

1987

(1-3).

95 5 99 5 4

131

(83 ), (18

(14 ), (10 ),

(3 ), Duhamel (2 ),

(4, 5) (1 )

15

(6).

(12 )

5 , 2 , 1 , (1, 6).  
 1 , 1 . 15 14  
 - , 1 (pneumoperitoneum)  
 14mmHg  
 30-75 ( 56 ) , 9 , 6  
 . 15 CT 8 가 , 4-6 가  
 , 4 , 3 , 10-11 mm  
 2 , 1 15 , 5 mm  
 (n = 6) (n = 5)  
 (n = 1),  
 (n = 1), (n = 1) . 131 15 (11%)  
 16 . 15 -  
 14 , 1  
 2 2 1 (Table 1).  
 2 1-14 ( 8 ) , -  
 ( ) ,  
 CT Tomoscan AV Expander Plus 1(Philips medical sys-  
 tem, Best, the Netherlands)  
 7mm  
 Sequoia 512  
 (Acuson, Mountain view, California, U.S.A.) HDI 3000 scan-  
 ner (Advanced Technology Laboratories, Bothell, Washington,  
 U.S.A.) . 4 2  
 , 2  
 1 , 1

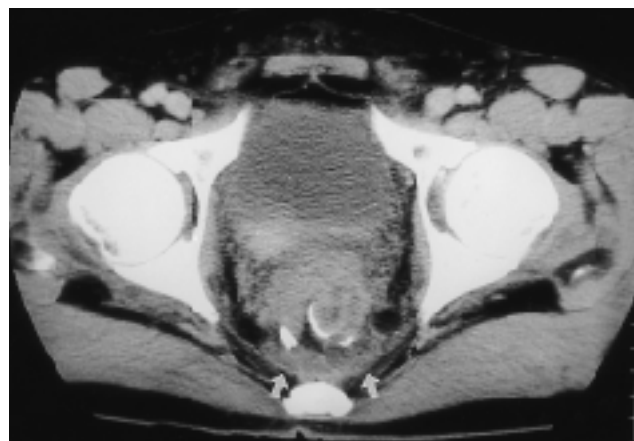


Fig. 1. 70-year-old man with pelvic abscess which developed after laparoscopic low anterior resection.  
 Contrast-enhanced CT scan shows heterogenous mass (arrows) in the presacral space.

Table 1. Complications of Nonbiliary Laparoscopic Gastrointestinal Surgery According to the Type of Surgery

Types of Laparoscopic Surgery	Complications	No.(%)
Laparoscopic colorectal surgery (n= 83)	Abscess	3(19)
	Ischemic colitis	2(13)
	Fistula	2(13)
	(rectovaginal & colocutaneous)	
	Stricture at anastomosis site	2(13)
	Colon perforation	1(6)
	Hemoperitoneum	1(6)
	Pancreatitis	1(6)
	Deep vein thrombosis	1(6)
	Trocar site metastasis	1(6)
	Impotence	1(6)
	Abscess	1(6)
Laparoscopic splenectomy (n= 18)		
Total		16(100)

9 10 1 1 ,  
10 11 (69%)가 4  
(Fig. 1)가 3  
(Fig. 2) 1 가 2



Fig. 2. 30-year-old-male with splenic bed abscess which developed after laparoscopic splenectomy. Ultrasonogram shows large multiseptated hypoechoic mass (open arrows) in the splenic bed.



Fig. 3. 48-year-old man with ischemic colitis which developed after laparoscopic left hemicolectomy. Gastrografin enema show long segmental luminal narrowing (arrows), fold thickening, and marginal irregularity

(Fig. 3), 1  
(Fig. 4), 1 , 1  
(Fig. 5), 1 - , 1  
(Fig. 6) 30-275 ( 160 )  
5 (31%)  
(Fig. 7) 2 ,  
(Fig. 8)가 1 , - 1 ,  
(Table 2). 16 , 1 -  
1 1  
13

1960  
, 1987

Table 2. Complications of Nonbiliary Laparoscopic Gastrointestinal Surgery According to the Period

Complications	No.(%)
Early complications	
Abscess	4(25)
Ischemia	2(13)
Hemoperitoneum	1(6)
Colon perforation	1(6)
Recto-vaginal fistula	1(6)
Pancreatitis	1(6)
Deep vein thrombosis	1(6)
Late complications	
Stricture at anastomosis site	2(13)
Colo-cutaneous fistula	1(6)
Trocar site metastasis	1(6)
Arteriogenic impotence	1(6)
Total	16(100)

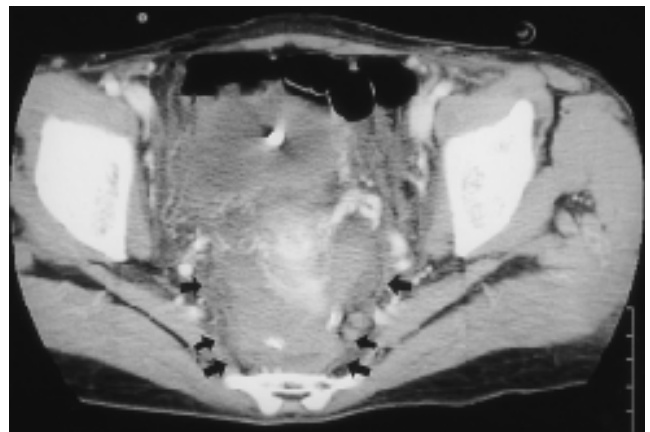


Fig. 4. 54-year-old woman with hemoperitoneum which developed after laparoscopic low anterior resection. Contrast-enhanced CT scan shows hyperattenuated hemorrhagic fluid collection (arrows) in the pelvic cavity.

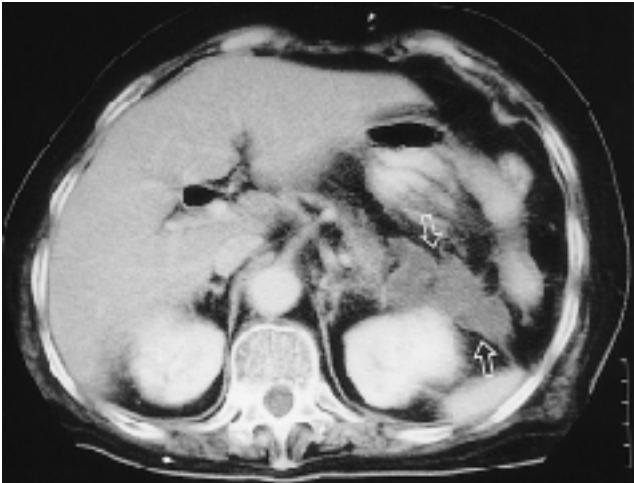


Fig. 5. 70-year-old woman with acute pancreatitis which developed after laparoscopic proctosigmoidectomy with coloanal anastomosis. Contrast-enhanced CT scan shows septated fluid collection in peripancreatic region (open arrows), suggesting the presence of acute pancreatitis.



Fig. 6. 63-year-old woman with deep vein thrombosis which developed after laparoscopic low anterior resection. Ascending venogram shows tubular intraluminal filling defects in the superficial femoral and popliteal veins (arrows).

(3). Veress (Veress needle)

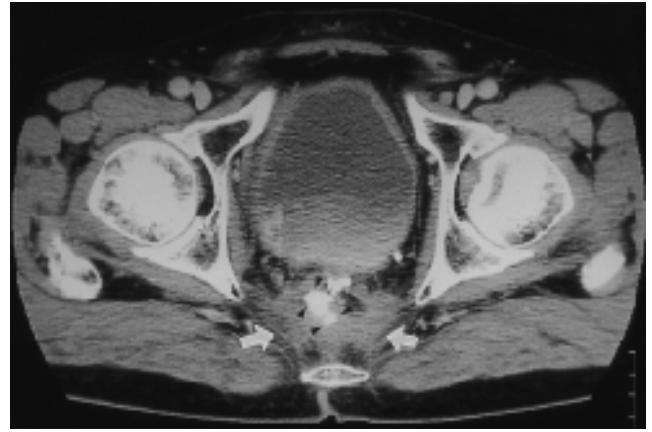


Fig. 7. 56-year-old man with anastomosis site stricture which developed after laparoscopic low anterior resection. Contrast-enhanced CT scan shows irregular enhanced soft tissue mass (arrows) surround the anastomosis site, which was confirmed as postoperative fibrosis on needle biopsy. Note luminal narrowing of the contrast-filled rectum (arrowheads).



Fig. 8. 51-year-old man with trocar site metastasis which developed after laparoscopic left hemicolectomy for sigmoid colon cancer. Contrast-enhanced CT scan shows minimally enhanced soft tissue mass on the abdominal wall (open arrows). Pathology revealed metastatic adenocarcinoma.

, 1990 ,

, Nissen ,

가 (2).

가

가 (7-9).

가 ,

가 .



- iar

## Complications of Nonbiliary Laparoscopic Gastrointestinal Surgery: Radiologic Findings and Clinical Courses<sup>1</sup>

Seon Ah Jung, M.D., Sang Hoon Lee, M.D., Yong Sung Won, M.D. <sup>2</sup>  
Young Ha Park, M.D., Hyun Kim, M.D. <sup>3</sup> Jun Gi Kim, M.D. <sup>2</sup>

<sup>1</sup>Department of Radiology, St. Vincent 's Hospital, Suwon, College of Medicine, The Catholic University of Korea

<sup>2</sup>Department of General Surgery, St. Vincent 's Hospital, Suwon, College of Medicine, The Catholic University of Korea

<sup>3</sup>Department of Radiology, St. Mary 's Hospital, Taejon, College of Medicine, The Catholic University of Korea

**Purpose:** To evaluate the radiological findings and clinical courses of the complications arising after nonbiliary laparoscopic gastrointestinal surgery (NLGS).

**Materials and Methods:** We retrospectively reviewed the clinical records of 131 patients who underwent NLGS (83 cases involving colorectal surgery, 18 splenectomies, 14 appendectomies, ten adrenalectomies, three lumbar sympathectomies, two Duhamel 's operation, and one peptic ulcer perforation repair) over a four-year period. Among these 131 patients, the findings of fifteen in whom postoperative complications were confirmed were analysed. The radiologic examinations these patients underwent included CT (n = 8), barium enema and fistulography (n = 4), ultrasonography (n = 3), ascending venography of the lower legs (n = 2), and penile Doppler sonography (n = 1). We evaluated the radiologic findings and clinical courses of early (within 2 weeks) and late (after 2 weeks) postoperative complications.

**Results:** Sixteen cases of postoperative complications developed in fifteen patients ; in 14 (17%) after colorectal surgery and in one (6%) after splenectomy. Eleven of the sixteen cases (69%) involved early complications, consisting of an abscess in three, ischemic colitis in two, hemoperitoneum in one, perforation of the colon in one, pancreatitis in one, recto-vaginal fistula in one, deep vein thrombosis after colorectal surgery in one, and abscess after splenectomy in one. The remaining five cases (31%) involved late complications which developed after colorectal surgery, comprising anastomotic site stricture in two, abdominal wall (trocar site) metastasis in one, colo-cutaneous fistula in one, and impotence in one. Among the 16 cases involving postoperative complications, recto-vaginal fistula, colon perforation, and abdominal wall metastasis were treated by surgery, while the other thirteen cases were treated conservatively.

**Conclusion:** Various postoperative complications develop after NLGS, with a higher rate of these being noted in cases involving colorectal surgery than in other cases.

**Index words :** Laparoscopic surgery  
Surgery, complications  
Abdomen, CT

Address reprint requests to : Sang Hoon Lee, M.D., Department of Radiology, St. Mary 's Hospital, College of Medicine,  
The Catholic University of Korea, 62, Youido-Dong, Yongsongpo-gu, Seoul 150-010, Korea.  
Tel. 82-2-3779-1277 Fax. 82-2-783-5288 E-mail : shabd100@medikorea.net

! ?

가

Korean Journal of Radiology(KJR)가

3

가

. KJR NLM

Index Medicus Science

Citation Index(SCI)

Index Medicus, SCI

KJR 가

가 50,000,000

KJR

가

55

2000

6

	30,000	2000
Korean Journal of Radiology(KJR)	10,000	1/2 2001

!

2000

가

가

:

(e-mail, , FAX )

:

: 025-25-0009-535

: 2000 5 31

E-mail : office@radiology.or.kr

:

121-8 ( )137-130

: (82-2) 578-8003, : (82-2) 529-7113

Homepage : http://www.radiology.or.kr