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ANNULAR RECTAL CONSTRICTION DUE TO INFILTRATION BY BLADDER CANCER

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Invasive bladder cancers frequently show lymphatic or hematogenous metastasis. Furthermore, aggressive local invasion into adjacent structures is also commonly observed. However, the occurrence of rectal stricture due to infiltration by bladder cancer is relatively rare. Here, we report three patients with aggressive bladder cancer causing rectal obstruction.

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Key words : Bladder cancer, Rectal obstruction

INTRODUCTION

Annular constriction of the rectum secondary to bladder cancer, which requires colostomy, is seen occasionally in clinical practice. However, only three cases have been reported previously^{1,2)}. We experienced three patients with unresectable bladder cancer who developed rectal obstruction pre- or immediately post-operatively.

CASE REPORTS

Case 1

A 76-year-old man with a history of left nephroureterectomy was referred to our hospital with a diagnosis of invasive bladder cancer. Transurethral biopsy of the lesions showed grade 3 urothelial carcinoma (UC). Laparotomy revealed a bladder mass attached firmly to the pelvic wall and thickened lateral pedicles. The dilated right ureter was diverted for cutaneostomy construction. One month later, the patient developed rectal obstruction. Rectal examination indicated severe rectal stenosis with intact rectal mucosa, which required colostomy construction. A computed tomographic (CT) scan indicated annular thickening of the rectal wall and thickened bilateral lateral pedicles (Fig. 1, A). The patient received immunotherapy at another hospital but died of cancer 5 months after fecal diversion.

Case 2

A 66-year-old man with bladder irritability and perineal pain was referred to our department as CT scan demonstrated a thickened bladder wall and the rectal wall, and bilateral hydronephrosis. These rectal findings were similar to those in Case 1 (Fig. 1, B). A right nephrostomy was constructed. Transurethral biopsy revealed a grade 3 UC, and transrectal needle biopsy suggested that cancer cells had infiltrated into the rectal wall. The patient presented with symptoms of rectal obstruction. Colonoscopy showed a narrow rectal lumen with edematous mucosa, suggesting extrinsic compression. He underwent ileal-conduit formation and colostomy construction simultaneously. During

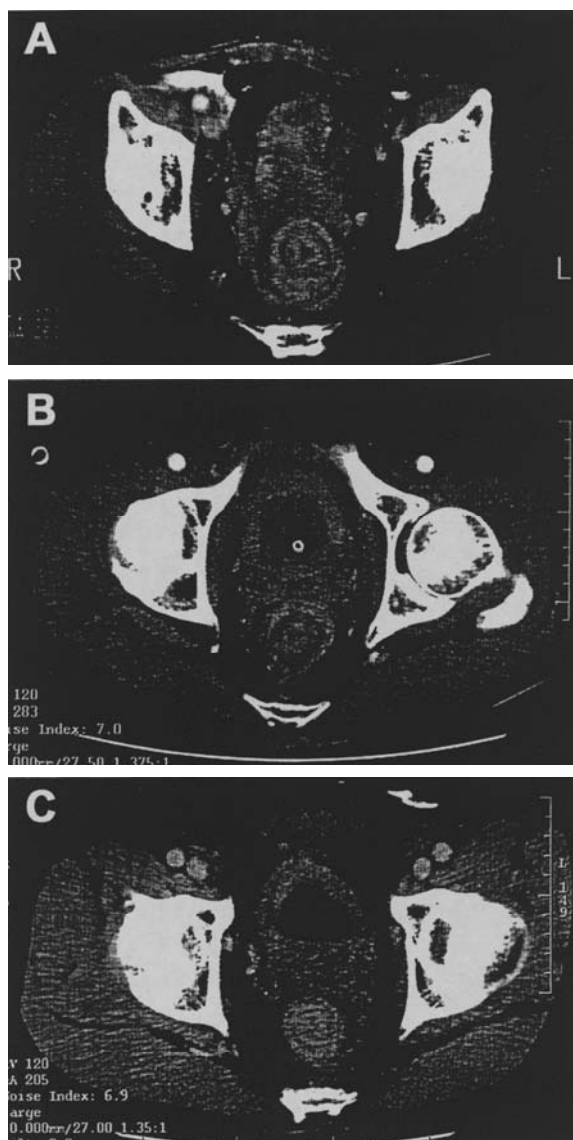


Fig. 1. Computed tomography of the pelvis showed an annular-thickened rectal wall. The bilateral lateral ligaments were thickened, but perirectal fatty tissues seemed to be preserved in all three cases.

surgery, a hard, fixed bladder and irregularly thickened lateral pedicles could be felt. The patient died of cancer 3 months later.

Case 3

A 51-year-old man was referred to our hospital with a diagnosis of invasive bladder cancer (grade 3, UC) plus acutely developed bilateral hydronephrosis. Radical cystectomy was planned, but laparotomy revealed an unresectable bladder tumor attached to the pelvic wall, and thickened lateral pedicles. He underwent left ureterocutaneostomy. One month later, he complained of thin stools. Rectal examination revealed a narrow rectal lumen. CT scan showed annular constriction of the rectum (Fig. 1, C), and he underwent colostomy construction. The patient received one course of chemotherapy (M-VAC), which caused severe liver dysfunction. He died due to cancer progression 10 months after the laparotomy.

DISCUSSION

Rectal obstruction caused by prostate cancer has been reported frequently^{3,4}. However, annular rectal constriction owing to bladder cancer has been reported only rarely. Stillwell et al. reported two male patients with annular constrictions of the rectum¹ that resembled those in our 3 cases. They speculated that a locally aggressive cancer could break the Denonvilliers' fascia and circumferentially encircle the rectum. Langenstroer et al. added one case with a similar rectal obstruction (developed three years after cystectoprostectomy)². They suggested that surgical deposition of cancer cells could be the cause of rectal obstruction.

Bowrey et al. reviewed autopsy cases of prostate cancer causing rectal stricture and classified the forms of rectal involvement into anterior rectal mass with or without ulceration (52%), annular stricture (45%), and separate metastasis (3%)³. The mechanism of the annular stricture by prostate cancer is not yet clear. Masuda et al. suggested extrinsic invasion into the rectal wall after circumferential spread around it rather than direct invasion penetrating through the Denonvilliers' fascia, because CT scan demonstrated that the lesion arising from the prostate encircled and compressed the rectum without any space⁴.

Our three cases all showed cancer cells spreading progressively to involve the bladder wall, which encroached on both ureteral orifices and resulted in reduced bladder capacity. Furthermore, the CT findings of thickened lateral pedicles without involvement of the perirectal fat layer were intriguing. These findings were different from those of prostate cancer causing rectal constriction. Based on these and our surgical observations, we speculate that cancer cells of this type can easily spread along the lateral pedicles to reach the posterior rectal wall, and then permeate the rectal wall.

The lateral ligament is well recognized as an important pathway of lymphatic vessels from the lower rectum toward the iliac lymph nodes in radical surgery for rectal cancer⁵. However, the role of this structure as a route for cancer spread in aggressive types of bladder cancer, such as INF γ type associated with carcinoma in situ, has not been appreciated. Aggressive local infiltration along the adjacent structures, including the lateral pedicles, was clear in the present

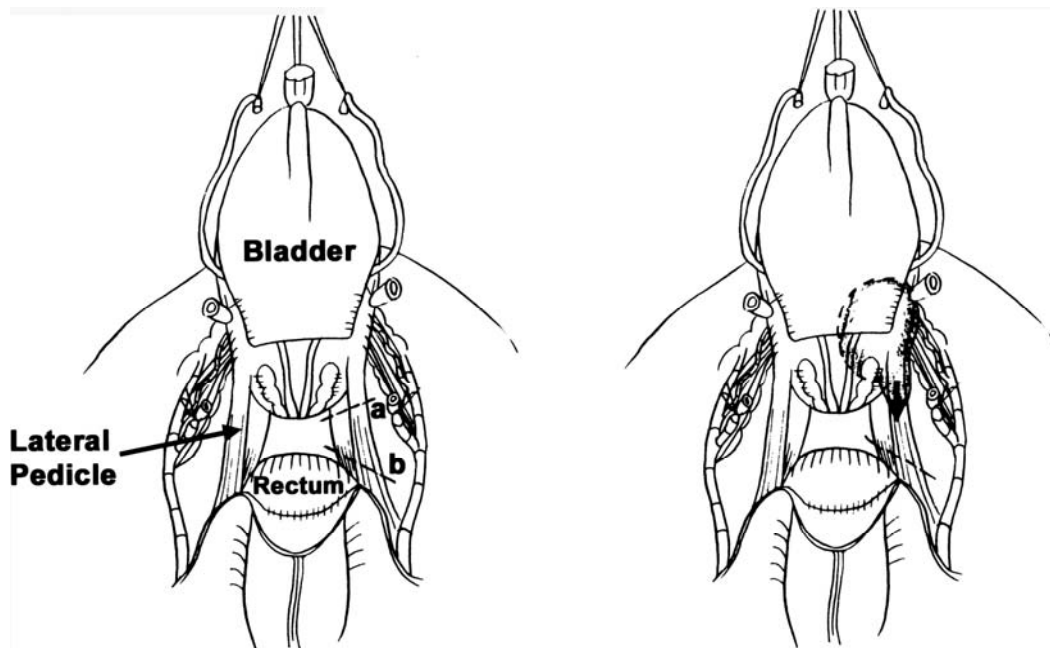


Fig. 2. Left: Surgical anatomy of the lateral pedicle of the bladder. The arrow indicates the lateral pedicle. The dotted line (a) indicates a putative line for nerve-sparing cystoprostatectomy. The dotted line (b) indicates the line for wide resection of the lateral pedicle. Right: As the lateral pedicle can be a route for cancer spread, wide resection is recommended for laterally located aggressive-type bladder cancer.

cases before lymph node involvement or hematogenous spread became evident. This may be an unusual backflow route for spreading the cancer cells from the bladder, as the normal lymphatic drainage starts from the endopelvic lymph nodes (obturator plus internal iliac) to the more proximal lymph nodes⁶⁾.

Therefore, it is necessary to take the possible abnormal flow of the cancer cells into consideration, especially when the tumor is of an aggressively growing type and is located laterally. Unfortunately, the bladder cancer in our cases was too advanced to treat, and the establishment of a novel multi-disciplinary therapeutic regimen is awaited. However, the results described here indicate that it may be better to divide the lateral pedicles as widely as possible to avoid deposits of bladder cancer even when standard radical cystectomy is performed (Fig. 2). We suggest that nerve-sparing cystoprostatectomy may not be indicated for laterally located aggressive-type bladder cancer confirmed by transurethral biopsy.

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和文抄録

膀胱癌による直腸輪状狭窄の3例

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浸潤型の膀胱癌においては, リンパ行性や血行性の転移はよくみられ, また隣接臓器への局所浸潤も稀ではない. しかしながら膀胱癌の進展に伴う直腸狭窄症

例は比較的稀である. われわれは膀胱癌に伴う直腸狭窄を3例経験し, その機序につき考察した.

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