



“EXPOSURE AND DISSECTION PITFALLS IN EARLY LAPAROSCOPIC CHOLECYSTECTOMY: A MULTICENTER VIDEO-BASED ERROR ANALYSIS”



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INTRODUCTION

Laparoscopic cholecystectomy (LC) is a core procedure in general surgery training. Safe progression toward the Critical View of Safety (CVS) requires precise exposure and dissection of Calot's triangle, yet these steps remain challenging for novice trainees. Identifying recurrent technical pitfalls may inform targeted feedback, simulation, and safer progression along the learning curve.

METHODS

- Multicenter cross-sectional study based on secondary analysis of structured expert video-review feedback from seven academic centers.
- Up to five LC videos per PGY-1 resident were included from their first 11 cases when complete video and corresponding feedback were available.
- Structured expert comments were coded inductively into mutually exclusive technical pitfalls.
- These pitfalls were then categorized into operative domains through independent review and consensus

RESULTS

Study snapshot

Seven academic centers
First-year residents
First 11 cases screened

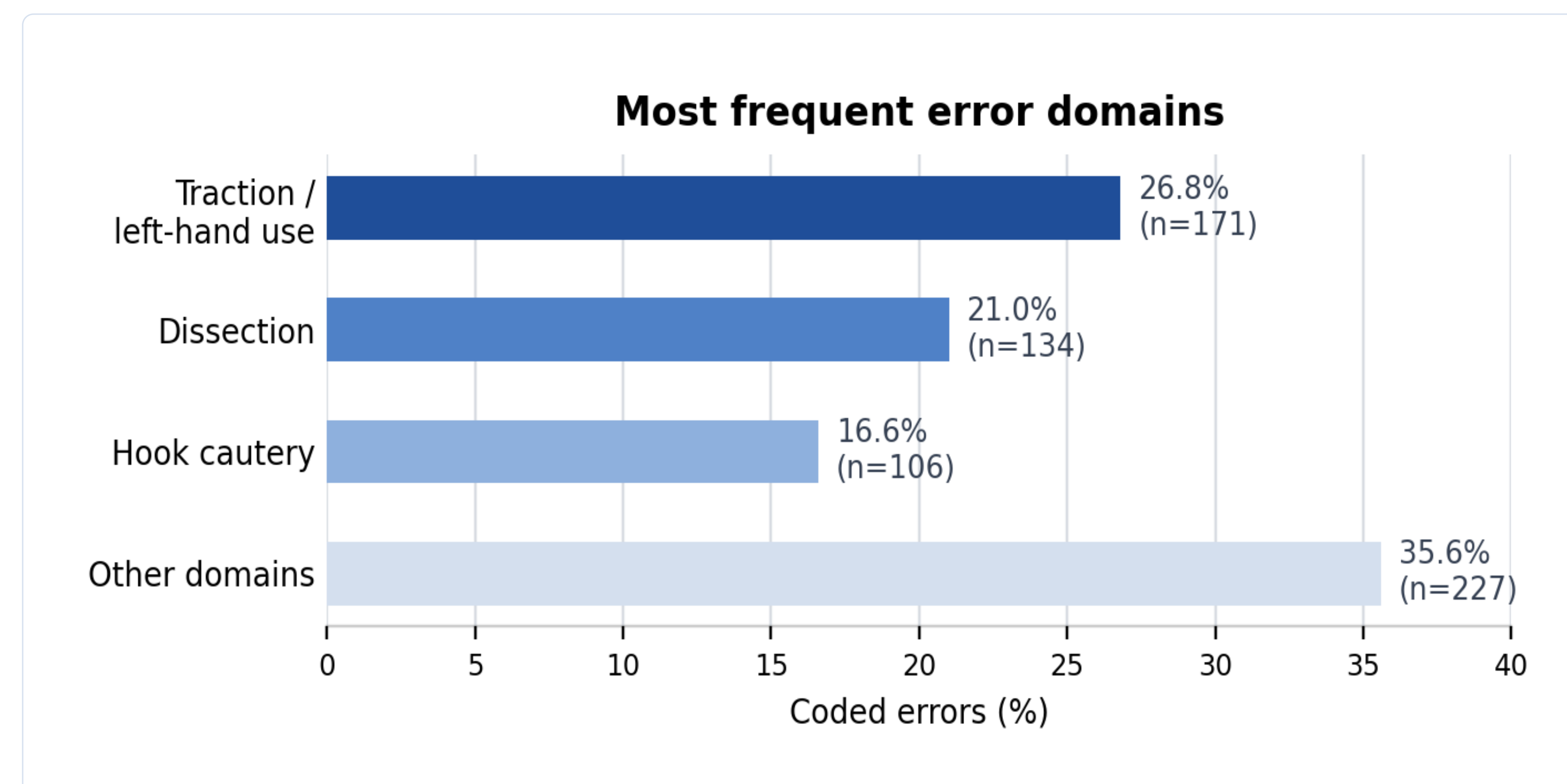
5

videos
max per
resident

CVS

Critical View
of Safety

31 residents	100 procedures
638 coded pitfalls	34% CVS not achieved



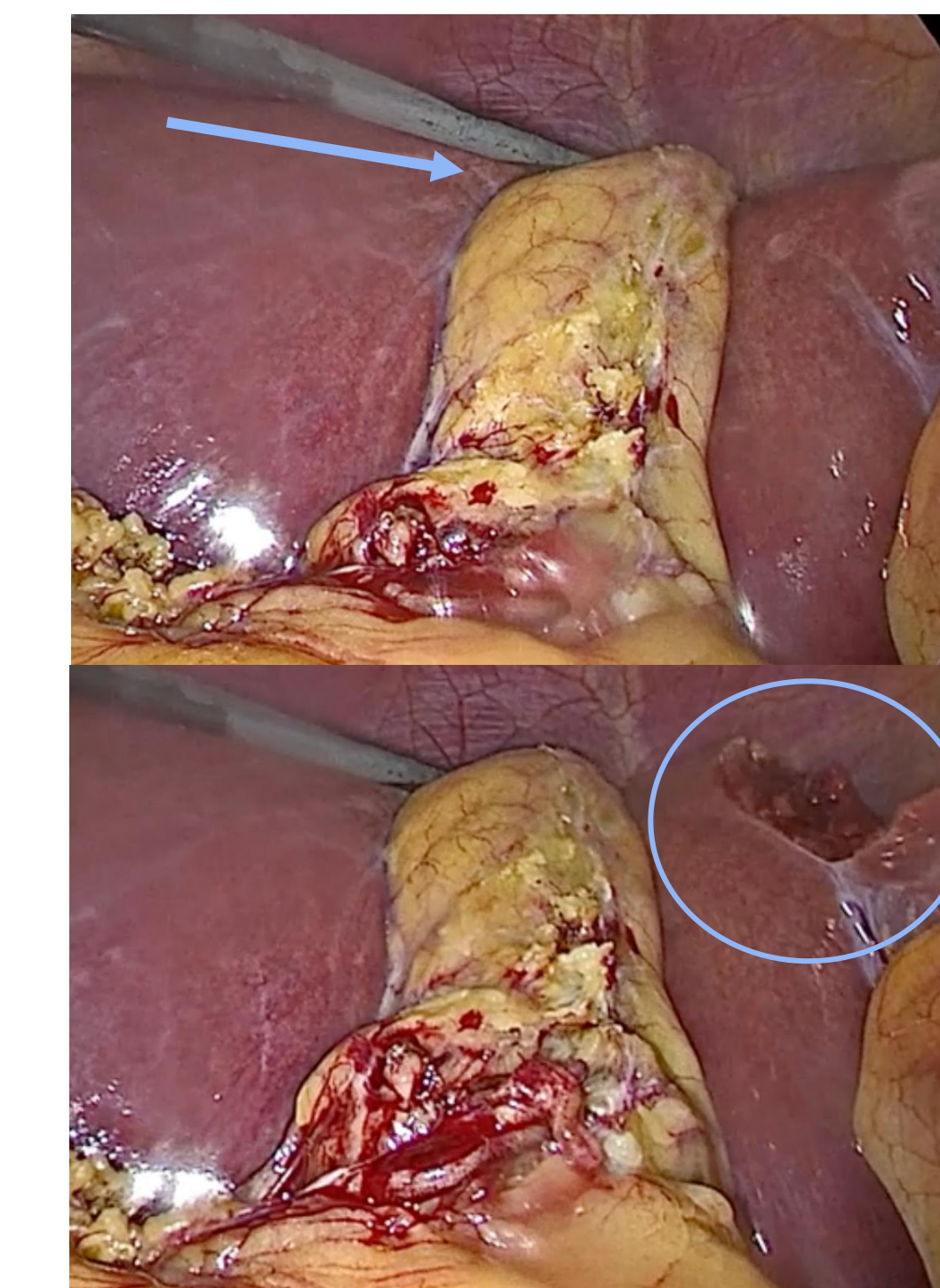
Exposure pitfalls: inadequate or excessive left-hand traction, limited visualization, and distortion of the cystic plate.

Dissection pitfalls: imprecise plane identification and dissection outside safe planes.

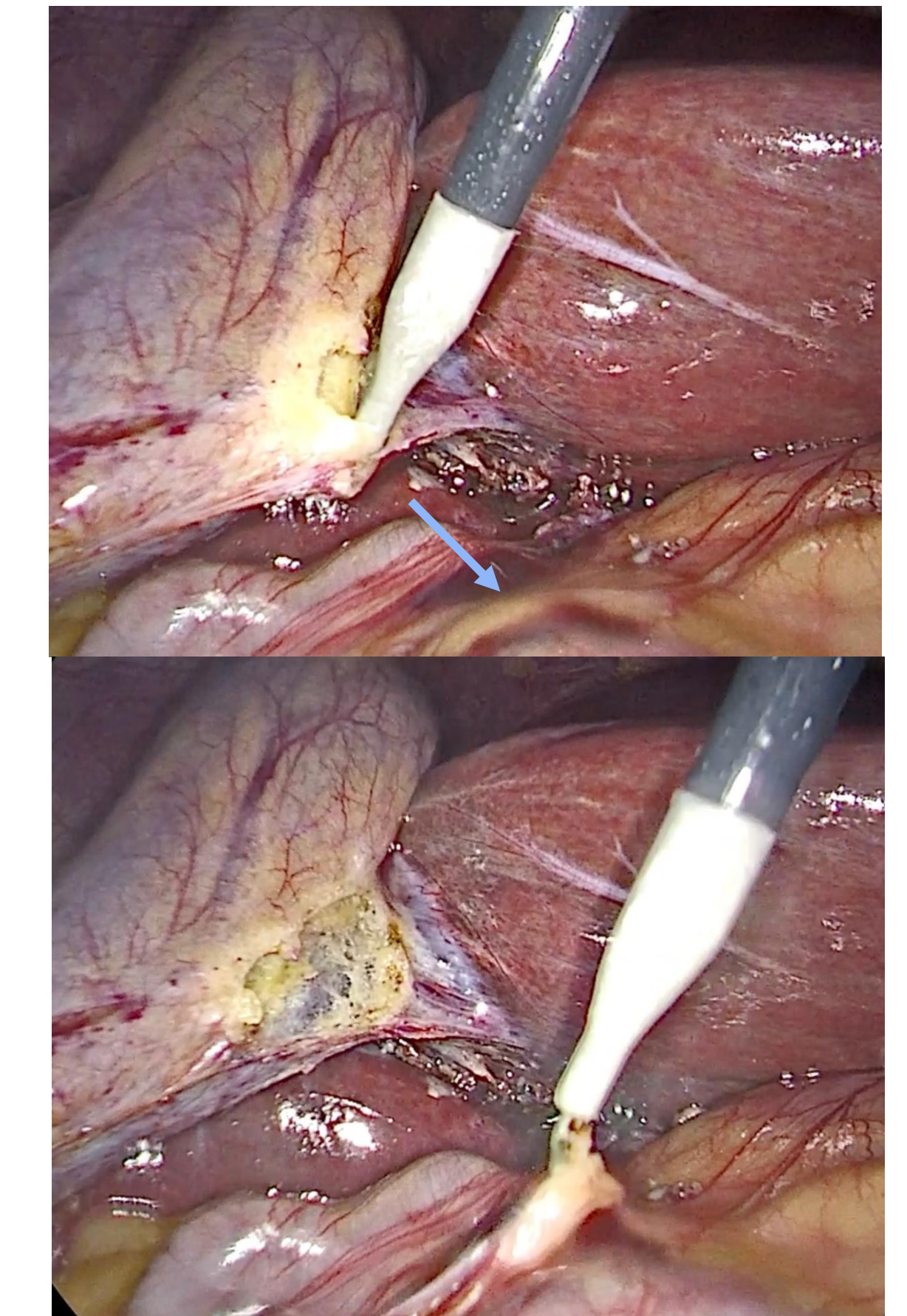
Hook cautery pitfalls: instrument misorientation and unsafe energy use.

REPRESENTATIVE PITFALLS

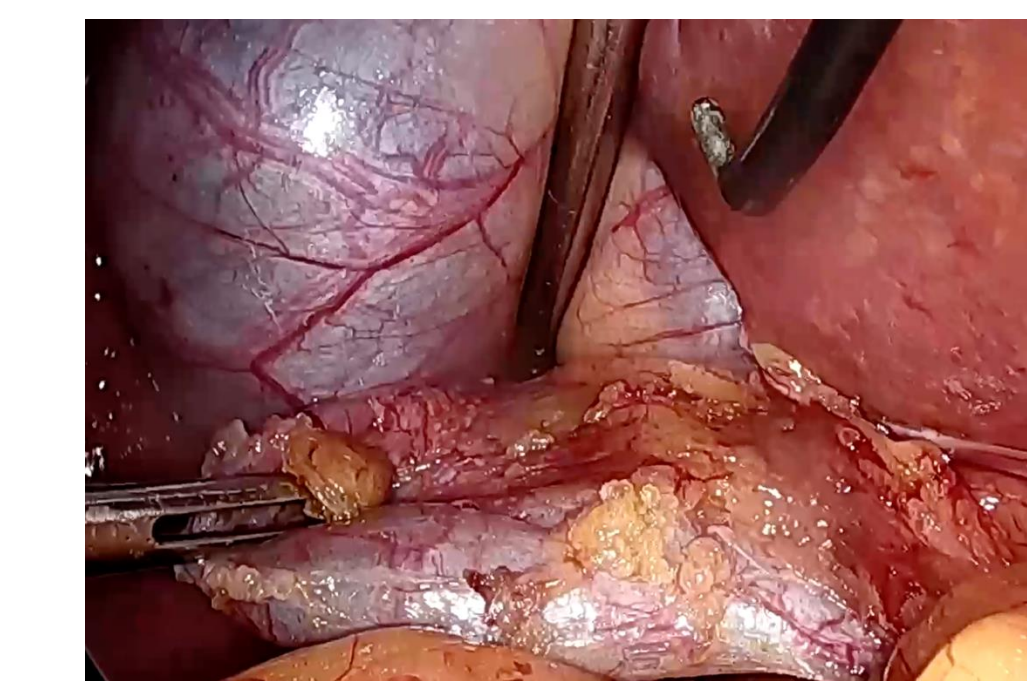
Examples of common, modifiable technical errors identified during early LC training



Excessive traction



Unsafe hook cautery use



Inadequate exposure

CONCLUSION

In early LC training, technical errors cluster around the exposure and dissection steps required to achieve CVS. Systematic identification of these recurring, modifiable pitfalls may support standardized feedback, targeted simulation, and safer progression toward operative autonomy.