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EXPOSURE AND ANATOMICAL IDENTIFICATION AS DECISION POINTS IN ACUTE CALCULOUS CHOLECYSTITIS

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Clinical question

Predicting a difficult operation before incision is useful for preparation, but the decisive safety question arises during dissection. Can the gallbladder be exposed in a controlled way, and can its duct and artery be identified before division? These questions are related but not identical. A clear camera view may show a distorted anatomical arrangement without resolving the identity of a tubular structure.

Exposure, neck recognition and safe visualization were recorded separately in a clinical cohort. We examined their relationship across operative difficulty grades to distinguish the visibility of the field from reliable anatomical identification.

Objective and material

The objective was to characterize exposure and anatomical identification across operative difficulty grades in acute calculous cholecystitis. The analysis used the conventional treatment group of 91 patients managed in 2020–2022 at Ibn Sina City Clinical Hospital No. 1 in Tashkent. The research was conducted in association with Bukhara State Medical Institute.

Operations were classified into grades I, II, III and IV, comprising 27, 25, 21 and 18 patients, respectively. The categories correspond to the V. V. Zvyagintsev operative difficulty classification used in the study and should not be equated with Tokyo disease severity or Parkland grading. Results were extracted as counts with their relevant denominators. No new assessment of operative videos or interobserver agreement was performed.

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Exposure was classified as good, limited or unsatisfactory. Safe visualization of the cystic duct and artery was described as achievable by ordinary dissection, achievable only after additional measures or unattainable without injury risk. These variables were used descriptively. They should not be interpreted as independently verified completion of every critical view of safety criterion.

Table 1. Exposure across operative difficulty grades

Exposure	I n=27	II n=25	III n=21	IV n
Good	26 (96.3%)	14 (56.0%)	5 (23.8%)	1 (5.
Limited	1 (3.7%)	10 (40.0%)	12 (57.1%)	6 (33.3%)
Unsatisfactory	0	1 (4.0%)	4 (19.0%)	11 (61.1%)

Findings

Good exposure was present in 26 of 27 grade I operations, 14 of 25 grade II, five of 21 grade III and one of 18 grade IV operations. In contrast, unsatisfactory exposure increased from zero in grade I to 11 of 18 in grade IV. The distribution indicates a progressively narrowing opportunity for controlled traction and clear operative orientation.

The gallbladder neck could be identified in 25 of 27 grade I cases but in none of the grade IV cases. In grade IV, it was not differentiated in 14 of 18 patients, while four had partial deformation. This is more specific than the general label severe inflammation: it locates the difficulty at the region where misidentification can affect the subsequent operative plan.

Safe visualization by ordinary dissection was achievable in all grade I cases, in 16 of 25 grade II and in five of 21 grade III cases. It was not achievable in this way in grade IV. Additional measures enabled visualization in eight grade II, ten grade III and three grade IV cases. The fact that some cases improved after additional measures supports reassessment of the result of an action rather than assuming that the action itself establishes safety.

Visualization remained unattainable without injury risk in one grade II, six grade III and 15 grade IV cases. The last proportion was 83.3%. It is a description of the recorded operative situation, not a measured probability of an injury if dissection were continued. Nonetheless, it identifies a practical point at which standard continuation requires reconsideration.

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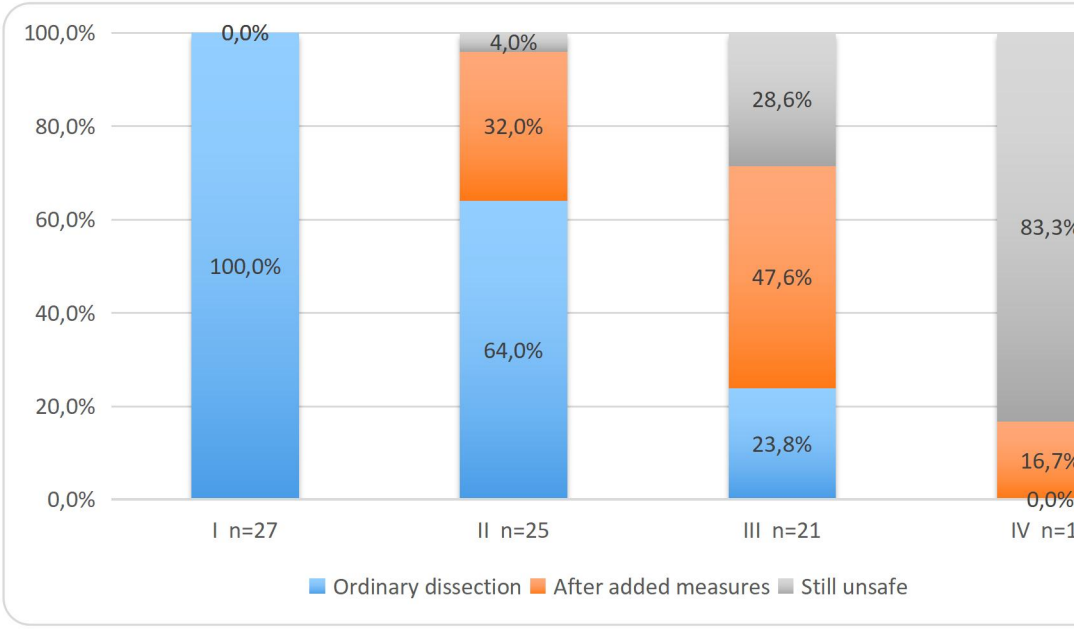


Figure 1. Recorded safe visualization by operative difficulty grade.

Interpretation of the operative sequence

The exposure findings and visualization findings describe different stages. Limited exposure may improve after decompression, release of superficial adhesions or modified traction. If the anatomy becomes reliably identifiable, standard completion may remain possible. If it does not, repeating the same manoeuvre can prolong the operation without resolving the essential uncertainty.

A useful reassessment asks what changed. Better grasping of the gallbladder is not the same as a clearer anatomical relationship at the neck. Likewise, a cleaner image after haemostasis does not prove that the visible structure is the cystic duct. Documentation should record the anatomical result of the intervention and the reason for the next decision.

The findings also show why an overall score cannot override an unsafe observation. A patient may have favourable systemic findings yet lack a safe dissection plane because of chronic fibrosis or local deformation. Conversely, marked inflammation may coexist with identifiable anatomy. The direct operative assessment remains necessary in both situations.

The critical view of safety provides a separate framework for confirming anatomy before dividing structures [2,3]. The source variable safe visualization should be interpreted within that principle, while acknowledging that the present data do not constitute video adjudication of the critical view. This distinction prevents an observational label from being converted into a stronger technical claim than was actually measured.

Practical relevance

For a clinical pathway, the main implication is to place explicit checks before irreversible steps. The first check concerns exposure; the second concerns anatomical identification. An additional measure is followed by a repeat check. Persisting uncertainty requires a protective alternative rather than a numerical assumption that sufficient effort has been made.

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This sequence can be documented with a short structured record of the neck, exposure and visualization status. Such documentation would make future comparison of decisions more reproducible. It also preserves the reason for subtotal completion or conversion, allowing these actions to be distinguished from a complication that occurred before the change of plan.

For training, the data illustrate a difference between seeing more and knowing more. Increasing the visible area may help, but safe completion requires a coherent anatomical interpretation. Discussion of difficult cases should therefore focus on the evidence supporting identification and the moment at which uncertainty persisted.

Conclusion

Increasing operative difficulty was accompanied by a marked deterioration in exposure and anatomical identification. The strongest practical message is to reassess these domains separately. Good exposure facilitates orientation, but safe anatomical confirmation remains the condition for standard continuation. Persistent inability to identify the cystic structures supports a change of strategy regardless of a favourable finding elsewhere.

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