blood loss and shortest hospital stay (though requiring greater laparoscopic expertise).[15]

Complication rates in our audit were low, with the most common issue being intraoperative blood loss requiring transfusion in anaemic patients. No major visceral injuries or sepsis were recorded. This aligns with evidence that minimally invasive routes (VH, TLH) carry fewer perioperative morbidities. In the comparative review by Sonkusare et al in 2024, NDVH had lower blood loss and shorter operative time than TLH in many studies, though the review noted that hospital stay differences were less consistent.[16]

Our predominant use of spinal anaesthesia (62% of cases, especially for vaginal surgeries) corresponds with efficient recovery protocols seen in other Indian settings, where spinal/regional anaesthesia is favoured for vaginal hysterectomy due to reduced postoperative pain and earlier mobilisation. The shorter length of stay identified in our vaginal and endoscopic procedures reinforces the principle that surgical route selection guided by patient factors, surgeon skill, and resource availability directly impacts outcomes.

These findings suggest that our centre is aligned with current recommendations favouring minimally invasive and vaginal routes when feasible. The higher rate of vaginal hysterectomy and significant proportion of endoscopic procedures indicate a shift from more traditional abdominal-dominant approaches seen in previous decades. In doing so, our audit supports the notion that periodic surgical audit acts as a quality-assurance mechanism to benchmark practice, identify gaps (e.g., pre-operative anaemia optimisation) and guide training and service planning.

This study has few limitations. Being a retrospective single-centre audit covering only three months and 52 cases, the sample size is modest and may limit generalisability. The analysis was descriptive, with no inferential statistical testing or long-term follow-up of outcomes such as recurrence, patient satisfaction or quality of life. Surgeon experience and selection bias (e.g., case suitability for vaginal route) were not quantified. These limitations suggest that while our findings are encouraging, they require validation through prospective multicentre studies with larger cohorts and extended follow-up.

CONCLUSION

This audit highlights that most gynaecological surgeries at Ramaiah Medical College and Hospital were performed in accordance with current ACOG and RCOG recommendations, emphasising minimally invasive approaches whenever feasible. Vaginal hysterectomy emerged as the preferred route, associated with fewer complications, shorter hospital stay, and better recovery compared to abdominal procedures. The growing adoption of laparoscopic and hysteroscopic surgeries reflects the institution's commitment to evidence-based and patient-centred care. Although the study was limited by its retrospective design and small sample size, it provides valuable insights into surgical practice trends. Regular surgical audits should be continued to monitor outcomes, enhance clinical standards, and ensure continuous improvement in gynaecological surgical care and patient safety.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee of Ramaiah Medical College, Bengaluru (Approval No. RMH/IEC/2025/OBG/027)

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