How to improve exposure in the obese patient at laparoscopic cholecystectomy: the looped omental retractor

Laparoscopic cholecystectomy in an obese patient is common, and can be challenging, beyond the underlying biliary pathology. The gallbladder fundus cannot be adequately retracted caudally due to the stiff, steatotic liver, while significant reverse Trendelenburg position and table-tilt may not be tolerated. Thus, the duodenum, colon and excessive omentum can obscure the laparoscopic view (Fig. 1a).

Strasberg’s critical view of safety requires adequate exposure of the hepatocystic triangle. Connor suggests that Rouvier’s sulcus and the base of liver segment 4b define a level of safe dissection to preserve the bile duct and right posterior radicals.

Various strategies to achieve this safe laparoscopic view are in use. Additional port placement permits the use of a fan retractor, or extra laparoscopic grasper to control the omentum. These can traumatize the underlying tissue, require active control and even a second assistant. Suture plication of omentum and subsequent retraction beside an existing port, as is often performed at hiatal surgery, can be

Fig. 1. (a–f) The looped omental retractor – steps of retraction and the laparoscopic view. (a) Pre-retraction view. (b) View above Rouvier’s sulcus & base of Seg 4b (blue arrowed line) after omental retraction. (c) Application of Endoloop to omentum (Step 1). (d) Percutaneous introduction of the Endo close device to retrieve the Endoloop suture (Step 2). (e) Schematic of port sites/sizes (mm) and usual direction of omental retraction. (f) Securing the tension of Endoloop/omentum retraction with an artery forcep on the skin (Step 3).
technically challenging, is limited in the direction of retraction, and
the suture can hinder instrument movement.

We describe a simple method to retract the omentum and enhance
exposure to the hepatocystic triangle and Rouvière’s sulcus without
these drawbacks. This technique is in occasional use but not widely
known, and inspired by Endoloop retraction of the gallbladder fundus
at single-incision laparoscopic cholecystectomy. We find it useful
in the obese patient, and hence wish to publicize the technique.
We employ an 0-PDS II Endoloop (Ethicon) and Endo Close device
(Covidien) to retract a tongue of omentum towards the abdominal
wall to provide optimal view of the hepatocystic triangle (Fig. 1b).

Here, this technique is described at 4 port ‘American’ set-up lap-
aroscopic cholecystectomy. The operation was performed for a
58 year-old male, with central obesity and BMI 35, presenting with
gallstone pancreatitis. Consent was provided by the patient and is
held at the treating institution. The need for omental retraction was
noted after difficulty achieving adequate view of the hepatocystic
triangle.

Step 1: A laparoscopic grasper is used to identify the optimal
tongue of omentum to retract (Fig. 1c), and by trial identify the
direction of retraction that will provide best exposure. An 0-PDS II
Endoloop is introduced through a port, and used to secure a tongue
of omentum ideally in proximity to Hartmann’s pouch.

Step 2: A small incision is made in the skin of the right abdomen
at the chosen site, the EndoClose device is passed trans-fascially,
and is used to retrieve the 0-PDS Endoloop under vision (Fig. 1d).
Due to use of the Endo Close, the direction of retraction is indepen-
dent of existing ports, and can be tailored to the patient’s anatomy
(Fig. 1f).

Step 3: The Endoloop is tensioned to provide adequate retraction
without traumatizing the omentum or its attachments and secured at
the abdominal wall with an artery forcep (Fig. 1e). This provides
retraction of the omentum, colon, and by attachment, flattens out
the duodenum, to optimize the hepatocystic triangle view.

At the end of dissection, the Endoloop is divided to liberate the
omentum. The omentum can be checked for bleeding or infarction,
however in our experience intervention is not typically required.
The Endoloop is retrieved, and the skin incision does not require
sutured closure.

We propose the Looped Omental Retractor as a simple yet ele-
gant technique in laparoscopic surgery. We describe its use in the
obese cholecystectomy as a way to ensure a safe operating view
without risk of tissue trauma, the need for a second assistant,
and the reliance on existing port-sites. The required equipment
(Endoloop and Endo Close) is readily available and inexpensive.
This technique is not technically demanding, and we would
encourage its use at cholecystectomy, and as part of a general sur-
geon’s armamentarium for other laparoscopic exposure.

Acknowledgment
Open access publishing facilitated by Monash University, as part of
the Wiley - Monash University agreement via the Council of
Australian University Librarians.

Author contributions
Shantanu Joglekar: Conceptualization; resources; visualization;
writing – original draft; writing – review and editing. Alistair
Rowcroft: Supervision; writing – review and editing. Nezor Houli:
Supervision; writing – review and editing.

References
1. Strasberg SM. A three step conceptual roadmap for avoiding bile duct
injury in laparoscopic cholecystectomy. J. Hepatobiliary Pancreat. Sci.
2019; 26: 123–7.
2. Connor SJ, Perry W, Nathanson L, Hugh TB, Hugh TJ. Using a stan-
dardized method for laparoscopic cholecystectomy to create a concept
operation-specific checklist. HPB (Oxford, England) 2014; 16: 422–9.
3. Russell TB, Arrooi S. How we do it: laparoscopic cholecystectomy in
patients with severe obesity. Turk. J. Surg. 2021; 37: 413–6.
4. Reardon PR, Matthews BD, Scarborough TK, Preciado A, Marti JL,
Brunicardi FC. Techniques for omental retraction during laparoscopic
Nissen fundoplication. Surg. Endosc. 1999; 13: 542.
5. Funamizu N, Okamoto T, Kumamoto T et al. Effective method of gall-
bladder retraction for single-incision laparoscopic cholecystectomy.
Asian J. Endoscopic Surg. 2019; 12: 222–6.

Shantanu Joglekar,*‡ MBBS BMedSc FRACS
Alistair Rowcroft,‡ MBBS(Hons) FRACS
Nezor Houli,§ MBBS FRACS

*Upper GI and Hepatobiliary Surgical Unit, Box Hill Hospital,
Eastern Health, Melbourne, Victoria, Australia, ‡Eastern Health
Surgical Research Group, Faculty of Medicine Nursing and Health
Sciences, Monash University, Melbourne, Victoria, Australia,
‡Hepatobiliary and Upper GI Surgical Unit, St Vincent’s Hospital
Melbourne, Melbourne, Victoria, Australia and §Department of
General Surgery, Western Health, Melbourne, Victoria, Australia

doi: 10.1111/ans.17660

© 2022 The Authors.
ANZ Journal of Surgery published by John Wiley & Sons Australia, Ltd on behalf of Royal Australasian College of Surgeons.