

## Colovesical Fistula due to Sigmoid Colon Diverticulitis: A Case Report

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We present a case of colovesical fistula due to sigmoid colon diverticulitis. A 63-year-old woman was referred to our department with the complaints of dysuria, turbid and foul smelling urine. She was treated twice for acute cystitis at the referral hospitals. A diagnosis of colovesical fistula was confirmed on barium enema. She underwent partial resection of sigmoid colon with primary anastomosis and partial cystectomy with repair of bladder wall and covered with omentum. Retrograde cystography taken on the 20th post-operative day revealed no leakage of contrast medium. She was asymptomatic at 3 months of follow-up.

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**Key words:** Colovesical fistula, Sigmoid colon diverticulitis.

### INTRODUCTION

Colovesical fistulas are usually a complication of inflammatory or neoplastic conditions. The most common cause of colovesical fistula is diverticular disease of the colon. Colovesical fistula due to diverticular disease is common in western countries but is an uncommon disease in Japan. We report a case of colovesical fistula due to diverticulitis of the sigmoid colon.

### CASE REPORT

A 63-year-old woman was referred to our department on 1st June, 1994 with the chief complaints of dysuria, turbid and foul smelling urine. She was treated twice for acute cystitis at the referral hospitals in April and May of 1994, respectively. Her past history included appendectomy at age 17 and Caesarean section at age 31. Physical examination revealed no abdominal or pelvic mass. Urinalysis revealed pyuria and bacteriuria. Cystoscopy findings included localized inflammation and bullous edema of the bladder mucosa, feces was seen adherent to the posterior bladder wall

and no fistula was seen. Excretory urography revealed no appearance of contrast medium in the bowel. A provisional diagnosis of enterovesical fistula was made and she was admitted for extensive examination and treatment.

On admission, sigmoidoscopy revealed multiple diverticulosis of the sigmoid colon. Retrograde cystography revealed extrinsic deformity and irregularity of the bladder wall, no presence of contrast medium in the bowel and no evidence of a fistula (Fig. 1). Barium enema revealed appearance of barium in the bladder, suggesting the presence of a vesicosigmoidal fistula (Fig. 2). Computed tomography (CT) showed thickening of the posterior bladder wall and no fistula. Urine cytology was class I. Urine culture revealed *Enterococcus* species ( $6 \times 10^6$  cfu/ml). A diagnosis of vesicosigmoidal fistula was made. One-stage operation was performed on June 29. On laparotomy, sigmoid colon diverticular mass was adherent to the posterior bladder wall. Partial resection of the sigmoid colon with primary anastomosis and partial cystectomy with closure of the bladder defect were performed.

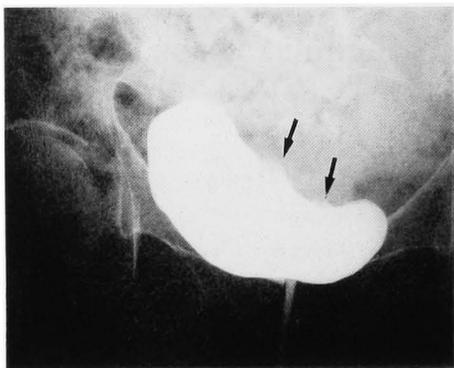


Fig. 1. Retrograde cystography showing extrinsic deformity and irregularity of the bladder wall (arrow heads).



Fig. 2. Barium enema showing presence of barium in the bladder (arrow head).

The bladder defect was closed with vicryl and was covered with omentum. Her post-operative recovery was good. Retrograde cystography taken on the 20th post-operative day demonstrated no appearance of contrast medium in the bowel, and subsequently indwelling urethral catheter was removed. She remained free of symptoms at 3 months of follow-up. Pathological assessment was sigmoid colon diverticulosis with diverticulitis and formation of vesicosigmoidal fistula (Fig. 3).

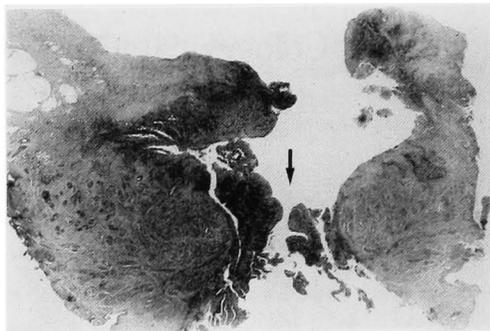


Fig. 3. Histological findings of the resected specimens revealed a sigmoid colon diverticulosis with diverticulitis and formation of sigmoidovesical fistula (arrow head) (H&E staining  $\times 20$ ).

### DISCUSSION

Diverticular disease of the colon affects about 10% and 1% of the population in the westernized countries<sup>1)</sup> and Japan<sup>2)</sup> respectively. Diagnostic symptoms of colovesical fistula include pneumaturia and fecaluria<sup>3)</sup>. Sigmoidoscopy was diagnostic in 10 out of 74 patients (14%) and cystoscopy was diagnostic in 67 out of 87 patients (77%)<sup>4)</sup>. A diagnosis of fistula was made on cystoscopy in 10 out of 18 patients (56%) and on cystography in 5 out of 12 patients (42%) tested<sup>5)</sup>. The presence of a fistula on barium enema was demonstrated in 12 out of 24 patients (50%)<sup>6)</sup>. In our case, a diagnosis of colovesical fistula due to sigmoid colon diverticulitis was confirmed on barium enema. More recently, CT scan has a diagnostic accuracy in excess of 90%<sup>7)</sup> but in this case, only thickening of the posterior bladder wall and no fistula was detected on CT scanning. No single study can confirm all cases of colovesical fistulas, and several studies are necessary to diagnose a colovesical fistula.

Surgical treatment for colovesical fistula is necessary<sup>8,9)</sup>. In the surgical management, the patient's age, general condition and the cause and severity of the primary disease must be considered. A one-stage operative treatment for vesicosigmoidal fistula is an acceptable choice in patients with good nutrition, an optimal bowel preparation, and normal bowel for anastomo-

sis, if the underlying cause is inflammatory. In our case, the patient's general condition was good and the cause of fistula was diverticulitis of the sigmoid colon. Therefore, her post-operative recovery was excellent with one-stage operative treatment and she was discharged free of symptoms 21 days after operation. Furthermore, she was symptomless at 3 months follow-up.

Colovesical fistula has been reported in 1 out of 3,000 surgical admission and 2 to 23 percent of the patients with diverticulitis have a colovesical fistula<sup>10</sup>. Although the most common cause of colovesical fistula is diverticular disease in the westernized countries and as well as in Japan, there are differences in the age group, male/female ratio and site of involvement between these two regions. People in the age group of <60 years old in Japan<sup>11</sup> and >60 years old in the westernized countries<sup>12</sup> are usually affected. Male/female ratio in Japan is 3.3~4:1<sup>11,12</sup> and in the westernized countries is 3:1<sup>5</sup>. Sigmoid colon is mostly involved in the westernized countries<sup>13</sup>, but the ascending colon is mostly affected in Japan<sup>11</sup>. In our case, the patient's were over 60 years old and the sigmoid colon was the cause of colovesical fistula, as in the western countries.

Recently, diverticular disease of the colon has been increasing in frequency in Japan, the most common cause of colovesical fistula. Over 110 cases have been reported in Japan<sup>11</sup>. In the past, the Japanese people used to consume diets high in cereal fiber but recently, the dietary habits are changing to western type of diet, which is low in cereal fiber. There has been reported to be an inverse relationship between the dietary concentration of cereal fiber and the prevalence of colonic diverticula<sup>14</sup>. Moreover, the aging of the population in Japan also contributes to the increasing frequency of diverticular disease.

In conclusion, we presented a case of vesicosigmoidal fistula due to sigmoid co-

lon diverticulitis. A one-stage operative treatment was performed with good post-operative recovery.

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## 和文抄録

## S 状結腸憩室炎に起因した S 状結腸膀胱瘻の 1 例

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63歳女性にみられた S 状結腸憩室炎に起因した S 状結腸膀胱瘻の 1 例を報告する。痛みを伴う排尿困難と混濁し便臭のする尿を主訴に，金沢大学医学部附属病院泌尿器科を紹介された。患者はそれまで 2 回，急性膀胱炎に対して治療を受けていた。注腸検査で S 状結腸膀胱瘻が明らかとなり，S 状結腸部分切除術と縫合

部を大網で被った膀胱部分切除術が施行された。手術 20 日後の逆行性膀胱造影では造影剤の漏れはなく，術後 3 カ月後の現在，何ら症状を認めていない。S 状結腸憩室炎に起因する S 状結腸膀胱瘻は，食生活の欧米化や高齢化に伴って本邦でも今後，増加するものと考えられた。

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