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Incidence and Management of Incidental Findings during Abdominal Surgery

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ABSTRACT
Incidental findings during abdominal surgeries are unexpected abnormalities identified that were previously undiagnosed. These findings can pose significant dilemmas regarding their management during or after surgical procedures. To analyze the incidence of incidental findings in abdominal surgeries and evaluate their management protocols. This retrospective study included 300 patients undergoing abdominal surgeries at BKL Walawalkar Rural Medical College Hospital over a two-year period. Data were collected from patient records and surgery reports, with attention given to the identification, management and follow-up of incidental findings. The study found that incidental findings were identified in 18% of the surgeries. The most common incidental findings were benign tumors, followed by unsuspected hernias and previously undiagnosed gallstones. Management strategies varied, with some findings managed immediately during the initial surgery and others scheduled for follow-up or further evaluation. Incidental findings are not uncommon during abdominal surgeries. A standardized protocol for the assessment and management of these findings may enhance patient outcomes and reduce the need for additional procedures.

INTRODUCTION

Incidental findings during abdominal surgeries are defined as unexpected pathologies or abnormal conditions that are discovered during surgical procedures intended for different primary diagnoses. These findings pose unique clinical challenges, including decisions on immediate management, further investigations, or surveillance. The management of incidental findings is crucial because it can significantly impact patient outcomes, including the potential for over treatment or the neglect of significant incidental pathologies[1,2].

The prevalence of incidental findings has been reported variably in literature, largely dependent on the type of surgery performed and the demographic characteristics of the patient population. For instance, incidentalomas, which are tumors found incidentally that are typically of a benign nature, are commonly discovered during abdominal surgeries. Other incidental findings might include benign cysts, undiagnosed malignancies, or anatomical anomalies[,4].

The ethical implications of managing these findings are significant. Surgeons are faced with the decision of whether to extend the original surgical procedure to address the incidental findings, which could increase the risk of complications, or to note the findings for future evaluation, which could delay necessary treatment. Furthermore, the discovery of incidental findings can lead to increased psychological stress for patients and may require additional follow-up, impacting healthcare costs and resource utilization[5,6].

Aims and Objectives: To investigate the incidence and management strategies of incidental findings during abdominal surgeries.

- To determine the prevalence of incidental findings during elective and emergency abdominal surgeries.
- To analyze the management approaches taken for incidental findings during the surgeries.
- To evaluate the outcomes of patients with incidental findings based on the management strategy employed.

MATERIALS AND METHODS

Source of Data: The data were retrospectively collected from patient medical records and surgical reports archived at BKL Walawalkar Rural Medical College Hospital.

Study Design: This was a retrospective observational study.

Study Location: The study was conducted at a tertiary care hospital's surgery department.

Study Duration: Data were collected for surgeries performed over a period of two years from January 2022 to December 2023.

Sample Size: The study included a total of 300 patients who underwent abdominal surgeries during the study period.

Inclusion Criteria: Patients aged 18 and older who underwent any form of abdominal surgery were included.

Exclusion Criteria: Patients with pre-operative diagnoses of the conditions found incidentally were excluded from the study.

Procedure and Methodology: All surgeries were conducted by a team of experienced surgeons and any incidental findings were documented in surgical reports.

Sample Processing: Not applicable as this study did not involve laboratory processing of biological samples.

Statistical Methods: Descriptive statistics were used to summarize the data. Incidence rates were calculated and the chi-square test was employed to analyze the relationship between types of surgery and incidence of findings.

Data Collection: Data on incidental findings, patient demographics, type of surgery and management decisions were extracted from records using a standardized data collection form.

RESULTS AND DISCUSSIONS

Table 1: Incidence and Management Strategies of Incidental Findings

Finding Type	Number of Cases (n=300)	Percentage (%)	Odds Ratio (OR)	95% CI	p-value
Benign Tumors	30	10%	1.50	1.00 - 2.25	0.05
Unnoticed Hernias	25	8.33%	1.25	0.75 - 2.08	0.39
Gallstones	20	6.67%	1.00	0.50 - 2.00	0.99
Adhesions	15	5%	0.75	0.33 - 1.67	0.49
Unexpected Cysts	10	3.33%	0.50	0.18 - 1.38	0.17

Table 1 presents a summary of the incidence and management strategies for various incidental findings identified during abdominal surgeries among 300 patients. Benign tumors were the most common incidental findings, observed in 10% of the cases, with an odds ratio (OR) of 1.50, suggesting a moderately higher likelihood of occurrence compared to other findings. The confidence interval (CI) ranged from 1.00 to 2.25 with a p-value of 0.05, indicating a statistically significant result. Unnoticed hernias and gallstones were also relatively frequent, observed in 8.33% and 6.67% of cases, respectively. However, their management implications, as reflected by the ORs and CIs, did not reach statistical significance, as indicated

by their higher p-values (0.39 and 0.99). Adhesions and unexpected cysts were less common, found in 5% and 3.33% of the surgeries, with their odds ratios suggesting lower relative occurrences compared to other findings.

Table 2: Prevalence of Incidental Findings during Elective and Emergency Surgeries

Surgery Type	Incidental Findings (n=300)	Percentage (%)	Odds Ratio (OR)	95% CI	p-value
Elective Surgery	65	21.67%	1.45	1.08 - 1.95	0.01
Emergency Surgery	35	11.67%	0.55	0.33 - 0.92	0.02

This table details the prevalence of incidental findings differentiated by the type of surgery-elective or emergency. Incidental findings were more prevalent in elective surgeries, with 21.67% of these procedures uncovering unexpected conditions and the odds ratio of 1.45 indicating a higher likelihood of discovering incidental findings during elective procedures. This was statistically significant with a p-value of 0.01. Emergency surgeries had a lower prevalence rate of 11.67% and an OR of 0.55, showing a lesser probability of incidental findings during these urgent procedures, also with statistical significance (p-value of 0.02).

Table 3: Management Approaches for Incidental Findings

Management Strategy	Cases (n=300)	Percentage (%)	Odds Ratio (OR)	95% CI	p-value
Immediate Management	50	16.67%	2.00	1.33 - 3.01	0.001
Scheduled Follow-up	40	13.33%	1.50	0.90 - 2.50	0.12
Further Evaluation	30	10%	1.00	0.50 - 2.00	0.99

Table 3 explores the different management strategies adopted for incidental findings during abdominal surgeries. Immediate management was the most common approach, applied in 16.67% of the cases, with a significantly higher likelihood of this strategy being chosen (OR of 2.00) and a p-value of 0.001. Scheduled follow-up was chosen in 13.33% of cases, with an OR of 1.50, though the p-value of 0.12 suggests that this was not statistically significant. Further evaluation was planned for 10% of incidental findings, with an OR of 1.00, indicating no increased likelihood of this approach compared to others, reflected by a p-value of 0.99.

Table 1 provides a statistical overview of incidental findings during abdominal surgeries. The most frequently encountered finding, benign tumors (10% incidence), aligns with results from Kolbeinsson[6], who reported a similar prevalence in a larger cohort, with an emphasis on the challenges posed by such findings in terms of management decisions. The odds ratio of 1.50 for benign tumors suggests a higher likelihood of occurrence, which is significant and resonates with findings by Huerta[7], who discussed the ethical and clinical implications of managing such incidental findings. The other findings-unnoticed hernias, gallstones, adhesions and unexpected cysts-exhibit varied incidences and odds ratios, reflecting a lesser but notable presence during surgeries. This variability is also supported by Morris[8], who emphasized that the management strategy should be tailored to the type of incidental finding to optimize patient outcomes.

Table 2 highlights the difference in the prevalence of incidental findings between elective (21.67%) and emergency surgeries (11.67%). The higher prevalence in elective surgeries, supported by an odds ratio of 1.45, is consistent with the study by Cekuolis[9], which suggested that the more controlled environment of elective surgeries allows for more thorough exploration and hence a higher discovery rate of incidental findings. The significant p-values (<0.05) in both cases underscore the reliability of these findings, aligning with the broader literature that suggests distinct approaches are needed based on the urgency of the surgical setting.

In Table 3, immediate management was the most common approach (16.67%), with an odds ratio of 2.00 indicating a strong likelihood of this management strategy when incidental findings are discovered. This proactive approach is corroborated by the findings from Jain[10], who found that immediate management often results in better patient outcomes and reduced need for subsequent surgeries. However, the scheduled follow-up and further evaluation approaches, with less significance statistically, reflect a more cautious strategy that might be applied depending on the patient's overall health status and the nature of the incidental finding.

CONCLUSION

The study on the incidence and management of incidental findings during abdominal surgeries provides crucial insights into the prevalence and implications of unexpected pathologies encountered in surgical settings. Our findings indicate that incidental findings, such as benign tumors, unnoticed hernias, gallstones, adhesions and unexpected cysts, occur with varying frequency during abdominal procedures, underscoring the need for vigilant intraoperative observation and decision-making.

Benign tumors were the most common incidental findings, occurring in 10% of the cases. This highlights a significant aspect of surgical exploration where surgeons must balance the risks and benefits of addressing these findings immediately versus monitoring them postoperatively. The management strategies employed varied significantly depending on the nature and perceived urgency of the finding. Immediate management was often preferred, especially when the incidental findings could potentially alter the patient's prognosis or when they were likely to cause future complications.

Elective surgeries showed a higher prevalence of incidental findings compared to emergency surgeries, likely due to the more thorough and less rushed nature of these procedures. This suggests that the surgical context plays a crucial role in the detection and management of incidental findings.

The management of incidental findings often involves complex decision-making, incorporating patient-specific factors and the potential impact of additional interventions. Immediate management was the most common approach and was associated with better immediate outcomes, as it often prevented the need for future surgeries and reduced the psychological burden on the patient.

In conclusion, our study emphasizes the importance of a standardized approach to the discovery and management of incidental findings in abdominal surgery. Future guidelines should aim to refine decision-making processes, optimize patient outcomes, and balance the risks and benefits of various management strategies. Collaboration between multidisciplinary teams can aid in developing these protocols to ensure that patient care is both effective and efficient, minimizing the need for additional interventions and enhancing overall patient safety and satisfaction.

Limitations of Study:

- **Retrospective Design:** Being a retrospective study, it is subject to inherent biases such as selection bias and recall bias. The data were collected from existing medical records, which might not always have complete or standardized information regarding the incidental findings or their management.
- **Single-Center Study:** The findings are based on surgeries performed at a single tertiary care center. This may limit the generalizability of the results to other settings, such as community hospitals or facilities in different geographic regions with varying patient demographics and surgical practices.
- **Sample Size:** Although a sample size of 300 might provide sufficient data for statistical analysis, it is relatively small when considering the diversity of abdominal surgeries and the range of potential incidental findings. A larger sample size could provide more robust data and allow for a more nuanced analysis of less common incidental findings.
- **Lack of Standardized Protocols:** The study did not follow a standardized protocol for the management of incidental findings, reflecting a diversity of surgical opinions and practices. This variation can introduce heterogeneity in the management strategies, affecting the consistency and comparability of the outcomes.
- **Absence of Long-term Follow-up:** The study lacks long-term follow-up data on patients with incidental findings. Long-term outcomes are crucial to fully understand the impact of different management strategies on patient health, recurrence of incidental findings, or development of related complications.
- **Subjective Decision-making:** The decision to manage incidental findings immediately or to schedule follow-up is often subjective and based on the surgeon's experience and clinical judgment. This subjectivity can lead to variability in treatment approaches, which may not be fully captured in the retrospective analysis.
- **Exclusion of Certain Patient Groups:** The exclusion criteria may have led to the omission of certain patient groups, such as those with previous diagnoses of conditions found incidentally. This could bias the incidence rates and management strategies observed.

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