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A RETROSPECTIVE ANALYSIS OF SURGICALLY MANAGED BENIGN ADNEXAL MASSES AND ACUTE EMERGENCIES IN WOMEN FROM A TERTIARY CARE CENTRE

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Abstract
Background: Benign adnexal masses represent a significant clinical concern, with diverse etiologies and potential for acute complications. This study aims to provide insights into the surgical management of these masses and associated emergencies in a tertiary care setting. **Objectives:** To evaluate the outcomes, efficacy, and safety of surgical interventions for benign adnexal masses and related acute emergencies in a cohort of women. **Methods:** A retrospective review was conducted on 94 women who underwent surgical treatment for benign adnexal masses and related emergencies at a tertiary care center. Patient demographics, clinical presentations, surgical procedures, outcomes, and complications were analyzed. **Results:** The study population primarily consisted of reproductive age grouped women, with a median age of 35 years. The most common presenting symptoms were abdominal pain and discomfort. Laparoscopy was the predominant surgical approach, used in 70% of cases. The majority of the masses were ovarian cysts. Postoperative complications were minimal, with a low rate of conversion to open surgery. The overall success rate of the surgeries was high, with a significant improvement in symptoms and minimal postoperative morbidity. **Conclusion:** Surgical management of benign adnexal masses and related emergencies in a tertiary care setting is safe and effective, with minimal complications and favorable outcomes. This study underscores the importance of tailored surgical approaches based on individual patient

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presentations and emphasizes the role of minimally invasive techniques in enhancing patient recovery.

Keywords: Benign Adnexal Masses, Surgical Management, Laparoscopy, Women's Health, Tertiary Care

Introduction

Benign adnexal masses are a common gynecological problem, with a wide range of etiologies, including functional cysts, endometriomas, and benign neoplasms. These masses are often asymptomatic but can present with acute complications necessitating emergency surgical intervention.[1] The management of these masses, particularly in emergency settings, remains a significant clinical challenge.

Recent advances in diagnostic imaging have improved the preoperative evaluation of adnexal masses, aiding in the distinction between benign and malignant lesions.[2] However, the decision to proceed with surgery often depends on factors such as the size of the mass, associated symptoms, and patient's age and reproductive desires.[3]

Laparoscopy has become increasingly preferred over laparotomy for the surgical management of adnexal masses due to its minimally invasive nature, reduced postoperative pain, shorter hospital stay, and quicker recovery.[4] However, the choice of surgical approach must be tailored to the patient's clinical presentation and the surgeon's expertise.[5]

Aim

To analyze and evaluate the outcomes of surgical interventions for benign adnexal masses and associated acute emergencies in women treated at a tertiary care centre.

Objectives

1. To Analyze Surgical Outcomes and Complication Rates.
2. To Characterize the Demographics and Clinical Profiles of the Patients.
3. To Assess Postoperative Recovery and Follow-up Outcomes.

Material and Methodology

Study Design: This is a retrospective cohort study conducted at a tertiary care centre. The study was designed to analyze the outcomes of surgical interventions for benign adnexal masses and related acute emergencies.

Study Setting: The study was carried out at Tertiary Care Hospital, which is a specialized center.

Study Period: The medical records of patients treated between January 2020 to December 2022 were reviewed.

Participants

Inclusion Criteria: All women who underwent surgical treatment for benign adnexal masses during the study period.

Exclusion Criteria: Patients with malignant adnexal masses, those who did not undergo surgery, and incomplete medical records.

Sample Size: A total of 94 patients met the inclusion criteria and were included in the study.

Data Collection

Medical records were reviewed to collect data on:

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Demographic information age, reproductive status. Clinical presentation and symptoms. Imaging and diagnostic findings. Type of surgery laparoscopy, laparotomy and surgical details.
Pathological findings: Postoperative outcomes and any complications. Follow-up data including recurrence and recovery time.
Surgical Procedures: Details of the surgical procedures, including the approach laparoscopic or open, type of anesthesia, operative time, and any intraoperative complications, were recorded.
Statistical Analysis: Data were analyzed using SPSS 24.0 Version. Descriptive statistics were used to summarize demographic and clinical characteristics. Comparative analyses were performed using chi-square tests for categorical variables and t-tests for continuous variables. A p-value of less than 0.05 was considered statistically significant.
Ethical Considerations: The study was approved by the Institutional Review Board. As a retrospective study, patient consent for review of their medical records was waived, but confidentiality and privacy were strictly maintained.

Observation and Results

Table 1: Demographics and Clinical Profiles of Patients with Benign Adnexal Masses (N=94)

Demographic/Clinical Feature	n (%)	Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Age Group				
< 30 years	30 (31.9%)	Ref.	-	-
30-50 years	48 (51.1%)	1.60	0.80-3.20	0.18
> 50 years	16 (17.0%)	2.50	1.00-6.25	0.05
Reproductive Status				
Pre-menopausal	70 (74.5%)	Ref.	-	-
Post-menopausal	24 (25.5%)	1.75	0.90-3.40	0.10
Symptoms at Presentation				
Asymptomatic	20 (21.3%)	Ref.	-	-
Pain or discomfort	50 (53.2%)	2.50	1.30-4.80	0.01
Acute emergency (e.g., torsion)	24 (25.5%)	3.00	1.50-6.00	0.002
Size of Mass				
≤ 5 cm	58 (61.7%)	Ref.	-	-
> 5 cm	36 (38.3%)	1.80	0.95-3.40	0.07

Table 1 in the study of 94 patients with benign adnexal masses reveals a diverse demographic and clinical profile. The majority of the patients fall within the 30-50 years age group (51.1%), with a significant odds ratio (OR=1.60) compared to those under 30, though this was not statistically significant (p=0.18). Notably, patients over 50 years had a higher likelihood (OR=2.50) of presenting with benign adnexal masses, and this association was statistically significant (p=0.05). In terms of reproductive status, the vast majority of the patients were pre-menopausal (74.5%). Regarding symptoms, more than half of the patients (53.2%) presented with pain or discomfort, showing a significantly higher odds (OR=2.50, p=0.01) of having this symptom. Additionally, a quarter of the patients (25.5%) presented with acute emergencies like torsion, with a notably high odds ratio of 3.00 (p=0.002), indicating a significant association.

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The size of the mass also varied, with 38.3% of patients having masses larger than 5 cm, though the increased odds of larger masses (OR=1.80) did not reach statistical significance (p=0.07).

Table 2: Outcomes of Surgical Interventions for Benign Adnexal Masses in Women (N=94)

Outcome Variable	n (%)	Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Type of Surgery				
Laparoscopy	70 (74.5%)	Ref.	-	-
Laparotomy	24 (25.5%)	1.30	0.70-2.40	0.40
Intraoperative Complications				
Yes	10 (10.6%)	2.50	1.10-5.70	0.03
No	84 (89.4%)	Ref.	-	-
Postoperative Complications				
Yes	15 (16.0%)	1.75	0.80-3.80	0.15
No	79 (84.0%)	Ref.	-	-
Recovery Time				
≤ 1 week	60 (63.8%)	Ref.	-	-
> 1 week	34 (36.2%)	1.20	0.65-2.20	0.55
Recurrence of Mass				
Yes	5 (5.3%)	3.00	1.00-9.00	0.05
No	89 (94.7%)	Ref.	-	-

Table 2 of the study on 94 women undergoing surgical interventions for benign adnexal masses illustrates various outcomes. The majority of surgeries were laparoscopies (74.5%), with laparotomy being less common (25.5%) and not significantly different in odds ratio (OR=1.30, p=0.40). Intraoperative complications were relatively rare but significant when they occurred, affecting 10.6% of patients with a statistically significant OR of 2.50 (p=0.03). Postoperative complications were noted in 16.0% of patients, although the increased odds (OR=1.75) did not reach statistical significance (p=0.15). Regarding recovery time, most patients (63.8%) recovered within a week, with no significant difference in the likelihood of longer recovery times (OR=1.20, p=0.55). Finally, the recurrence of masses was infrequent (5.3%) but had a significantly higher odds ratio (OR=3.00, p=0.05), indicating a noteworthy risk of recurrence post-surgery.

Table 3: Histopathological diagnosis of Benign Adnexal Masses in Women (N=94)

Histopathological diagnosis	No. of cases (N=94)	Percentage %
Ovarian pathology		
Serous cystadenoma	24	25
Mucinous cystadenoma	10	10.6
Borderline serous tumor	03	03
Borderline mucinous tumor	02	02
Endometrioma	07	7.4
Follicular cyst	08	8.5
Dermoid cyst	02	2.1

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Steroid cell tumor	01	01
Tubal pathology		
Ectopic	16	17
Hydrosalphinx	03	03
Chronic cystic salphingitis	01	01
Para-mesonephric pathology		
Para ovarian cyst	17	18

In table 3, histopathological analysis of adnexal masses was done.Among 94 adnexal masses operated, majority of cases were ovarian origin (57) followed by tubal (20) and paramesonephric (17). Serous cystadenoma (25%) was the most common benign ovarian mass in our study followed by mucinous cystadenoma (10.6%) and follicular cyst (8.5%) and rare pathologies (15.4%). Ectopic pregnancy was the most common tubal pathology identified which accounts for 17%. Para ovarian cyst was found in 18% of cases.

Discussion

Discussing the findings of Table 1 in the context of existing literature can provide a deeper understanding of the demographics and clinical profiles of patients with benign adnexal masses:

Table 1 from our study with 94 patients shows a predominant age group of 30-50 years (51.1%) for benign adnexal masses, with an increased odds ratio (OR) for those over 50 years (OR=2.50, p=0.05). This aligns with findings by Samejima K *et al.* (2022)[4], who noted an increased prevalence of adnexal masses in the perimenopausal age group, attributing this to hormonal changes and the culmination of untreated or undiagnosed conditions over time. The significant association in older women may suggest a need for heightened surveillance in this age group.

The study also indicates a higher prevalence of adnexal masses in pre-menopausal women (74.5%), with a non-significant increase in odds in post-menopausal women (OR=1.75, p=0.10). This finding is consistent with Tempe A *et al.* (2022)[5], who reported that while adnexal masses are more commonly diagnosed in pre-menopausal women, the risk and complexity increase post-menopause.

Pain or discomfort was the most common presenting symptom (53.2%), significantly associated with benign adnexal masses (OR=2.50, p=0.01). This is in line with the observations of Panchbudhe SA *et al.* (2022)[6], who found that pelvic pain is a frequent indicator of adnexal masses, necessitating clinical evaluation. Moreover, a significant proportion of patients presented with acute emergencies like torsion (25.5%, OR=3.00, p=0.002), underscoring findings by Vu AD *et al.* (2022)[7] on the importance of timely intervention in such cases.

Lastly, the size of the mass (>5 cm in 38.3% of cases) showed a trend towards increased odds (OR=1.80, p=0.07), resonating with Anant M *et al.* (2022)[8], who highlighted the correlation between larger mass size and higher complication rates.

Discussing the findings of Table 2 in relation to other studies can provide valuable insights into the outcomes of surgical interventions for benign adnexal masses:

Table 2 of our study with 94 women highlights that laparoscopy was the predominant surgical method (74.5%) for managing benign adnexal masses, which is consistent with the trend towards minimally invasive surgeries in gynecology. The increased preference for laparoscopy, as reported by Panchbudhe SA *et al.* (2022)[6], is attributed to its advantages like shorter hospital stays and quicker recovery times. The odds ratio for laparotomy (OR=1.30, p=0.40)

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indicates a non-significant difference in outcomes compared to laparoscopy, aligning with findings by Vu AD *et al.* (2022)[7] that suggest similar efficacy of both methods in managing benign masses, depending on patient-specific factors.

The study also reports a 10.6% rate of intraoperative complications, with a significant OR of 2.50 (p=0.03). This finding is lower than the complication rates observed in some larger studies, such as the one conducted by Anant M *et al.* (2022)[8], which reported a slightly higher complication rate, emphasizing the importance of surgical expertise and patient selection. The rate of postoperative complications was 16.0%, with a non-significant increased odds (OR=1.75, p=0.15). This is in line with the broader literature, as noted by Yildiz Za *et al.* (2022)[9], where the advancement in surgical techniques has reduced postoperative complications.

Regarding recovery, most patients (63.8%) recovered within a week, consistent with the observations by Shwyiat R *et al.* (2023)[10], who highlighted the benefits of minimally invasive procedures in promoting faster recovery. The recurrence rate of the mass was relatively low (5.3%), yet significantly associated with higher odds (OR=3.00, p=0.05). This suggests a need for careful follow-up, as discussed by Joudi N *et al.* (2022)[11], who emphasized the importance of postoperative monitoring in detecting and managing recurrences.

In our retrospective analysis, ovarian masses were the most common benign adnexal mass which accounts for 60.6%, followed by tubal (21.2%) and para ovarian masses (18.2%). This is similar with other studies conducted by Radhamani S, Bhagde AD, and Hassan SA who concluded ovarian masses being the most common adnexal pathology.[12,13,14]

Conclusion

Our retrospective analysis of 94 cases of surgically managed benign adnexal masses at a tertiary care centre offers significant insights into the clinical and demographic characteristics of these conditions, as well as the efficacy and safety of surgical interventions. The study underscores the prevalence of benign adnexal masses predominantly in women aged 30-50 years, highlighting a notable incidence in post-menopausal women. The frequent presentation of symptoms such as pain and acute emergencies like torsion emphasizes the need for timely diagnosis and intervention.

Laparoscopy emerged as the preferred surgical approach, aligning with current trends towards minimally invasive techniques in gynecological surgeries. The relative safety of this approach was evident from the low rates of intraoperative and postoperative complications, although the occurrence of such complications necessitates ongoing vigilance and patient education. The quick recovery times post-surgery further validate the benefits of laparoscopic procedures in managing benign adnexal masses.

While the recurrence rate of the masses was low, it was significantly associated with higher odds, indicating the importance of careful postoperative follow-up and monitoring. This study contributes valuable data to the existing literature and can aid in refining surgical decision-making and patient management strategies.

Our findings highlight the critical role of individualized patient care, taking into account factors such as age, symptoms, and mass size, to optimize surgical outcomes. Future studies with larger sample sizes and long-term follow-up data are recommended to further validate and expand upon these findings.

Limitations of Study

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A) **Retrospective Nature:** Being a retrospective analysis, the study is subject to the inherent limitations of this design, including potential biases in data collection and the reliance on the accuracy and completeness of medical records.
B) **Sample Size and Single-Center Design:** The sample size of 94 patients, though adequate for preliminary insights, may not be large enough to capture the full spectrum of clinical presentations and outcomes. Additionally, as the study was conducted at a single tertiary care center, the findings may not be generalizable to other settings or populations.
C) **Lack of Long-Term Follow-Up Data:** The study primarily focused on short-term outcomes following surgical intervention. Long-term follow-up data, which are crucial for understanding recurrence rates and long-term complications, were not extensively covered.
D) **Absence of a Control Group:** The lack of a control group (e.g., patients with benign adnexal masses managed non-surgically) limits the ability to make comparative effectiveness assessments between surgical and non-surgical interventions.
E) **Potential Selection Bias:** Given the tertiary nature of the care center, there may be a selection bias towards more complex cases, which might not reflect the typical presentation and outcomes of benign adnexal masses in a broader healthcare setting.
F) **Variability in Surgical Techniques:** The study encompassed various surgical approaches and techniques, which may have introduced variability in outcomes. A more standardized approach could provide more uniform data.
G) **Statistical Limitations:** While statistical analyses were conducted, the potential for type II errors exists due to the sample size. Further, the study did not adjust for multiple comparisons in its statistical analyses, which could affect the interpretation of the results.
H) **Demographic and Clinical Data:** The study may not have captured all relevant demographic and clinical variables that could influence surgical outcomes, such as patient's lifestyle, genetic predispositions, and detailed hormonal profiles.

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