HIGH DOSE RATE BRACHYTHERAPY IN BENIGN UTERINE BLEEDING DISORDERS

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ABSTRACT

A case report of benign uterine bleedings (metropathia) was treated with high dose rate brachytherapy. The radiation doses were 2 fractions of 700 cGy at 1 centimeter from the tandem at four weeks interval. The patient had no bleeding in a month after treatment. She could tolerate the treatment well without any complications. High dose rate brachytherapy should be remembered in cases of uterine bleeding resisted to other therapies especially in cases of high risk for operation. However, long term follow-up should be done to evaluate late radiation effect of high dose rate radiation for benign uterine bleedings.

INTRODUCTION

Radiotherapy was a method of choice for the treatment of benign bleeding disorders (metropathia) in a woman of high surgical risk in the past. The methods of treatments are intracavitary brachytherapy or external irradiation or both. Most of the brachytherapy treatments used radium as a radioactive source.[1,2] Only a report using high dose rate iridium as a radioactive source for brachytherapy in benign uterine bleeding disorders is available.[3]

CASE REPORT

In August 1991, a 35 years old female patient with chronic renal failure presented at the gynecologic clinic because she had bleedings per vagina. Gynecologic examination revealed bleeding per cervical os. The patient was undergone dilatation and curettage procedure, and the pathological report was proliferation of endometrium. The diagnosis of benign uterine bleeding was given. Her hematocrit was 17 %. She was affected with chronic glomerulonephritis since 1986. In 1988, she was diagnosed of having chronic renal failure. In 1990, kidney transplantation was done, but the result was not good. The transplanted kidney deteriorated quickly, and she was diagnosed of having chronic renal failure again shortly after the transplantation.

The gynecologist prescribed 150-mg DMPA (depot medroxyprogesterone acetate) intramuscular injections every 3 weeks for 6 cycles. In February 1992, she still had periodic vaginal bleeding and her hematocrit was 17%. The second course of 150-mg DMPA intramuscular injections every 3 weeks for 4 cycles was prescribed. In December 1992, her hematocrit was 18% with periodic vaginal bleeding. She suffered from periodic vaginal bleeding with low hematocrit level through serveral courses of medical treatments. In July 1995, She was referred to us for intracavitary radiotherapy because her hemoglobin level was too low to be good candidate for kidney transplantation and she had high surgical risks for hysterectomy.

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TECHNIQUE

The patient was treated using our microSelectron-HDR afterloading machine. Single rigid 3.2-mm diameter intrauterine tube with 30 degrees angled end was inserted into uterine cavity as shown in figure 1.

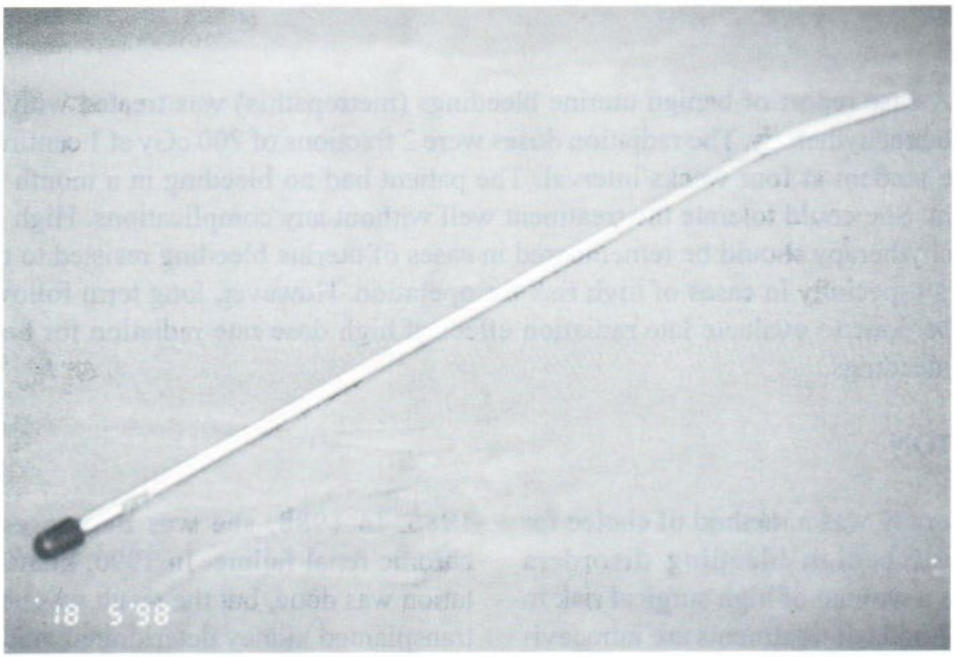

Fig. 1 A rigid 3.2-mm diameter intrauterine tube with 30 degrees angled end.

The intrauterine portion length of the tube was 6 centimeters, and iridium source positions were placed not beyond uterine cavity. Reference isodose for treatment was prescribed at distances of 1 centimeter from axis of applicator. The total treatment consisted of 2 fractions of 700 cGy at four weeks interval. The total rectal dose and bladder dose defined by ICRU were 506 cGy and 830 cGy respectively. Only oral analgesic drug was needed. The treatment procedures were carried out as an out-patient and completed the procedures in 2 hours.

RESULT

The patient tolerated the treatment procedure very well, no immediate complication was found. One month after treatment, the bleeding stopped, and the hematocrit level gradually increased. During 2 years and 8 months follow-up, no bleeding has been observed. In March 1998, her hematocrit was 36.6 %.

DISCUSSION

The availability of computer controlled remote afterloading machines has given impetus to the use of high dose rate brachytherapy. The microSelectron-HDR could be used for outpatient HDR iridium-192 brachytherapy procedures. This machine uses a single high activity iridium-192 source, which can be programmed by its computer

to be selected. It offers several important advantages over low dose rate manual afterloading techniques, including

1. Improved radiation protection to the staff
2. Increased ease of achieving optimized dose distribution
3. Elimination of complications associated with prolonged bed confinement, especially in elderly patients
4. Marked decrease in patient discomfort
5. Administration of the treatment as an outpatient basis
6. Avoidance of general anesthesia in selected patients

Radiotherapy was a method of choice for the treatment of benign bleeding disorders (metropathia) in women of high surgical risk in the past. The methods of treatments are intracavitary brachytherapy or external irradiation or both. Most of the treatments used radium as a radioactive source. Late effects such as cardiovascular deaths, and higher incidence of malignant diseases has been reported.[2,4] In 1989, Ryberg M. and associates published a number of malignant tumors in 107 cases after followed up in 933 women with benign bleeding disorders treated with radiation during 1912 to 1977 period.[2] Inskip PD and associates reported an increased risk of leukemia and other cancer among 4153 women treated with intrauterine radium for benign uterine bleeding disorders between 1925 and 1965. The treatment of benign uterine bleedings by radiotherapy has gradually decreased, but for the selected patients that resist to other treatments, it is an effective treatment. Only a report using high dose rate iridium as a radioactive source for brachytherapy in benign uterine bleeding disorders is available. We demonstrated successful outpatient procedures for treatment of benign uterine bleeding disorders with high dose rate intracavitary radiotherapy.

CONCLUSION

High dose rate iridium intracavitary radiotherapy can be used effectively without any acute complication in cases of uterine bleeding resisted to other therapies especially in cases of high risk for operation. However, long-term follow-up should be done to evaluate late radiation effect of high dose rate radiation for benign uterine bleedings.

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