

EVALUATION OF DIAGONAL LINE (D-LINE) APPROACH DURING LAPAROSCOPIC CHOLECYSTECTOMY: A RANDOMIZED CLINICAL TRIAL

Samer Saad Bessa , Mohamed Abdullah Sharaan, Islam Abdou Elsayes, Mohamed Hamdy Mohamed Mohamed Elshamsy

Department of Surgery, Faculty of Medicine, Alexandria University

Introduction

Cholecystectomy is one of the most commonly performed abdominal surgical procedures, and laparoscopic cholecystectomy is considered the “gold standard” for the surgical treatment of gall stone disease because it is associated with less postoperative pain, better cosmesis, and shorter hospital stays than open cholecystectomy. The critical view of safety is a method of ductal identification that has three elements 1) The hepatocystic triangle should be cleared off all fat and fibrous tissue, 2) Two and only two structures (cystic artery and cystic duct) are seen going into the gallbladder in a 360-view, 3) The gallbladder is dissected off the liver bed to expose the lower one-third of the cystic plate. Later, the Tokyo guidelines 2018 (TG-18) advocated the safe steps for achieving the CVS, where the proximal part of the gallbladder is first dissected and the cysti structure is then skeletonized to avoid misidentification . Recently, Kitamura et al. used the right posterior corner of the quadrate lobe of the liver, corresponding to the inferior surface of the segment IV, as an anatomical landmark to start dissection of the gallbladder. The dissection of the gallbladder is securely performed along the diagonal line (D-line) of the quadrate lobe, represented by the imaginary line connecting the left ventral and right posterior corner of the quadrate lobe of the liver.

Aim of the Work

This study compared the classical approach and the Diagonal line approach for achieving the critical view of safety during laparoscopic cholecystectomy.

Patients and Methods

This prospective study was carried out on 60 patients with ultrasonographically-proven symptomatic gallstone disease. A critical view of safety was attempted in every patient. patients were randomly assigned to either one of two groups using the classical envelope technique: **Classical approach:** The CVS was achieved through three Steps as follows. First is clearance of hepatocytic triangle from fibrofatty tissue to expose the cystic duct and cystic artery completely making sure that two and only two structures are attached to the gallbladder. The final step was to dissect the posterior third of lower part of cystic plate before clipping and division of cystic structures. **D-Line approach:** We start by creation of a window behind GB by separating the lower third of the GB from the liver bed along the liver segment IV's imaginary D-line A surgical gauze was then placed through this window to act as a landmark. Following the dissection of cystic structures and the removal of fat and fibrous tissues from the Calot's triangle in front of that gauze, CVS was attained.

Results

Table: Operative data in both study groups

	Diagonal D group (n = 30)	Classical C group (n = 30)	Test of Sig.	p
Operative time			t = 1.119	0.268
Mean ± SD.	73.29 ± 17.89	68.22 ± 17.03		
Median (IQR)	70 (63 - 88)	66 (55 - 77.75)		
Range (Min-Max)	76 (44 - 120)	80 (40 - 120)		
Critical view of safety CVS			X2 = 0.009	0.923
Achieved	29 (96.43%)	29 (96.88%)		
Not achieved	1 (3.57%)	1 (3.13%)		
Conversion to subtotal LC	1 (3.33%)	0 (0%)	X2 = 1.162	0.281
Conversion to open cholecystectomy	0 (0%)	1 (3.33%)	X2 = 0.89	0.346
Drain placement	4 (13.33%)	3 (9.38%)	X2 = 0.349	0.554

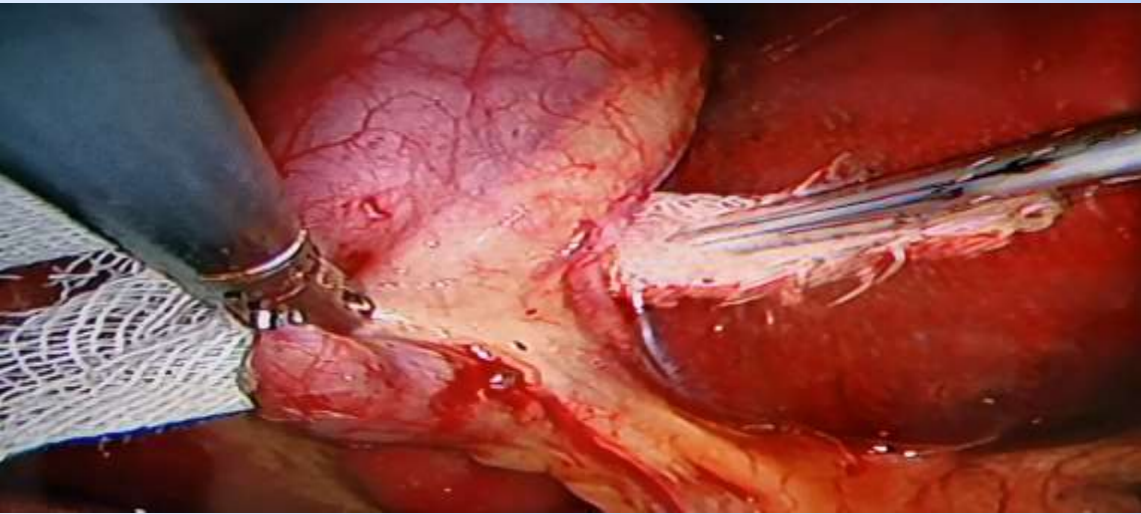


Figure 2: Insertion of Surgical gauze along D line



Figure 3: Critical view of safety (CVS) is secured using the segment IV approach. The cystic structure is dissected after isolating the gallbladder neck using surgical gauze to achieve CVS. D-line, diagonal line of segment IV of the liver

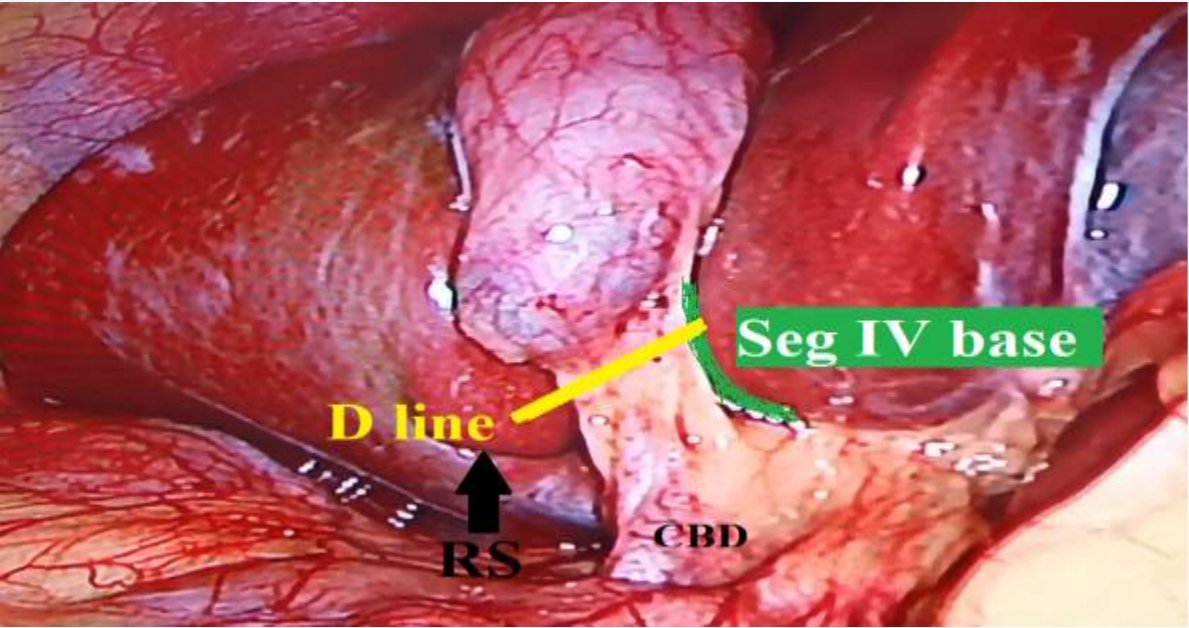


Figure 1: Clinical application of the segment IV approach. Diagonal line of segment IV of the liver (D-line) is shown (yellow line). D-line, diagonal line of segment IV of the liver; Seg IV, segment IV.

Conclusion

In patients undergoing LC for symptomatic gallstone disease, the D line approach does not offer further advantage over the classic approach in achieving the critical view of safety.