

Experience with laparoscopic fenestration of symptomatic liver cysts

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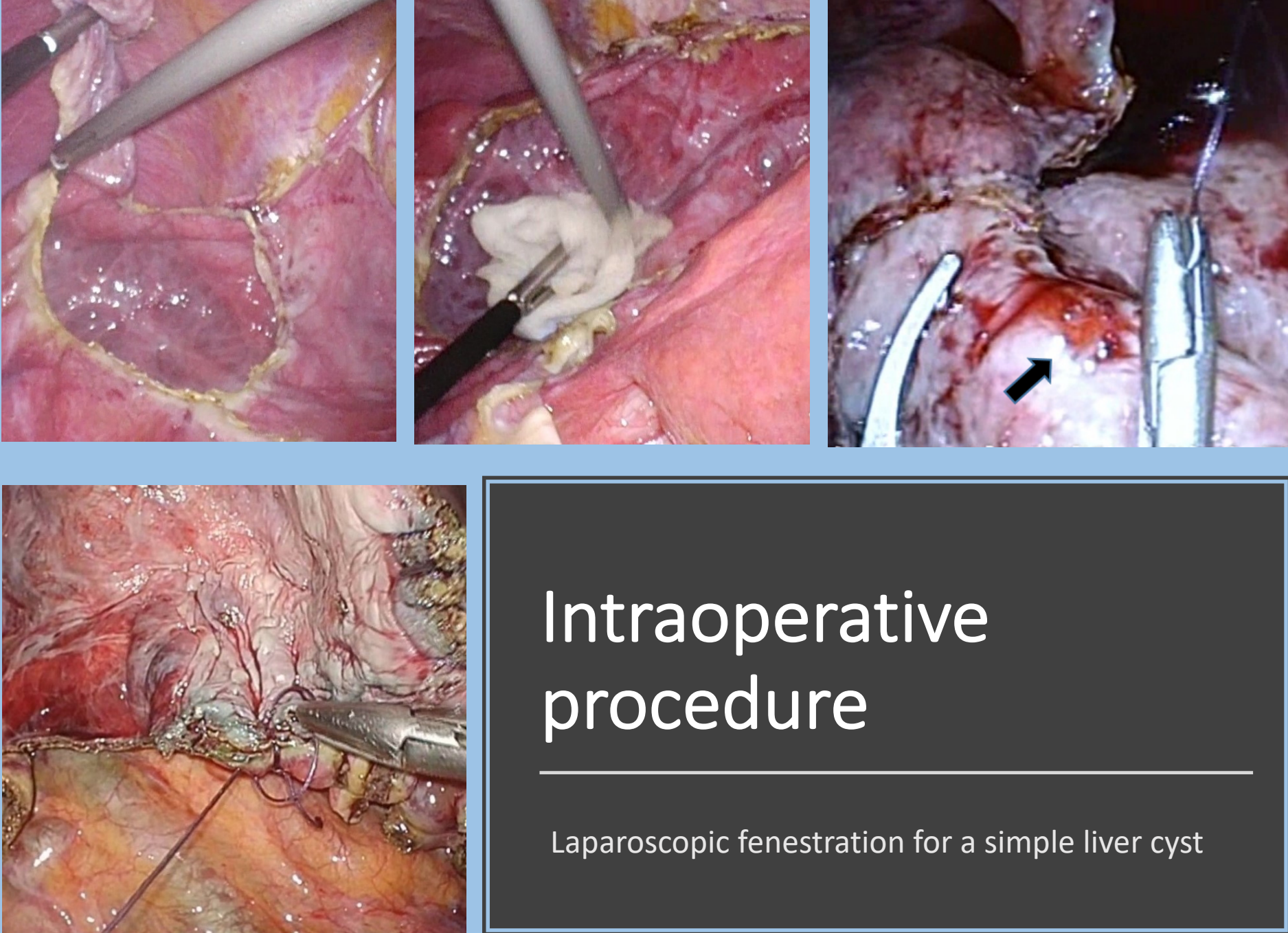
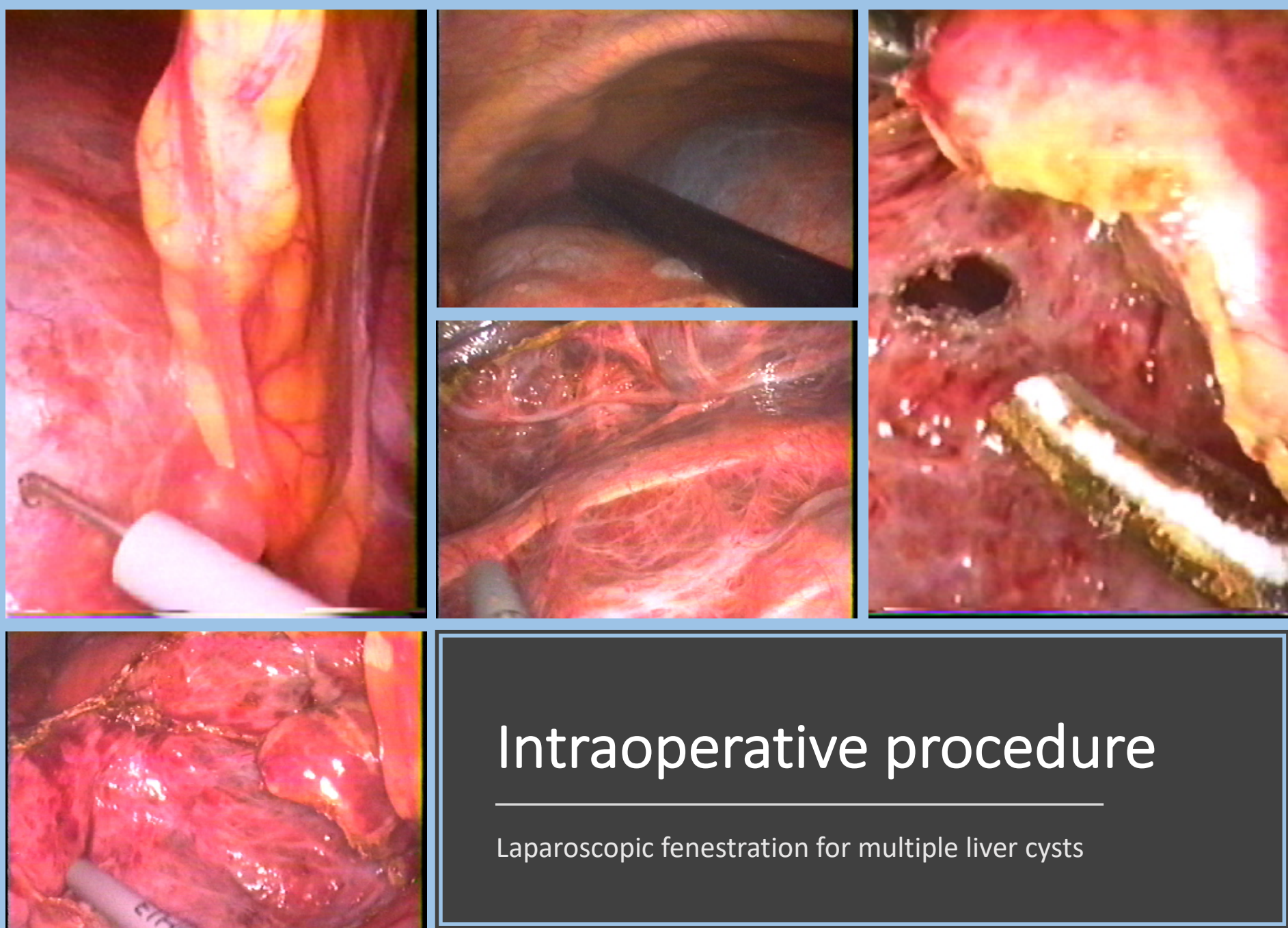
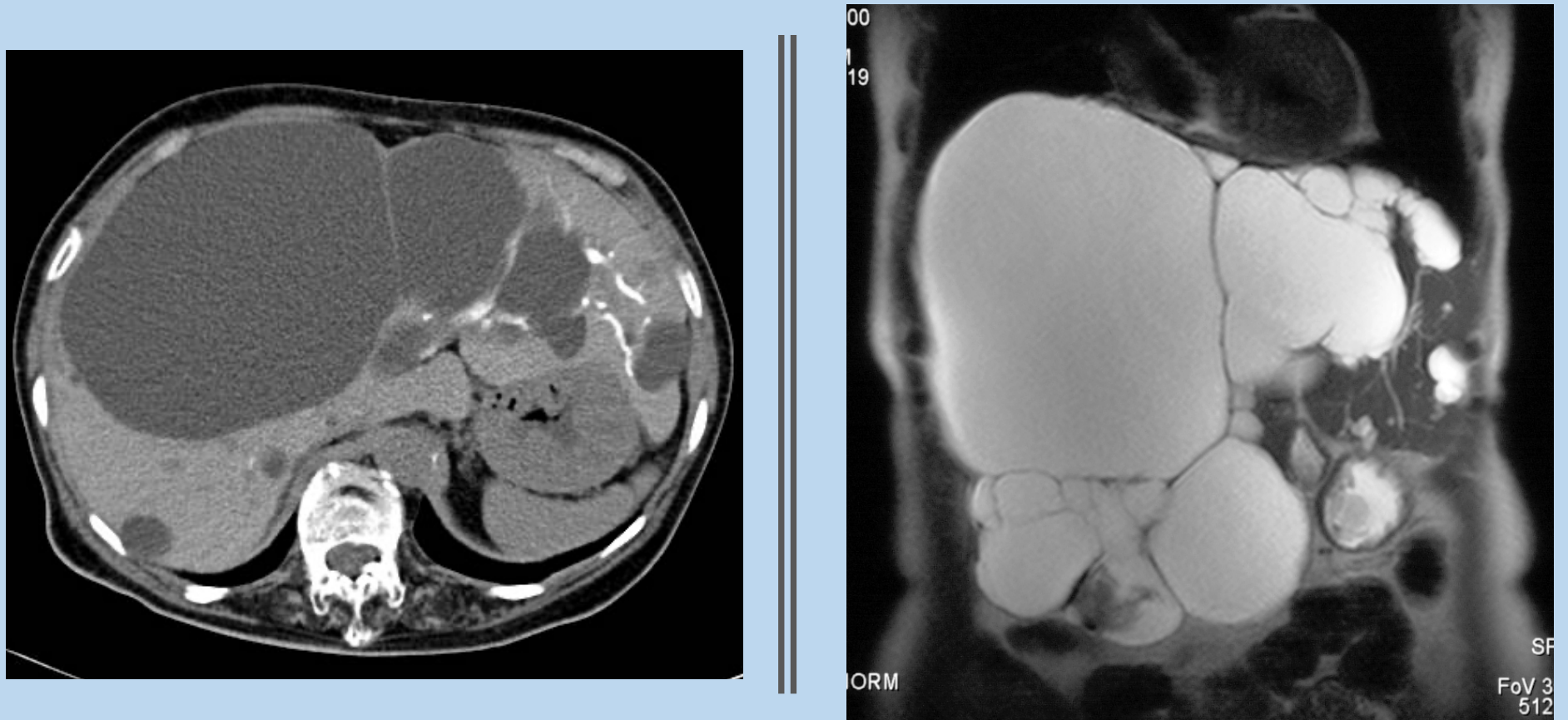
Introduction

Polycystic liver disease (PLD) is a hereditary one and considered to develop from a malformation of intra-hepatic bile duct. Solitary liver cyst (SLC) is commonly encountered in routine practice. Symptomatic liver cysts are eligible for medical treatments. Therefore, we introduce laparoscopic fenestration (LF) in symptomatic PLD and SLC from 2010 and report our surgical outcomes of LF in 44 cases during recent 9 years.

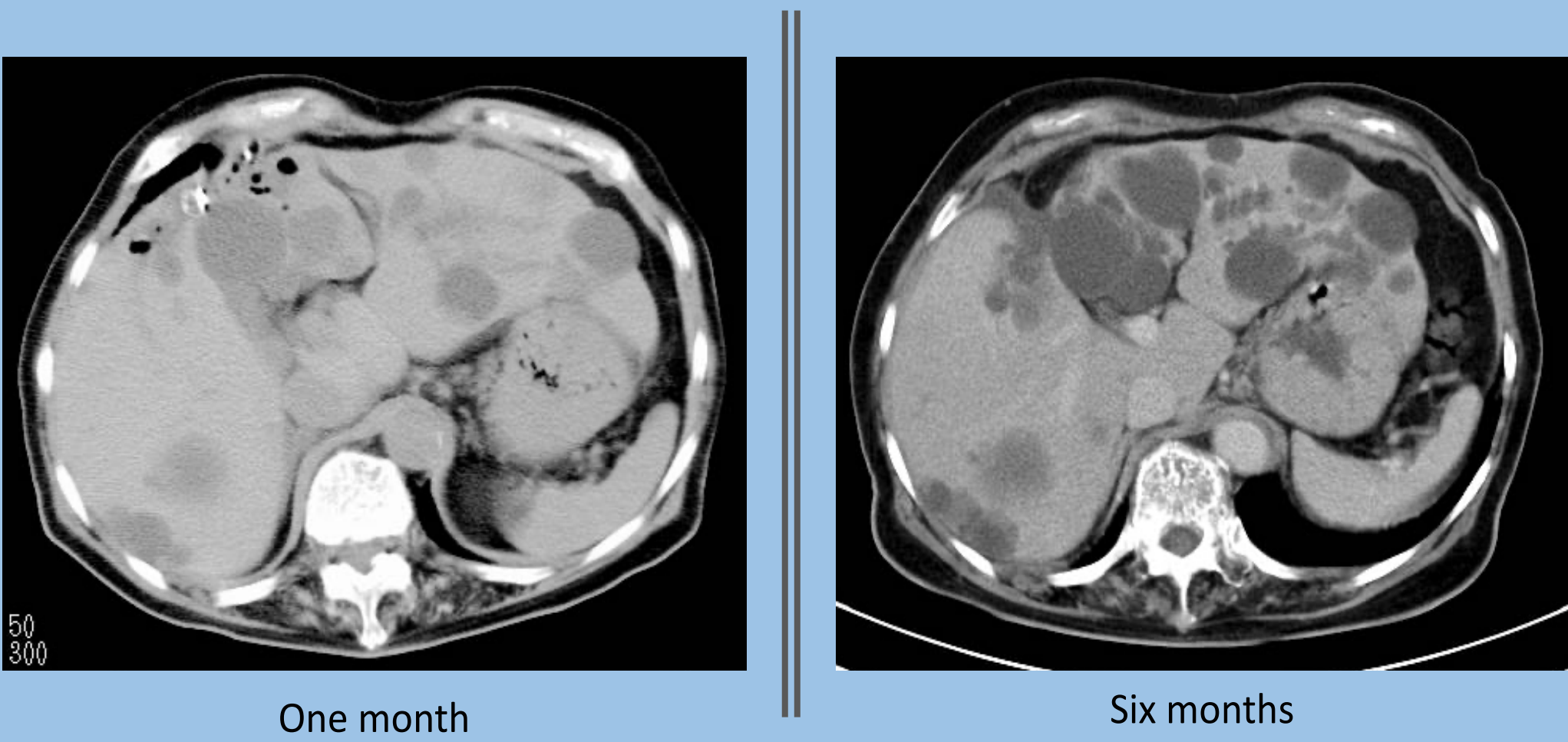
Patients and Methods

Indications of LF are a cyst locating near the liver surface with abdominal symptoms or having an increasing tendency of cyst itself in SLC and a cyst measuring more than 10 cm in diameter with Gigot 1 type of PLD. There are 10 males and 34 females with a mean age of 65 years (32-82), and they consisted of 32 SLCs and 12 PLDs. The location of cyst was 34 cases (77.3%) in right lobe, 5 in left and 5 in bilateral, respectively. The mean size of liver cyst was 15.9 cm (7-23) in diameter. Eleven cases were inserted ENBD tube preoperatively. In surgical procedure, a cyst fenestration (a wide excision of the cystic wall) using laparoscopic coagulating shears was performed after cyst puncture and its content was drawn out. We evaluated surgical outcomes retrospectively.

Preoperative CT before surgery



Postoperative CT one and six months after surgery



Results

- 1) All cases were completed LF and there was no conversion to open laparotomy.
- 2) Intraoperative bile leakage was found in 5 cases (11.4%) during procedure. There was no bile leakage postoperatively.
- 3) The median number of inserted ports was 4 (3 to 5).
- 4) The mean operation time was 122 min (37-270).
- 5) Two cases developed postoperative ascites in the beginning, however, there were no postoperative complications after that episode.
- 6) The median postoperative hospital stay was 3 days (2-17).
- 7) All cases receiving LF with no insertion of intra-peritoneal drainage tube in 2018 were discharged on the postoperative day 2 without perioperative complications.
- 8) Three cases (6.8%) of PLD were recognized the recurrence of liver cyst without abdominal symptoms during a follow-op period.

Discussion

Author	Year	Case	Age	Gender (M: F)	Cyst		Operation			POHS (day)	Complication	Follow-up (month)	Others
					Size(cm)	Location(R:L:BS)	Time (min)	Bleeding (ml)	Insert drain				
Tagaya ⁹⁾	2003	5	63 (43-79)	4: 1	10.4(7-18)	1:1:3	182 (72-270)	168 (3-800)	5	9.4 (7-12)	Rec:1	66 (35-102)	SC: 4
Imasato ¹⁰⁾	2008	6	67 (59-75)	2: 4	15(5-20)	6:0:0	123 (53-209)		-	12 (8-19)		52 (8-88)	SC: 2
Ueno ¹¹⁾	2008	12	(40-79)	3: 9		8:0:4	190		12		Rec:1, Bile leak:1		
Matsubara ¹²⁾	2011	7	57 (44-80)	2: 5	12 (8.7-19.4)	4:2:1	154 (112-201)		-	9 (9-14)		26.4 (12-58)	
Watanabe ¹³⁾	2013	6	59 (38-87)	2: 4	14.8(9.8-20)	1:5:0	118 (49-198)		1	3.3 (3-4)		6	SC: 1
Gocho ¹⁴⁾	2013	6	60 (58-73)	0: 6	11.1(10-15.2)	3:3:0	144 (100-210)	minimal	1	3		15.5 (8-20)	SC: 2, SILS
Chisuwa ¹⁵⁾	2018	5	82	0: 5	18	3:2:0	192	10	-	7		16	OT
Kimura ¹⁶⁾	2019	6	3 (52-82)	0: 6	13.6(9-18)	3:3:0	152 (103-232)	14.6 (1-70)	6	6.1 (5-9)		14 (1-33)	
Yoshimura	2019	44	65 (32-82)	10: 34	15.9(7-23)	33:6:5	122 (37-279)	5 (5-400)	19	3 (2-17)	Ascites:2	43.7 (14-110)	SC: 4
[Yoshimura	2019	10	69 (61-82)	2: 8	15.2(10-20)	8:1:1	77 (50-150)	5 (5-30)	0	2 (2)		16.8 (14-20)	SC: 1 I
M:F : Male:Female, R:L:BS : Right:Left:Bilateral side, Rec: recurrence, SC: Simultaneous cholecystectomy, OT:Omentoplasty													
SILS: single-incision laparoscopic surgery, [I] : Cases in 2018													

Conclusion

Our intra-operative procedure of LF with a postoperative prevention of bile leakage contributes the improvement of minimally invasive surgery with no insertion of intraoperative drainage tube and early discharge.