Intracavitary Irradiation of Locally Advanced Recurrent Adenocarcinoma of Rectum Along the Fistula Tract

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Radiation therapy has been used as adjuvant therapy or primary treatment for inoperable, remnant or recurrent cancer. Many authors reported good palliation effect by external irradiation or interstitial therapy, but the report of intracavitary irradiation for recurrent, inoperable rectal cancer is very rare.

We experienced a case of recurrent adenocarcinoma of rectum along fistula tract after laparotomy and postoperative radiotherapy who achieved very good palliation by intracavitary irradiation.

Even though we have only good palliation wihout impressive survival improvement in this case, we hope that this technique may achieve good local control in other similar patients.

Key Words: Intracavitary irradiation, Inoperable;Remnant, Recurrent rectal cancer

INTRODUCTION

Rectal cancer is the second leading cause of death due to cancer in US men[1] but 5th (3.3%) leading frequency in Korean men and 8th (3.4%) in Korean women[2].

In spite of extensive development of surgery, including the introduction of stapling gun in low anterior resections, increasing use of CT in diagnosis and staging, chemotherapy and radiotherapy over the last several decade, reported local recurrence rate was 36-75%[3~7] in patients with tumor extension through the bowel wall. Also, approximately 15% of colorectal cancer patients were judged as unresectable cancer at diagnosis[8], the treatment of these unresectable, recurrent cancers are still problem.

Radiation therapy has been widely used as a primary treatment for those recurrent, unresectable cancer in order to control local disease, but the cure rate remains poor. The mean duration of life after proof of unresectability was reported to be 9.5 months (median 7.0 months)[5] although there were many reports of good palliation and occasional cure[5,9~12].

Authors treated one case of recurrent adenocarcinoma of rectum along the fistula tract after laparotomy and postoperative irradiation with high dose rate afterloading system. Good palliation was achieved.

The technique and the rationale are discussed with review of literatures.

CASE REPORT

A 63 year old man admitted in general sugery department of Yeung Nam University Hospital on 16 Apr. 1986 with a 6 months' history of anal pain, tenesmus and intermittent rectal bleeding. In rectal examination, circumferential irregular growing mass was palpated at 5 cm above the anal verge.

Abdominal CT showed rectal origin mass in left anterolateral aspect and direct involvement of left side prostate and surrounding muscle. Mild hydronephrotic change of left kidney with dilated ureter was also noted

On 26 Apr. 1986, laparotomy was performed but tumor was unresectable because of extensive fixation to the prostate and pelvic wall. Liver and other organs were grossly normal. Descending colon end colostomy, repair of rectal fistula and pelvic floor reconstruction with omental flap for upward displacement of small bowel were performed.

Pathologic report was adenocarcinoma, moderate differentiated. Patient was transfered to our department with continuous discharge through perineal opening of fistula on 18 May, 1986. External

irradiation with 10 MV x-ray (NEC, NELAC-1018D), parallel opposed field were planned upto 5,000 rad with 180 rad×5/wk regimen for whole pelvis and perineum. Supplementary direct perineal portal was used with 15 MeV electron upto 1500 rad. All planning were performed by treatment planning computer (Therac-2300) with planning CT. All treatment were finished on 4 July, 1986 and patient tolerated very well except discomfort on previous nephrostomy site. 5FU chemotherapy was started.

Follow up CT showed slightly improved pelvic mass with some necrotic finding. On 11 Nov. 1986, patient complained urinary difficulties. Nephrostomy site was checked and antibiotics were given. Symptom was improved in several days.

On 19 Jan. 1988, patient visited GS department and complained severe perineal pain. He could not sit and lie down in supine position because of severe perineal pain. In physical examination, cauliflower like new growing tissue around perineal opening of fistula with sero-sanguineous discharge. Biopsy report of outside mass and inner portion of fistula tract were adenocarcinoma, moderate differentiated. Perineal skin was in very poor condition because of contineous discharge, inadequate dressing and frequent infection. Patient transfered to our department again.

Fistulogram was performed(Fig. 1) and shape of fistula tract was confirmed. Intracavitary irradiation with high dose rate after-loading system (Shimadzu, RALSTRON-20B) (Fig. 2 & 3) was planned with 2000 rad at 1 cm radius and treated with out-patient bases (Fig. 4 & 5).

2 weeks later, patient visited our OPD for follow up check and he presented that not only he

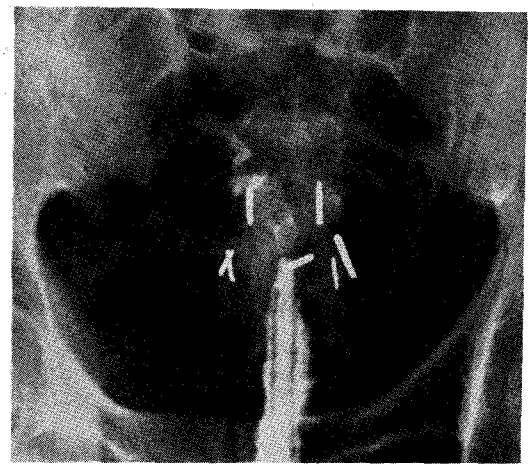

Fig. 1. Fistuloraphy showed irregular new growth alone fistula tract. Biopsy proved adenocarcinoma, moderate differentiated.

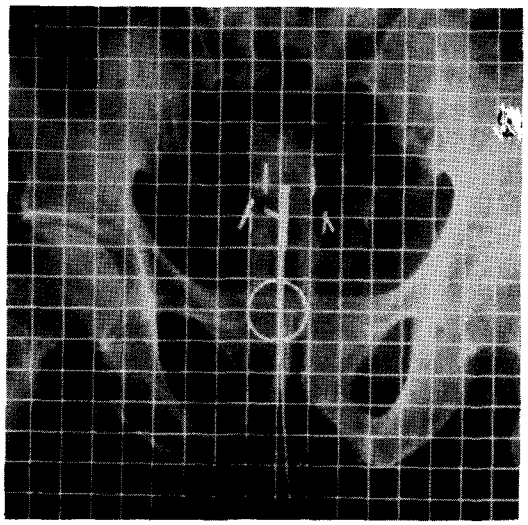

Fig. 2. Pretreatment evaluation with dummy source. (Ap).

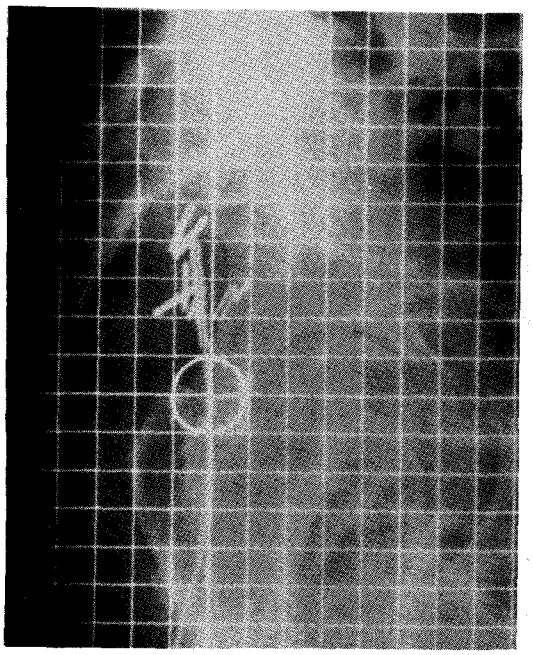

Fig. 3. Pretreatment evaluation with dummy source. (Lat).

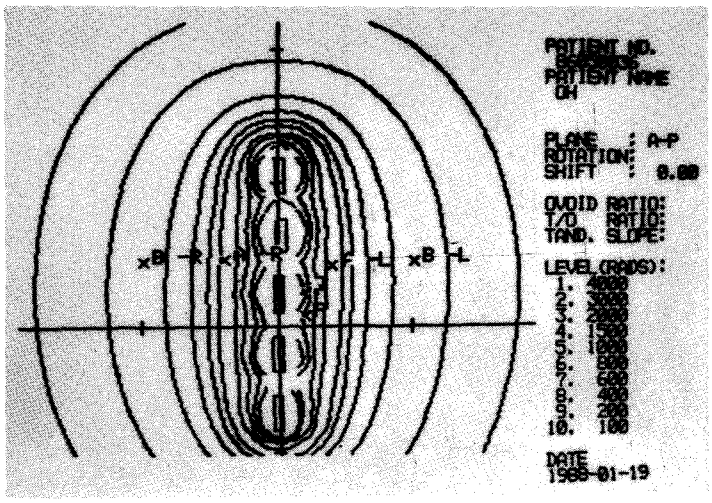

Fig. 4. Isodose curve in coronal plane.

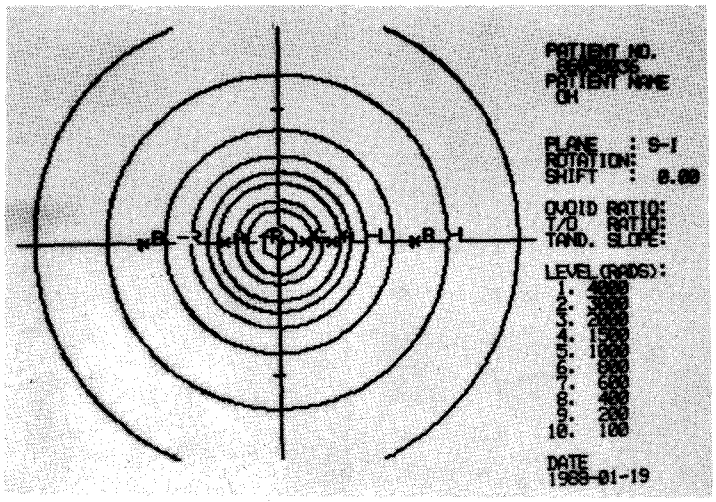

Fig. 5. Isodose curve in axial plane.

could sleep well in supine position, but also he could eat in sitting position without any pain. 4 weeks after intracavitary irradiation, perineal outgrowing mass was almost disappeared.

On 4 June, 1988, no urine was passed through nephrostomy catheter, patient condition was abruptly worsened. He expired on 14 June, 1988, probably due to uremia.

DISCUSSION

Surgery is still the main treatment modality of rectal cancer but patients with stage B2 and C disease have a high tendency for local failure and distant metastases inspite of extensive development of surgical techniques. Most recurrent patients die within one year from the clinical appearance and the 3 year survival is only 10%[4].

Surgery for recurrent or inoperable primary cancer is usually impossible because of extensive invasion of tumor to adjacent structures.

Various chemotherapy regimens were tried but the results have been disappointing, so far.

In most cases, radiation therapy is the treat-

ment of choice although the aim is generally palliation. By radiation therapy, palliation effect may be achived with less than 5000 rad[4,5], but some data suggested that permanent local control may be improved if doses of 6000 rad to 7000 rad could be safely delivered in 7 to 8 weeks[5,10]. At this dose level, incidence of complication such as necrosis, perforation and fistulation will be increased, so that special consideration for safe delivery of curative doses is essential.

They include[13] exact clipping and pelvic floor reconstruction for excluding of small bowel from radiation field in surgical aspect[3], multiple field irradiation, shrinking boost field, optimal equipment and special position with bladder distension in radiation therapy aspect.

In this case, extensive tumor volume was shaped by surgical clipping and small bowel loops were upward displaced by omental flap, even though primary tumors could not be resected, for safe irradiation of high dose.

Many authors advocated the necessity of perineal irradiation. Bayor et al[3] reported that perineal recurrence after irradiation and surgery were 7% in Dukes' A and B tumor and 39% in Dukes' B and C tumor. Ciatto and Pacini[4] also recommended irradiation of true pelvis and perineum because of the high frequency of simultaneous involvement of perineum. We treated 6500 rad on perineum but we could not prevent the recurrence. This case suggested that perineal dose should be higher in high risk group.

Various dose and approaches were proposed but fixed treatment dose scheme have not established yet, probably due to response heterogeneity of tumor and normal tissue[14]. Namely, response of tumor and normal tissue to a given dose may be different in even same type tumor or same normal tissues.

Intracavitary irradiation has been used as a boost therapy after external irradiation to obtain better local control. Hishigawa et al[15] reported 62 % of local control of esophageal carcinoma by 600-1200 rad of intracavitary irradiation following 5000-6000 rad of external irradiation as a boost therapy. We treated this case with high dose rate remote afterloading system (Shimadzu, RALS, 2.9 Ci) through tandem tube and 2000 rad at 1 cm radius was irradiated in single dose. We tried external irradiation with small field which is made with planning CT but stopped at 1360 rad because of poor skin condition due to contineous discharge through fistula tract and inadequate skin care.

Thomson et al[16] reported that about 44% of acquired recto-urinary fistula were associated with malignancy in his series. Operative repair of this lesion often has been associated with high recurrence rate and postoperative morbidity (33%) especially in previous irradiated patients. We could not try operation for repair of fistula tract because of poor patient condition and communication of fistula tract with primary tumor site.

Although we obtained only good palliation effect and could not extend patient's survival but we hope that this technique can improve survival as well as local control in other patients.

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=국문초록=

누도를 따라 재발한 직장암의 강내조사

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방사선 치료는 악성 종양의 치료에서 국소 치료의 효과를 높이기 위한 수술 전후의 보조치료로서, 혹은 수술 불가능한 암, 잔여암, 또는 재발암의 치료로서 널리 사용되어 왔으며 외부 방사선 치료, 동위원소를 사용한 자입치료 등에 의한 장기간의 국소 치료효과 및 증상의 호전에 대한 보고는 많다. 그러나 수술전후의 방사선 요법과 수술을 병행한 직장암 환자에서의 치료후의 재발은 외과적 치료가 대부분에서 불가능하여 외부 방사선 요법, 화학요법 등이 증상완화의 목적으로 사용되어 왔으나 강내조사의 보고는 거의 없다.

영남대학교 치료방사선과에서는 수술전 검사에서 수술 불가능으로 판명되어 수술전 방사선 치료를 받은 후 개복하였으나 절제가 불가능하였던 환자에서 발생한 누도(fistula tract)를 따라 재발된 직장암 환자에서 강내 치료를 실시하여 매우 빠른 증세의 호전을 경험하였기에 문헌 고찰과 함께 보고하는 바이다