

: 15 (signet - ring cell carcinoma)
 (CT)
 : 15 (, 44) CT
 . CT
 ,
 : 15 9 , 2 , 4
 S 3 - 10 cm (, 6.1 cm)
 2.1 cm . 8
 , 7 1
 14 4 . 12
 6 가 13 ,
 5 , 4 , 2 1
 : CT 가 5 cm

1951 Laufman Saphir (1) CT 15
 0.1 2.4% (2, 3).
 가
 (4) (linitis plastica type of carcinoma)
 1993 3 1999 9
 820
 (5). 22 가 CT가 7
 15 가 7 , 8
 (6-9) 14-68 (, 44) 15
 (10). 5 30 . 7
 (7, 8, 10-14). . 7 (abdomi -
 no - perineal resection) , 4 (right
 hemicolectomy) , 4 (ante -
 rior resection), (lower anterior resection),
 (transanal excision),
 (total pelvic exenteration)
 가 (15-17) CT가
 work - up
 CT

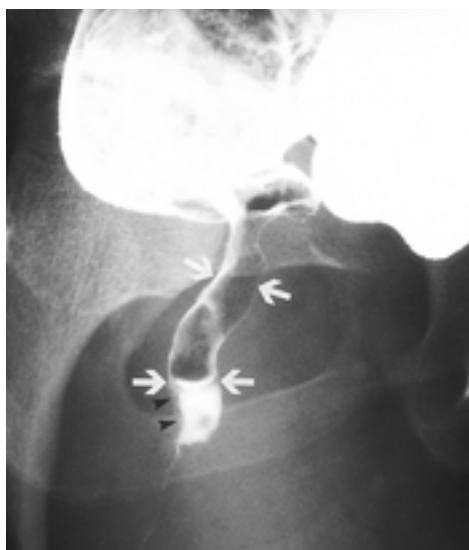
(1).

CT Somatom Plus - S (Siemens, Erlangen, Germany)
 GE Quick System (Generic Electric, Milwaukee, WI)
 5 mm 10 mm
 (600 - 900 mL; 2% barium sulfate suspension; E - Z - CAT, E - Z - EM, Westbury, NY)
 100 - 120 mL ([Iopamidol] Iopamiro 300; Bracco, Milano, Italy or [Iopromide] Ultravist; Schering, Berlin, Germany) 3.0 mL/sec

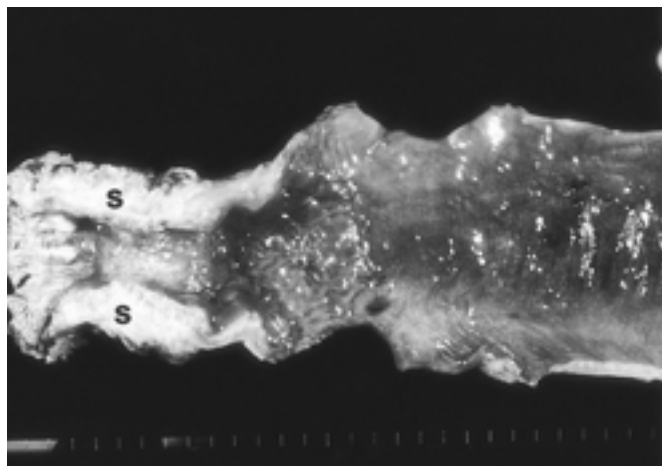
40 - 60 sec scanning time 1.8 - 3.5 sec interscan delay 0.8 - 2.0 sec
 CT
 ; 1) (5 cm), 2) , 3) (/), 4) , 5)
 . CT
 가
 (concentric) (eccentric)



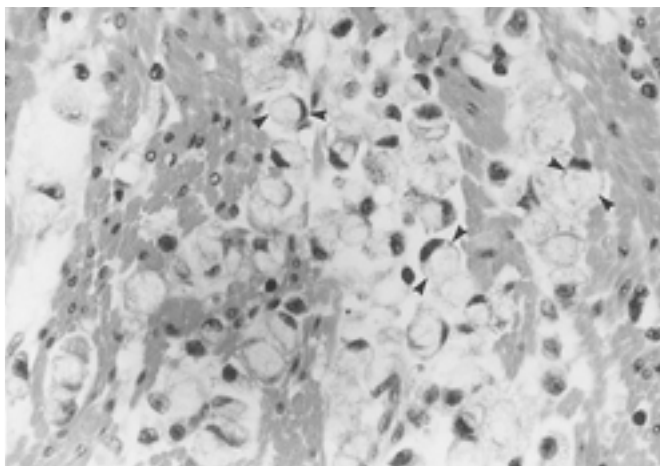
A



B



C



D

Fig. 1. 22-year-old woman with signet-ring cell carcinoma of the rectum.
A. Contrast-enhanced CT scan shows concentric bowel wall thickening (arrows) of uneven thickness in rectum. Note infiltration (arrowheads) and fluid collection in perirectal space (grade III).
B. Double contrast barium enema shows a long segment of concentric luminal narrowing (arrows) along rectum with minimal irregularity (arrowheads) of mucosal surface.
C. Photograph of a gross specimen shows marked circumferential thickening (S) of rectal wall.
D. Photomicrograph shows that tumor is infiltrated with signet ring cells (arrowheads) composed of both eccentrically located, crescent-shaped nuclei and mucin-containing cytoplasm (Hematoxylin-eosin stain; original magnification, $\times 400$).

. CT scan , Grade II 1 - 3 cm , Grade III
3 cm .
(hyperattenuation) ,
(isoattenuation) ,
(hypoattenuation) .
Grade I, II, III 가
Grade I 15 8 .
, Grade II (n = 4) (n = 1) (n = 2)
, Grade III . 15 9 가 , 2 ,
. Grade 4 S
1 cm . 3.0 cm

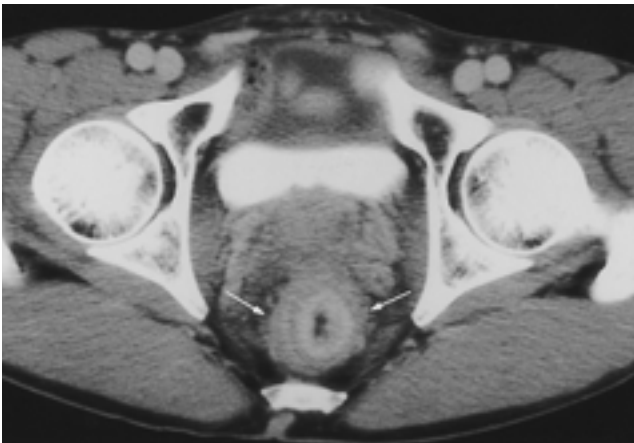


Fig. 2. 39-year-old man with signet-ring cell carcinoma of the rectum. Contrast-enhanced CT scan shows concentric rectal wall thickening with target sign. Also noted is diffuse perirectal tumor infiltration (arrows). At surgery, tumor invaded to both seminal vesicle and prostate.

10.0 cm criteria 5 cm
6.1 cm . 9 8 (anal
verge) (Fig. 1).
1.5 cm 3.0 cm 2.1 cm .
8 , 7
(Fig. 1).
1 14 4 ,
(Fig. 2, 3). 7
, 7 10
4 ,
Grade I 3 II III 1 11 .
6 (Fig. 4, 5).
13
5 , 4
, 2 1

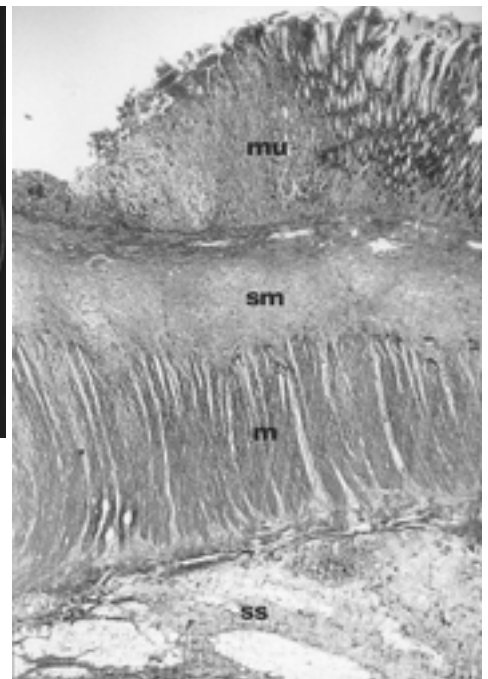
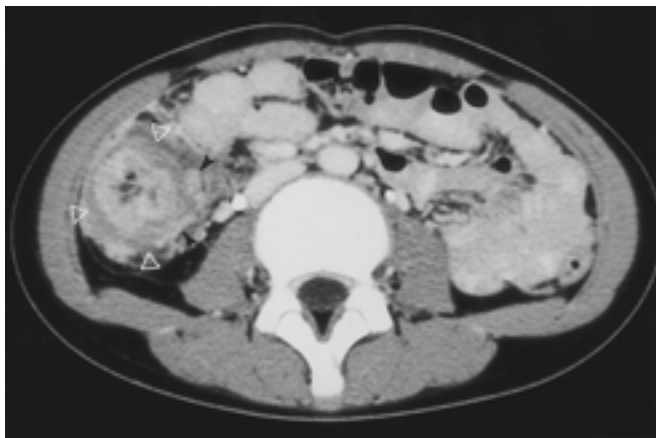


Fig. 3. 14-year-old female with signet-ring cell carcinoma of the ascending colon. **A.** Contrast-enhanced CT scan shows heterogeneous concentric bowel wall thickening (open arrowheads) of ascending colon with a target appearance. Note diffuse pericolonic tumor infiltration and lymphadenopathy (closed arrowheads). **B.** Photomicrograph obtained from surgical specimen shows thickening of submucosa (sm), muscularis propria (m), and subserosa (ss) infiltrated with poorly differentiated tumor cells as well as abundant fibrosis. Note tumor infiltration of mucosal layer (Hematoxylin-eosin stain, original magnification, $\times 20$).

7 3
(overhanging edge)
(apple - core appearance) (Fig. 4) 4

(Fig. 1).
가 12 , 10
2
가
1 - 3 cm
가
(Fig. 1).

15 6 가 (syn -
chronous or metachronous colonic neoplasms) 4
(synchronous tubular adenomas), 1 가
(metachronous tumors) 가
1 3

0.1% 2.4% (1,

18). Secco (11) 352 4
(1.1%)
820 22 (2.7%)

(7, 8, 10 - 14). Secco (11)

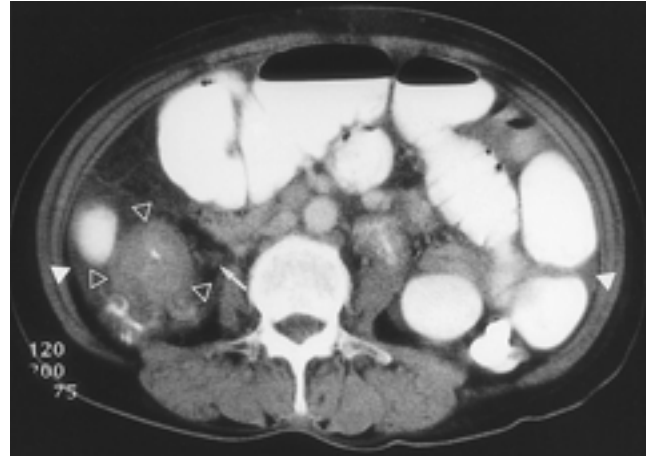


Fig. 5. 57-year-old female with signet-ring cell carcinoma of the ascending colon. Contrast-enhanced CT scan shows heterogeneous, concentric bowel wall thickening (open arrowheads) of ascending colon. Note minimal pericolic lymphadenopathy (arrow), intraperitoneal fluid collection (closed arrowheads) due to peritoneal carcinomatosis, and diffuse small bowel dilatation caused by colonic obstruction.



A

Fig. 4. 52-year-old man with signet-ring cell carcinoma in the hepatic flexure of the colon.

A. Contrast-enhanced CT scan shows concentric bowel wall thickening (arrowheads) in hepatic flexure of colon along with pericolic tumor infiltration (grade II).

B. Double contrast barium enema shows a short interval of concentric luminal narrowing and overhanging edges in hepatic flexure of colon with an apple-core appearance (arrowheads). These radiographic findings are indistinguishable from those of ordinary colonic carcinoma.



B

5 0% (15) .
 100% . Bonello (13)
 85.7%가 Duke's C 1 , , , (16,
 52% . (18). Bonello (13) 17).
 37가 , 가 가 (16, 17). 4
 가
 , 3
 . 15 6 CT
 가 가 CT 가
 (19).
 Anthony (19) 29 가
 4 , 1
 (sessile tubular adenomas) (peristaltic and antiperistaltic movement)
 (milking force) (26).
 CT
 , , 27% .
 (desmoplas -
 tic response)
 (6 - 9).
 (10), 가 6.1 cm
 (8). 가 15 4
 13 4 , 가 2 가
 . Amorn Knight (10) 가 , ,
 . 가 (20). (metastatic linitis plastica) (26, 27)
 CT (28).
 (16). Ha (29) 22
 CT 90%
 가 50% , (immature or 가 5 cm 6 (27%) .
 abortive glands) (monocytoid) 가
 (anaplastic cell)가 (25, 26, 29 - 31).
 () (1, 21). CT
 (32),
 (12). CT
 5 cm (12) .
 15 , , (pseudomem -
 branous) (actinomycosis)
 (1, 8, 22 - 24). (33). 가,
 가
 (25).

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CT Features of Primary Colorectal Signet-Ring Cell Carcinoma¹

Woon Chae Jeong, M.D., Hyun Jin Kim, M.D., In Young Bae, M.D., Kyoung Sik Cho, M.D.,
Tae Kyoung Kim, M.D., Pyo Nyun Kim, M.D., Moon Gyu Lee, M.D., Hyun Kwon Ha, M.D.,

¹Department of Radiology, Asan Medical Center, University of Ulsan College of Medicine

Purpose: To evaluate the CT features of 15 patients with primary colorectal signet-ring cell carcinomas.

Materials and Methods: We retrospectively reviewed the CT scans of 15 patients (mean age, 44 years) with pathologically proven colorectal signet-ring cell carcinoma. The CT findings were evaluated in terms of site and length of the tumor, bowel wall thickening patterns, perirectal or pericolic infiltration, the presence or absence of colonic obstruction, and metastasis to other organs.

Results: The tumors were located in the rectum in nine patients, the sigmoid colon in one, the hepatic flexure in one, the transverse colon in one, the ascending colon in two, and the cecum in one. Tumor length ranged from 3.0 to 10.0 (mean, 6.1) cm, with a mean thickness of 2.1 cm. CT revealed concentric bowel wall thickening in all patients, and this was 'even' in eight and 'uneven' in seven. A target appearance was noted in four, perirectal or pericolic infiltration was moderate to severe in 12, and colorectal obstruction was seen in six. With regard to patterns of tumor spread, lymphadenopathy was noted in 13, invasion of adjacent pelvic organs in five, peritoneal carcinomatosis in four, liver metastasis in two, and periureteric metastasis in one.

Conclusion: When CT shows a long section of concentric bowel wall thickening and a target sign, especially when such findings occur in the rectum and in young patients, primary signet-ring cell carcinoma should be included in the differential diagnosis.

Index words : Gastrointestinal tract
Gastrointestinal tract, CT
Gastrointestinal tract, neoplasms

Address reprint requests to : Woon Chae Jeong, M.D., Department of Radiology, Asan Medical Center, University of Ulsan College of Medicine
388-1, Poongnap-dong, Songpa-ku, Seoul 138-736, Korea.
Tel. 82-2-2224-4400 Fax. 82-2-476-4719

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