A Case of Neoadjuvant Treatment in the Advanced Colon Cancer with Duodenal Invasion

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1. Case presentation

66세 여자가 2개월간의 피로감, 어지러움과 2주 전부터 시작된 melena 주소로 내원하였다. 당시 환자의 Hb은 6으로 확인되었다. Bledding foucs를 찾기 위해 시행한 위내시경에서 duodenum bulb obstruction을 보이는 mass가 보였으며, 복부CT에서 Colon cancer 의심되어 수혈 후 본원으로 전원되었다.

2. Diagnosis

대장내시경에서 hepatic flexure에서 luminal narrowing과 함께 궤양을 동반한 infiltrating mass가 관찰되었으며, 위내시경에서도 duodenum bulb에 mass로 인한 obstruction이 발견되었다. 두 곳 모두에서 adenocarcinoma, moderately differenciated가 확인되었으며, PET과 abdomen CT에서 uodeno-pancretic groove, para-aortic area, hepatoduodenal ligament에서 metastic lymphadenopathy가 확인되었다.

3. Therapy and Clinical course

다학제 협의하여 6개월간 Neoadjuvant concurrent chemoradiation therapy (Cetuximab with FOLFIRI 8 cycle and 4,500 cGy in 25 fractions, once daily, 5 days/week for 2 weeks) 시행하였다. 이후 시행한 CT상 irregular enhancing wall thickening이 감소하고 adenopathy는 소실되어 Laparoscopic Extended Right Hemicolectomy 시행하였다. 이후 환자는 Adjuvant chemotherapy (FOLFOX 12 times)후 2년간 재발과 전이 없이 외래 추적 관찰 중이다.

4. Conclusion

Locally advanced colon cancer 환자에서 neoadjuvant CCRT는 curative resection 가능성을 높인다.

Key Words: Locally advanced colon cancer, Neoadjuvant CCRT

REFERENCES

1. NCCN Guidelines Version 2,2017 updates colon cancer
2. Feasibility of preoperative chemotherapy for locally advanced, operable colon cancer, Lancet Oncol 2012;13:1152-60

Patient information

- Sex/Age: F/65

- Date of Admission: 2015.10.7

Chief Complaint

- Melena for 2 wks

Present Illness

- 이전 특이병력 없는 환자로

- 내원 2달 전부터 **fatigue, dizziness, intermittent abdominal pain** 있어 한약 복용함.

- 내원 2주 전부터 melena 시작하여 방문한

  LMC evaluation에서 **R/O Ascending colon cancer /c duodenal invasion**, **Hb 6**으로 수혈 후

  further evaluation 및 management 위해 입원함.

Past History

- DM / HTN / Hepatitis (- / - / -)
- Tumor / Drug side effect / Allergy (- / - / -)

- OP Hx. : (-)
- Medication Hx.: (-)

- Social Hx.;
  - Smoking(-)
  - Alcohol(-)

- Family Hx.: Non-specific

Review of system

General	Febrile sense / Chills (-/-)
	Myalgia (-) Weight loss (-)
HEENT	Headache / Rhinorrhea /
	Sore throat / Oral ulcer (-/-/-)
Respiratory	Dyspnea / Cough / Sputum (-/-/-)
Cardiovascular	Chest pain / Palpitation (-/-)
	Dyspnea on exertion (-) Chest discomfort (-)
Gastrointestinal	Nausea / Vomiting /
	Constipation / Diarrhea (-/-/-/-)
	Abdominal pain (+)

Physical Examination

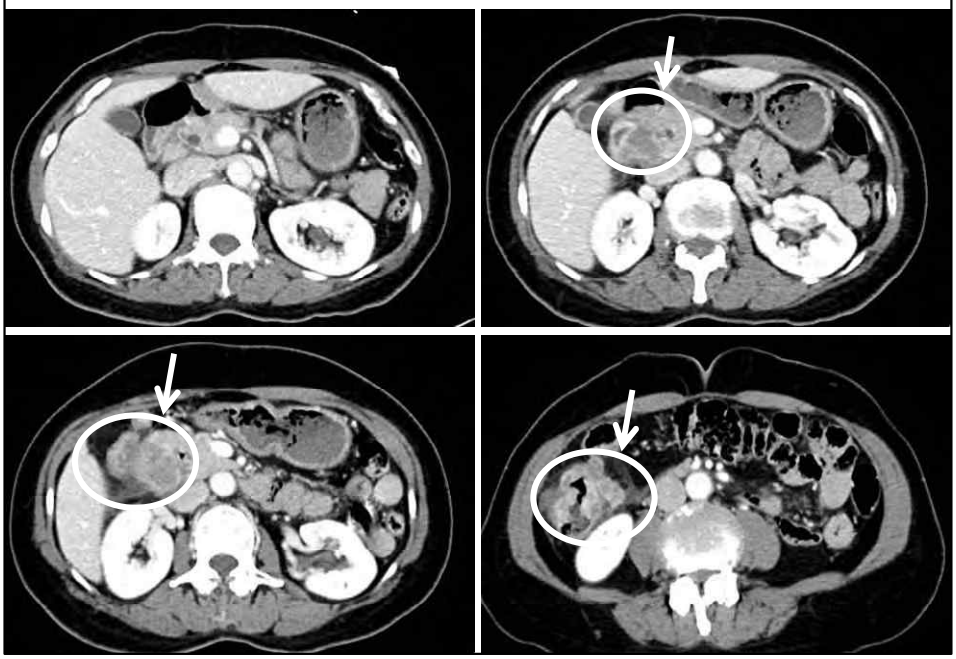
- **Vital sign** : BP 130/90 mmHg, HR 80회/min, RR 20회/min BT 36.5°C

- **General**
  Appearance : **acute ill-looking appearance**
  Mental status : alert, Skin lesion (-)
- **Neck**
  Palpable neck mass (-), Neck vein engorgement (-)
- **Thorax**
  Chest contour: normal, Clear breathing sound
  Heartbeat : regular, Murmur(-)
- **Abdomen**
  soft and flat, Normoaudible bowel sound
  Abdominal tenderness (RUQ+)
  Abdominal rebound tenderness (-)
- **Back & Extremity**
  CVA tenderness (-), Pretibial pitting edema (-)

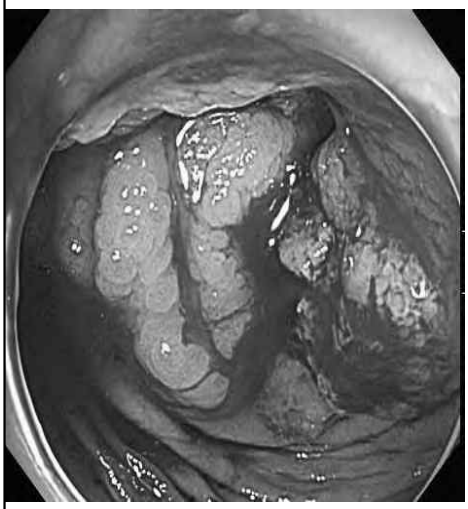
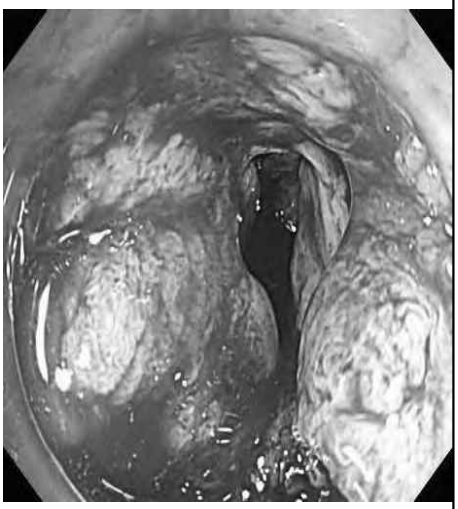
Lab finding (2015.10.7.)

- CBC: 7,100/mm^3 – **10.7** g/dL – 218,000/mm^3
- Na/K : 141.1/3.81 mmol/L
- BUN/Cr : 14.1/0.55 mg/dL
- Protein/Albumin : 7.0/3.9 g/dL
- AST/ALT : 21/11 IU/L
- HS-CRP : 0.796 mm/dL
- CEA: 1.56 ng/mL, **CA19-9: 4,620** U/mL

Abdomen CT



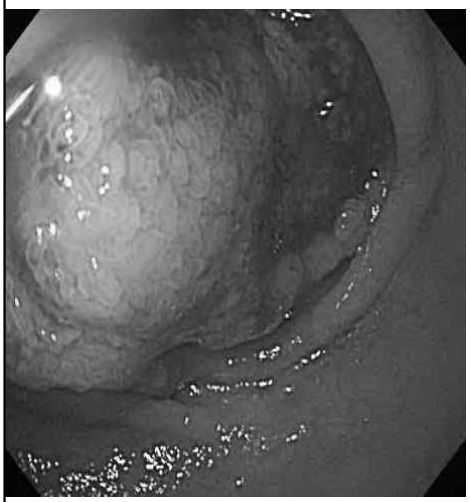
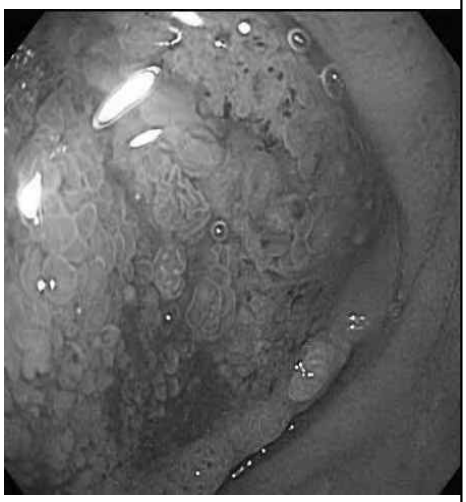
Colonoscopy

Ascending colon (60 cm from A.V.) endoscopic biopsy:

: Adenocarcinoma, moderately differentiated

Endoscopy

Duodenum, endoscopic biopsy:

: Adenocarcinoma, moderately differentiated

Neoadjuvant CCRT

Final diagnosis:

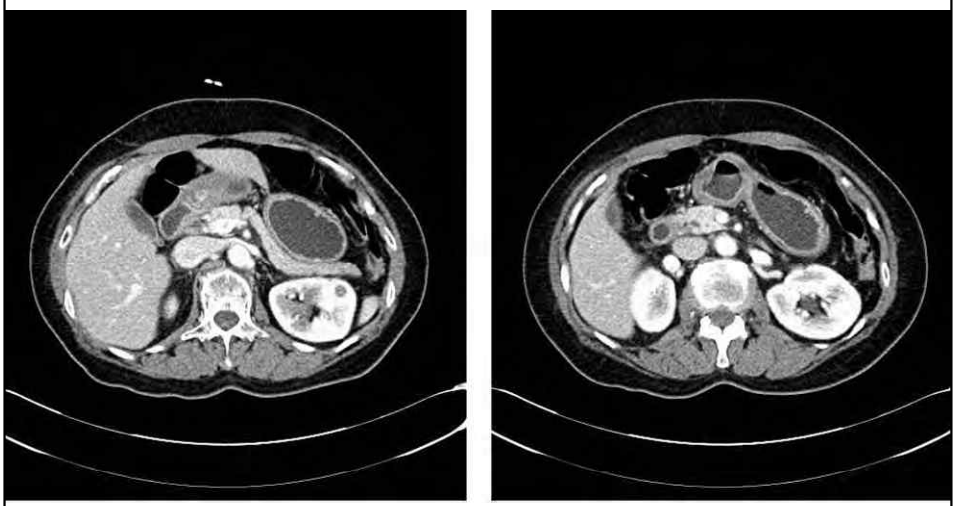
Ascending colon cancer with duodenal invasion

2015.10.28 CCRT start

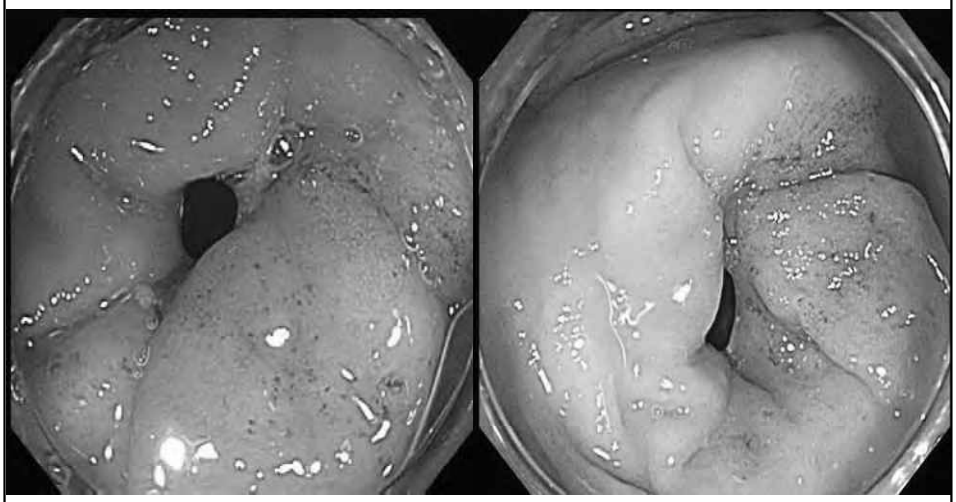
: 45 Gy for 25 fraction+

Cetuximab + FOLFIRI 9 cycle (K-ras wild type, EGFR (+))

Abdomen CT (post CCRT)

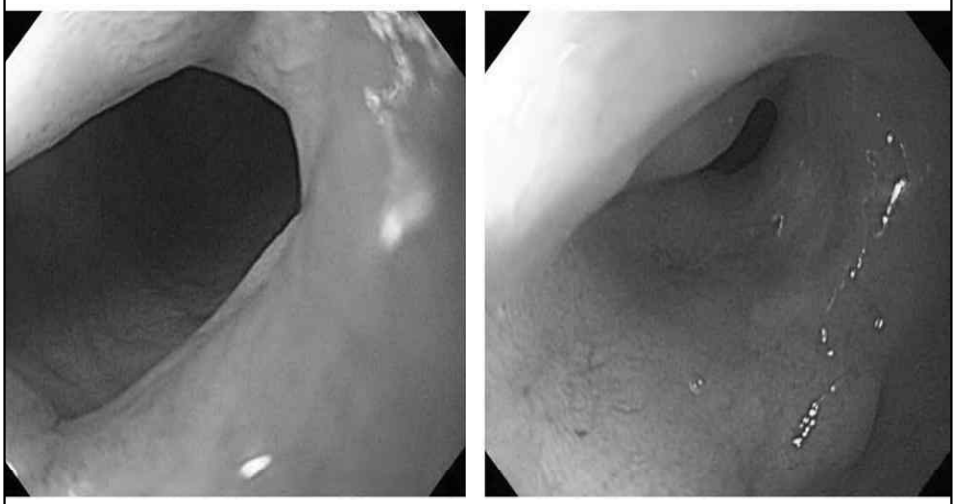


Colonoscopy (post CCRT)



Colon, endoscopic biopsy:
Chronic colitis with stromal fibrosis

Endoscopy (post CCRT)



Duodenum, endoscopic biopsy
: Chronic duodenitis with erosion

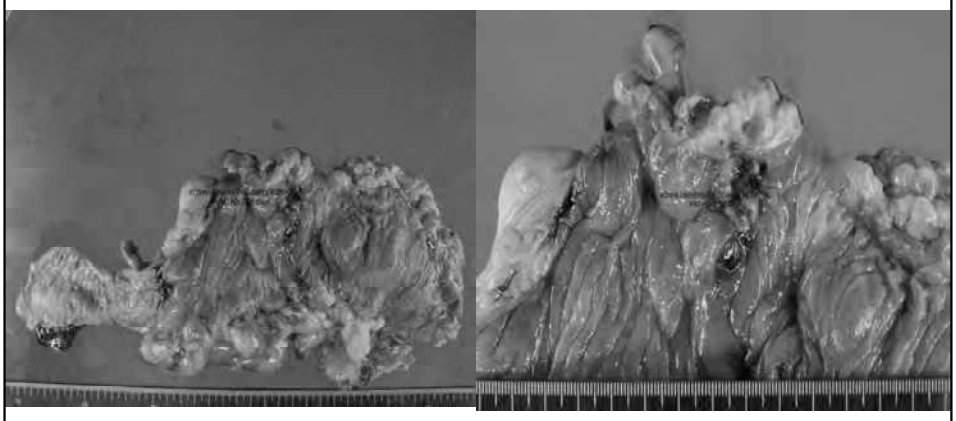
Laparoscopic Extended Right Hemicolectomy

Adenocarcinoma, mucinous, **(ypT3N2a)**

1. Location: ascending colon
2. Gross type: ulcerofungating
3. Size: 3.0x3.0x1.4 cm
4. Depth of invasion: invades pericolic adipose tissue (pT3)

   Resection margin: free from the carcinoma in both resection margin and exposed on radial margin
   (safety margin: proximal 17 cm, distal 16 cm)
6. Regional lymph node metastasis: **metastasis to 5** out of 14 regional lymph nodes (pN2a) --- pericolic (5/14)
7. **Lymphatic invasion: present**
8. Venous/Perineural invasion: not identified
9. Associated findings: perforation

Laparoscopic Extended Right Hemicolectomy



CASE – brief review

- Ascending colon cancer with duodenal invasion
- Neoadjuvant concurrent chemoradiation therapy
- Laparoscopic Extended Right Hemicolectomy : pT3N2a (5/14)
- **FOLFOX adjuvant CTx for 12 times**
- **No recurence., No metastasis for 2 years**

REVIEW:

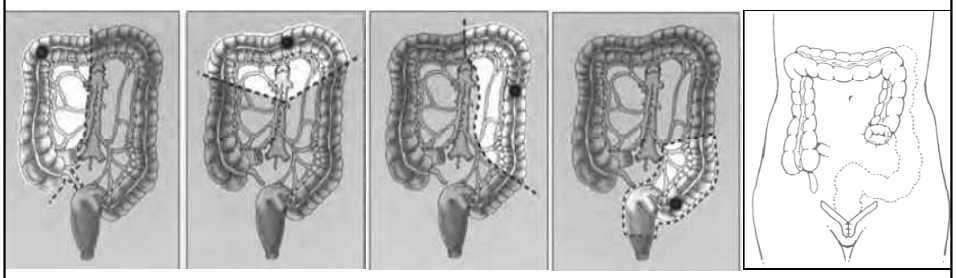
Neoadjuvant Treatment

in the Management of

Locally Advanced Colon Cancer

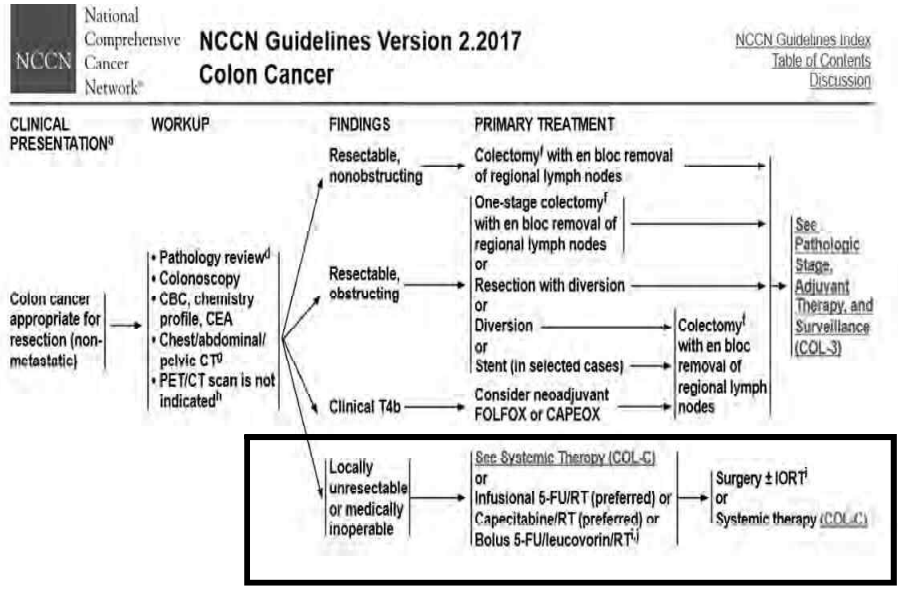
Management of Locally Advanced Colorectal Cancer

- Approximately 80 percent of CRC are localized to the colon wall and/or regional nodes.
- Surgery is the only curative modality for localized colorectal cancer

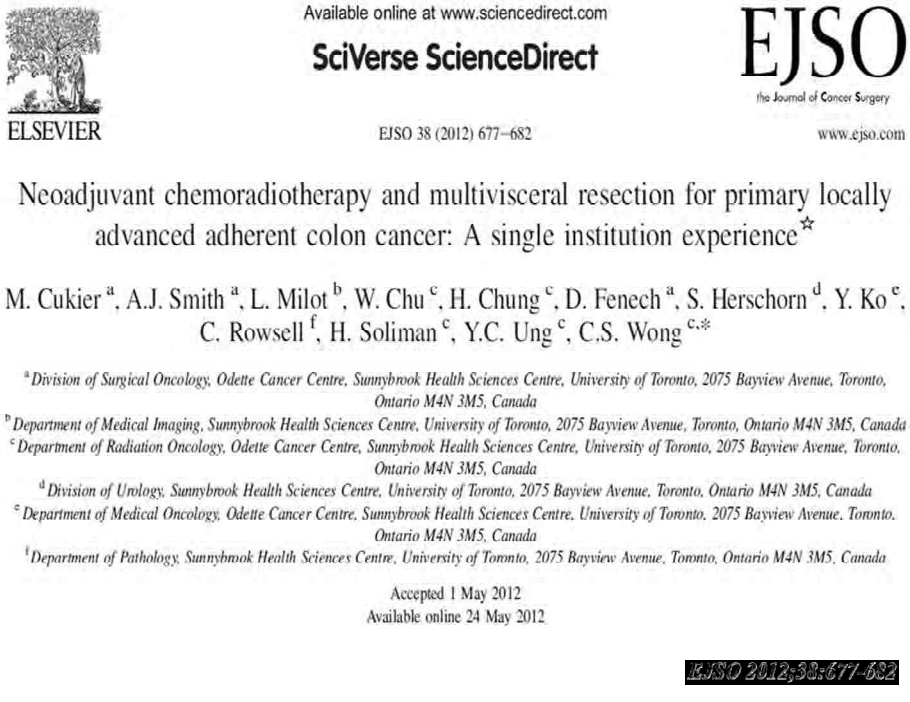


Management of Locally Advanced Colorectal Cancer

- **Neoadjuvant Treatment**
  - Treatment given as a first step to shrink a tumor before the main treatment, which is usually surgery, is given.
  - Examples of neoadjuvant therapy include chemotherapy, radiation therapy, and hormone therapy



Locally unresectable or medically inoperable
- RT/infusional 5-FU/Leucovorin or capecitabine



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the Journal of Cancer Surgery

ELSEVIER

EJSO 38 (2012) 677–682

www.ejso.com

Neoadjuvant chemoradiotherapy and multivisceral resection for primary locally advanced adherent colon cancer: A single institution experience☆

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Accepted 1 May 2012
Available online 24 May 2012

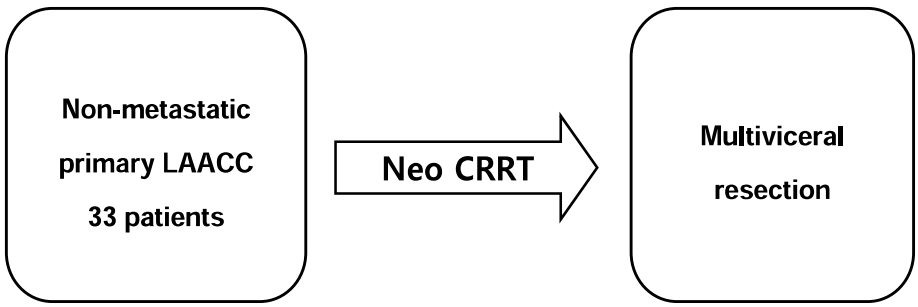
Background

- There is an extensive body of literature on the role of **neoadjuvant chemoradiotherapy** in the management of **rectal cancer**,
- its role in primary **locally advanced adherent colon cancer (LAACC) is unclear.**

→ To analyzed the **outcomes of neoadjuvant CRT** and multivisceral resection in the management of **LAACC patietns**

Methods

- Retrospective study



45-50 Gy in 25 daily fractions

Concurrent 5-FU infusion (225 mg/m^2/day)

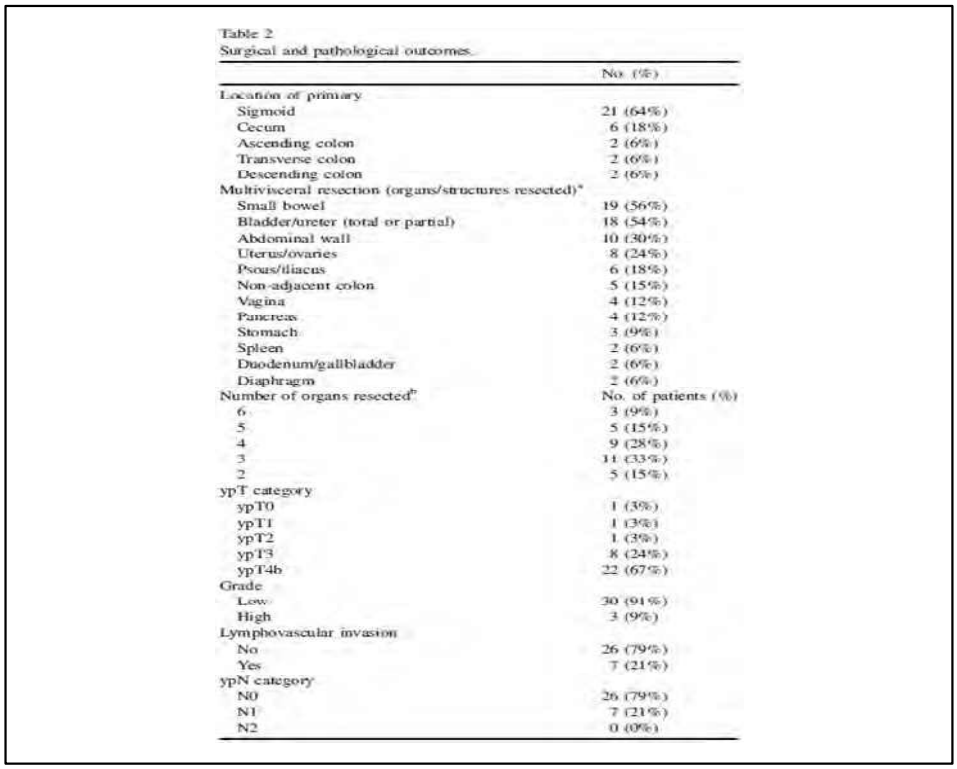
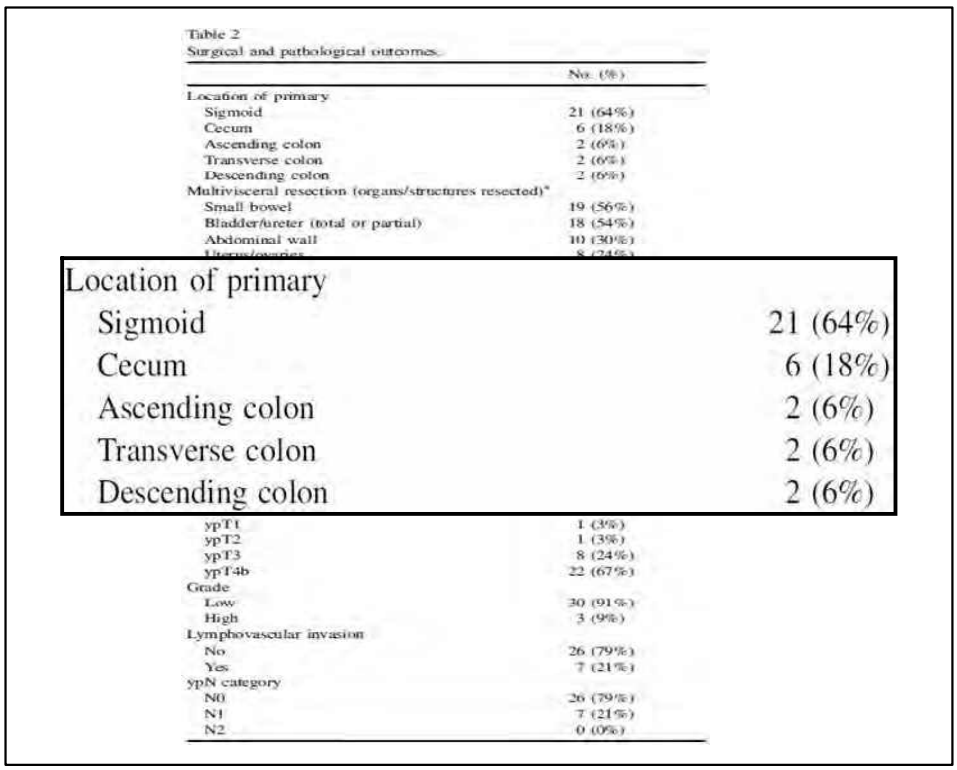


Table 2
Surgical and pathological outcomes.

	No. (%)
Location of primary	
Sigmoid	21 (64%)
Cecum	6 (18%)
Ascending colon	2 (6%)
Transverse colon	2 (6%)
Descending colon	2 (6%)
Multivisceral resection (organs/structures resected)*	
Small bowel	19 (56%)
Bladder/ureter (total or partial)	18 (54%)
Abdominal wall	10 (30%)
Uterus/ovaries	8 (24%)
Psoas/iliacus	6 (18%)
Non-adjacent colon	5 (15%)
Vagina	4 (12%)
Pancreas	4 (12%)
Stomach	3 (9%)
Spleen	2 (6%)
Duodenum/gallbladder	2 (6%)
Diaphragm	2 (6%)
Number of organs resected*	No. of patients (%)
6	3 (9%)
5	5 (15%)
4	9 (28%)
3	11 (33%)
2	5 (15%)
ypT category	
ypT0	1 (3%)
ypT1	1 (3%)
ypT2	1 (3%)
ypT3	8 (24%)
ypT4b	22 (67%)
Grade	
Low	30 (91%)
High	3 (9%)
Lymphovascular invasion	
No	26 (79%)
Yes	7 (21%)
ypN category	
N0	26 (79%)
N1	7 (21%)
N2	0 (0%)



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Location of primary
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Result

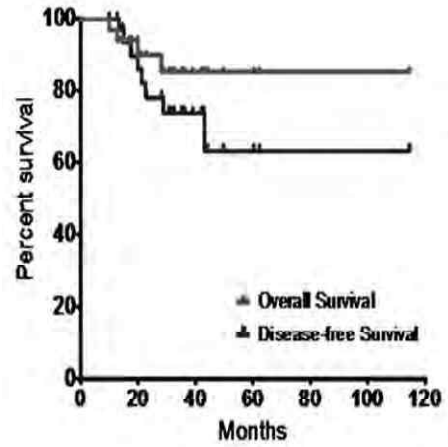


Figure 2. Overall and disease-free survival in patients with non-metastatic locally advanced adherent colon cancer following neoadjuvant chemoradiation and multivisceral resection.

1. **All patients had microscopically clear resection margins (R0)**.
2. Complete pathologic response was documented in 1 patient (3%) and 66% had ypT4b disease.
3. Post-operative complications were observed in 36% of patients.
4. No 30-day mortality.
5. 3-year overall survival were **85.9%**.
6. 3-year disease-free survival were **73.7%**.
7. Two patients developed a local recurrence.

- This is **first study** to date that reports the outcome of LAACC patients managed by **neoadjuvant CRT** and **multivisceral resection**.

- The use of neoadjuvant CRT or radiation for locally advanced colon cancer has **rarely been reported.**

  #Croner et al.: 2 of 174 patients

  Ann Surg Oncol 2002;9:177–85.

  #Taylor et al.: only 9, salvage therapy

  Dis Colon Rectum 2009;52:1381–6.

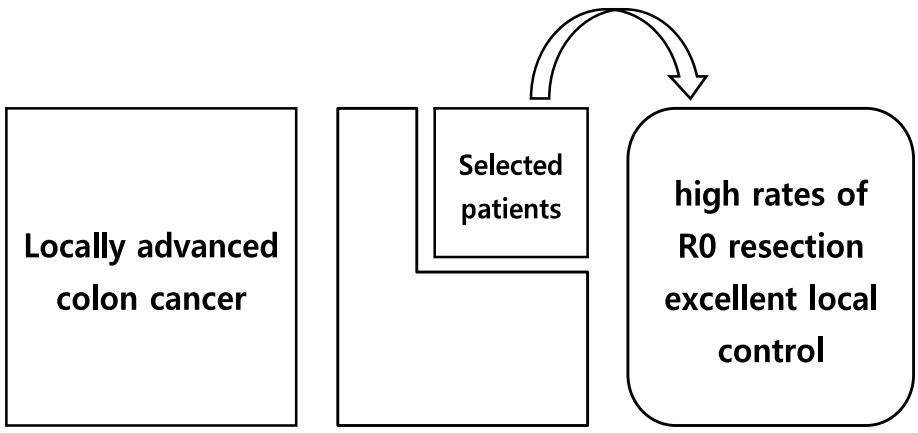
Table 4
Published series of multivisceral resection for primary locally advanced colorectal cancers.

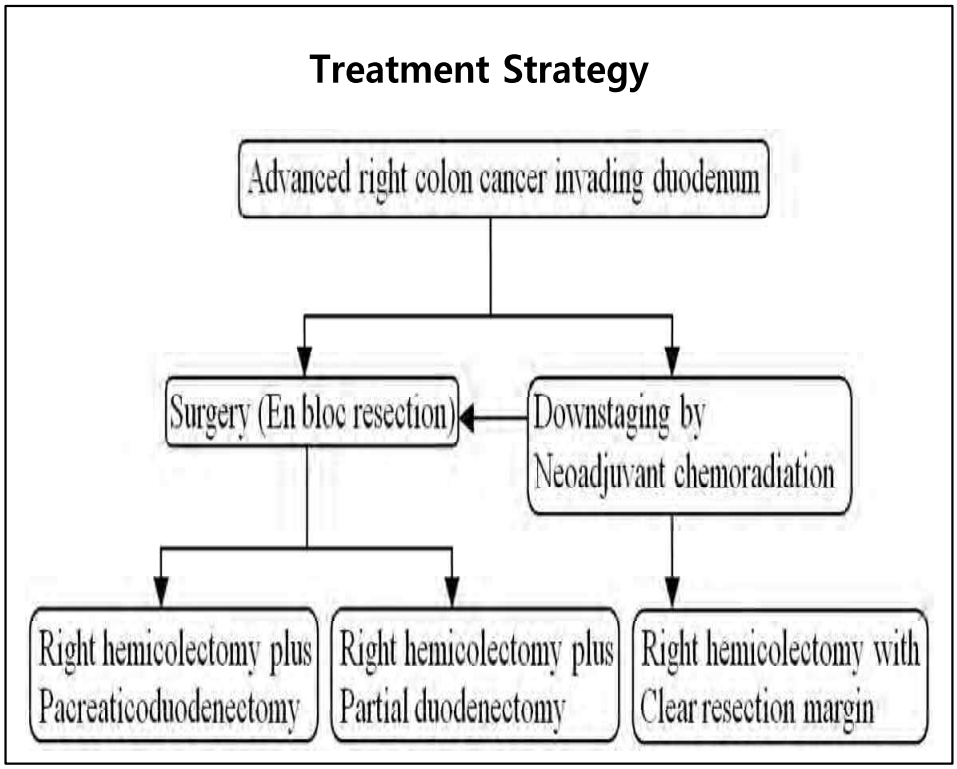
	R0	Morbidity	Mortality	OS (5-year)	No. of patients
Heslov et al. 1988[18]	56%	NR	5%	38%	58[b]
Curley et al. 1992[19]	54%	25%	4%	54%	78[b]
Hermanek et al. 1992[20]	40%	20–40%	3%	52%	197[b]
Rowe et al. 1997[14]	NR	NR	3.5%	56%	118[b]
Gebhardt et al. 1999[5]	81%	11%	3.6%	51%	140[b]
Lehnert et al. 2002[3]	65%	28%	9%	51%	139[a]
Taylor et al. 2002[8]	80%	30%	0%	49%	25[a]
Croner et al. 2009[4]	93%[c]	26%	7%	NR	174[a]
Park S et al. 2011[16]	NR	35%	8%	NR	54[b]
Current study	100%	36%	0%	85.9% (3-year OS)	33[a]

NR: not reported; OS: overall survival.
[a] Only colon cancer.
[b] Combined colon and rectal cancer.
[c] 14/174 had intraoperative tumor cell dissemination.

Conclusion

Neoadjuvant CCRT+OP




Treatment Strategy
Advanced right colon cancer invading duodenum
Surgery (En bloc resection)
Downstaging by
Neoadjuvant chemoradiation
Right hemicolectomy plus
Pacreaticoduodenectomy
Right hemicolectomy plus
Partial duodenectomy
Right hemicolectomy with
Clear resection margin

MEMO