



NAVIGATING ETHICAL CHALLENGES OF INCIDENTAL FINDINGS IN ABDOMINAL SURGERY

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ABSTRACT

Introduction: In surgery, an intraoperative finding (IF) is an unexpected anomaly discovered during the procedure, unrelated to the original reason for surgery. General Surgery, focusing on abdominal procedures, often encounters incidental findings (IFs), especially in emergencies, due to hidden pathologies. These findings pose ethical challenges as immediate treatment decisions must be made without patient consent. The traffic-light framework categorizes these scenarios into 'green light' (proceed), 'red light' (do not proceed), and 'orange light' (requires careful consideration), aiding clinical decision-making, albeit with limited clinical validation. **Methodology:** This retrospective study analyzes 10 surgical cases addressing abdominal pathologies at Al Ameen Medical College, Vijayapura, from January to May 2024. Cases focused on acute conditions endangering patients' lives or health. Data collection followed Institutional Review Board approval, with all participants providing informed consent for anonymized data use in publication. **Results:** In applying the traffic light IF tool and adhering to best practices for each IF, 70% of cases accurately decided to proceed further during intra-operative management. **Conclusion:** The traffic-light framework effectively guided decisions on intraoperative findings (IFs) in general surgery, enhancing clinical decision-making and addressing ethical dilemmas.

KEYWORDS : Incidental Findings, Abdominal Surgery, Ethics, Traffic light framework.**INTRODUCTION:**

An intraoperative finding (IF) during surgery is defined as the discovery of an unexpected anomaly or condition that was not anticipated before the surgery and is unrelated to the original reason for the procedure.¹

General Surgery is the largest specialty within surgery and is particularly prone to the discovery of incidental findings (IFs) due to its focus on abdominal procedures, especially in emergency settings. The abdomen can conceal numerous pathologies without manifesting symptoms, leading to unexpected discoveries during surgery.²

These incidental findings (IFs) pose an ethical challenge, as surgeons must decide whether to treat them immediately while the patient is under anaesthesia and unable to provide consent. Treating an IF might benefit the patient, but without consent, it could compromise patient autonomy and lead to legal issues.³

To address these challenges, we utilized the traffic-light framework developed by Hall J, Stein S⁴. This framework categorizes scenarios into 'green light' (proceed), 'red light' (do not proceed), and 'orange light' (requires careful consideration). While this tool, aims to aid clinical decision-making, it is important to note that it remains a recommendation and has not been extensively clinically tested.^{4,5}

Objective:

To evaluate the effectiveness and ethical implications of the traffic-light framework in managing intraoperative findings (IFs) in general surgery.

Methodology:**Study Design:**

This study presents a retrospective analysis of 10 cases involving surgical interventions for abdominal pathologies at Al Ameen Medical College, Vijayapura. The study period ranged from January 2024 to May 2024. The selected cases primarily involved conditions posing immediate threats to patients' lives or significantly impacting their immediate health.

Data collection began after obtaining approval from the Institutional Review Board and securing informed consent from all participants. Participants were informed about the study's objectives and the utilization of anonymized data for publication.

Evaluation Framework

The study employed the Traffic Light Method⁶ to assess intraoperative

findings (IF) during surgeries. This method categorizes findings into three color-coded responses:

- **Green Light:** Indicates situations where the surgical team can proceed without hesitation.
- **Red Light:** Highlights conditions where immediate action should not be taken, requiring careful consideration.
- **Orange Light:** Identifies scenarios where decision-making is complex, necessitating structured reflection and discussion among the surgical team.

Procedure and Decision-Making Process

Upon identifying an intraoperative finding, the surgical team followed a structured approach:

- Pause and Reflect
- Consider and Discuss
- Traffic-Light Steps Assessment
- Intraoperative Discussion
- Consultation Protocol

Inclusion Criteria:

1. Patients older than 18 years
2. Patients undergoing laparoscopy or laparotomy that includes intraoperative inspection of the abdominal cavity

Exclusion Criteria:

1. Patients with incomplete data or investigations
2. Patients undergoing gynecological procedures.

Statistical analysis:

The data was entered into an MS Excel sheet, and the results were subsequently presented in tables and figures with numbers and percentages as necessary.

1	On discovery of an IF	Pause and reflect	Follow the Lights		Discuss
			Proceed	Delay	
2	Proceed to treat on IF	Weigh up and balance the seven factors	Unsure whether to treat an IF	Unsure whether to treat an IF	Delay
			Proceed	Delay	Do not immediately treat an IF
	Proceed with immediate treatment of the IF where: • such action is necessary to preserve the patient's life, limb, or vital functions • there is specific consent for treatment of an IF	1. Many/tenuous—implications for patient associated with delay—noncritical	2. Low—subtle risk of immediate treatment—high	3. Strong—evidence of benefit from immediate treatment—weak	4. High—confident immediate treatment fits with patient views—low
	Do not proceed	5. Low—patient burden associated with immediate treatment (e.g. colostomy)—high	6. High—confident IF treatment falls within available surgeon's expertise—low	7. High—resource and access implications for the patient—low	8. High—resource and access implications for the patient—low
3	Decide	Document the decision	Inform the patient		

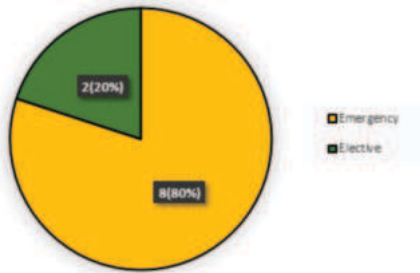
RESULTS:**Figure 1:** Types of Surgery

Figure 1, shows that 80% of the surgeries were emergency procedures, indicating a significant focus on addressing acute, life-threatening conditions. Elective surgeries accounted for 20% of the total cases

Table 1: Surgical Cases with Incidental Findings and Immediate Surgical Interventions.

Case No.	Operation Type	Original Diagnosis	Incidental Finding	IF Treated by Immediate Surgery
1	Emergency	Appendicitis	Inguinal Hernia	Yes, Hernia repair
2	Emergency	Acute Cholecystitis	Appendicitis	Yes, Appendectomy
3	Emergency	Strangulated inguinal hernia	Caecal neuroendocrine cancer	No, Hernia repair
4	Emergency	Appendicitis	Polycystic Ovarian Syndrome	Yes, Ovarian drilling
5	Emergency	Meckel's diverticulum	Appendiceal neuroendocrine cancer	Yes, Appendectomy
6	Elective	Thyroglossal cyst	Thyroid cancer	Yes, Total thyroidectomy
7	Emergency	Acute Cholecystitis	Locally advanced gall bladder cancer	No, cholecystectomy
8	Elective	Umbilical Hernia	Umbilical granuloma	Yes, Granuloma excision
9	Emergency	Appendicitis	Appendiceal diverticulitis	Yes, Appendectomy
10	Emergency	Ruptured Appendix	caecal carcinoma	No Appendectomy

Table 1 shows cases involving a mix of emergency and elective surgeries. Incidental findings during these procedures included hernias, ovarian syndrome, and various cancers. Each case required specific surgical interventions based on the discovered conditions, illustrating the complexity and variability of surgical outcomes.

In applying the traffic light IF tool and adhering to best practices for each IF, 70% of cases accurately decided to proceed further during intra-operative management.

DISCUSSION:

Our study, akin to findings observed by Wilson et al.,⁷ and Ku et al.,⁸ involved surgical cases where urgent procedures for conditions like incarcerated inguinal hernia unexpectedly revealed incidental discoveries of serious pathologies such as caecal neuroendocrine cancer, locally advanced gall bladder cancer, and caecal carcinoma.

The ethical complexity arises from the dilemma of whether to address these incidental findings immediately during the same surgery or to prioritize the primary surgical objective. In our cases, the decision not to intervene immediately for these cancers was influenced by considerations including the acuity of the primary condition, overall patient health, and the potential risks associated with additional surgical interventions.

Balancing these factors requires careful judgment to optimize patient care while minimizing risks and ensuring ethical principles are upheld. Frameworks such as the traffic-light method provide valuable guidance by categorizing findings into actionable categories ('green light', 'red light', and 'orange light'), facilitating structured decision-making that considers both clinical urgency and ethical implications.

CONCLUSION:

In this study, the application of the traffic-light framework for managing intraoperative findings (IFs) in general surgery proved to be insightful and valuable. The framework provided a structured approach for surgical teams facing unexpected discoveries during procedures, particularly in emergency settings where rapid decision-making is crucial.

Through the utilization of the traffic-light method, which categorizes IFs into 'green light' (proceed), 'red light' (do not proceed), and 'orange light' (requires careful consideration), our study found that 70% of cases effectively utilized this tool to make informed decisions regarding further surgical interventions. This highlights the framework's potential to enhance clinical decision-making and mitigate ethical dilemmas associated with treating IFs without patient consent

Recommendations:

These are recommendations based on our study findings:

1. To Implement the traffic-light framework in surgical protocols and provide training to ensure its effective use among surgical teams.
2. To develop clear ethical guidelines for managing incidental findings (IFs) to balance patient autonomy and immediate treatment needs.
3. To conduct further studies to validate the traffic-light framework across different surgical specialties and settings.
4. To enhance patient education on the possibility of discovering unexpected conditions during surgery to facilitate informed decision-making.
5. Standardize documentation practices to improve review processes and refine the application of the traffic-light framework over time.

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