

# 저리서암에 대한 방사선치료

## Radiation Treatment for Prostate Cancer

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Jae Ho Cho, M.D.

Department of Radiation Oncology

Yonsei University College of Medicine, Severance Hospital

E - mail : jjhmd@yumc.yonsei.ac.kr

### Abstract

Selecting the optimal treatment of each stage of prostate cancer is very challenging, partly because the options for treatment today are far better than they were ten years ago, but also because not enough reliable data are available on which to base the decisions. Accordingly, scientifically controlled, long - term studies are still needed to compare the benefits and risks of the various treatments. In the process of counseling and discussing therapeutic options with patients with prostate cancer, it is important to present all available data regarding the variable natural history of this disease, prognostic significance of the diagnosis, potential therapeutic benefit of the various modalities, and immediate as well as late treatment - related sequelae. Radiation therapy can be given either as external beam radiation over perhaps 6 or 7 weeks or as an implant of radioactive seeds (brachytherapy) directly into the prostate. In external beam radiation, high energy x - rays are aimed at the tumor and the area immediately surrounding it. In brachytherapy, radioactive seeds are inserted through needles into the prostate gland under the guidance of transrectally taken ultrasound pictures. This article will describe recent advances in external beam radiotherapy [ 3D conformal radiotherapy (3D - CRT) & Intensity Modulated Radiotherapy (IMRT) ], indications of radiotherapy, response evaluation and assessment of relapse after the radiation treatment for prostate cancer, and radiation - related complications.

**Keywords :** Prostate cancer; Radiotherapy; 3D - CRT; IMRT

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가

10

가

(Nerve - sparing Surgery)

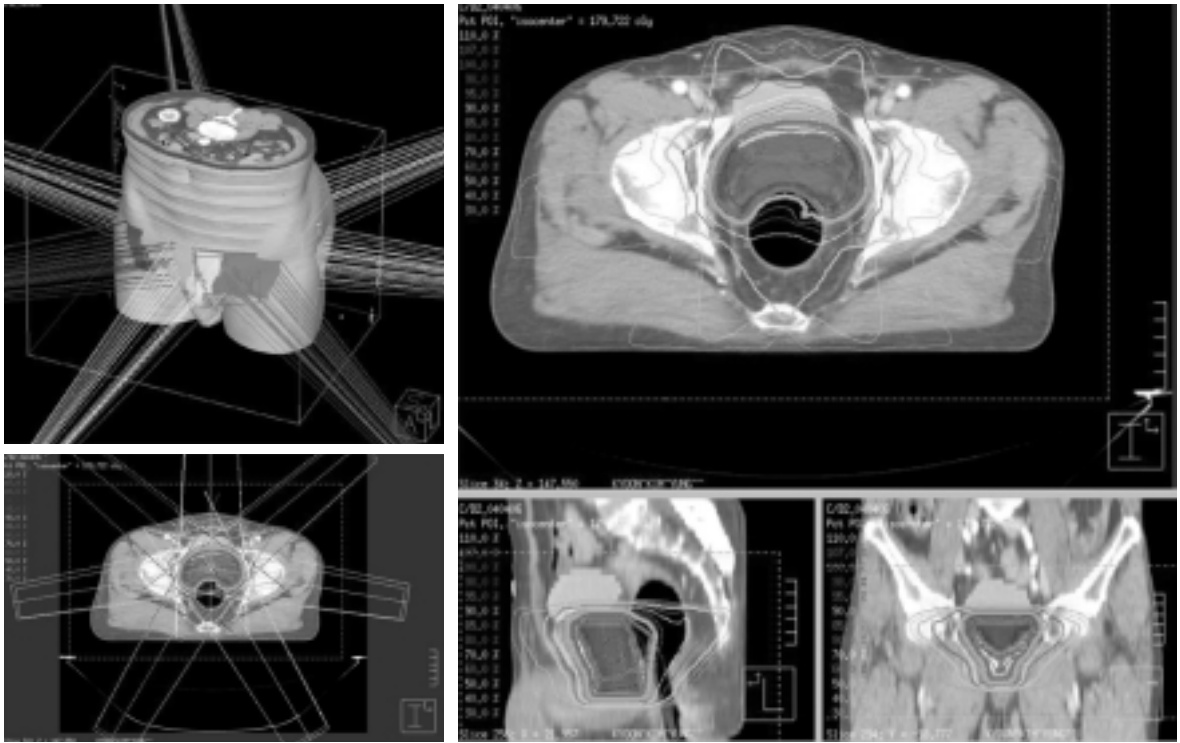
(1, 2),

2

(2D - Conventional Radiotherapy, 2D - RT) 3

(3 - Dimensional Conformal Radiotherapy, 3D - CRT)

(Intensity Modulated Radiotherapy, IMRT)



7

1. 3 (3D - CRT)

(3).

가,

3

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가

. X - ray

, Gleason Score, PSA ,

2

가

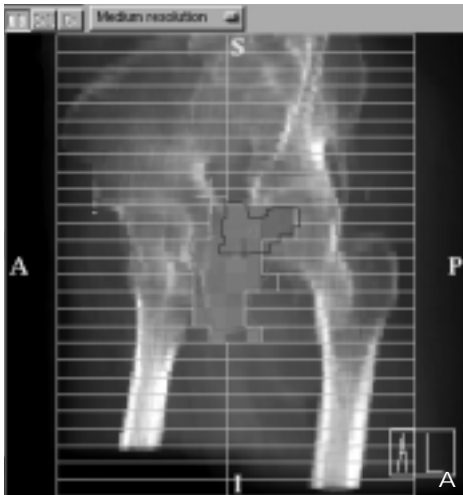
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(Computed Tomography, CT)

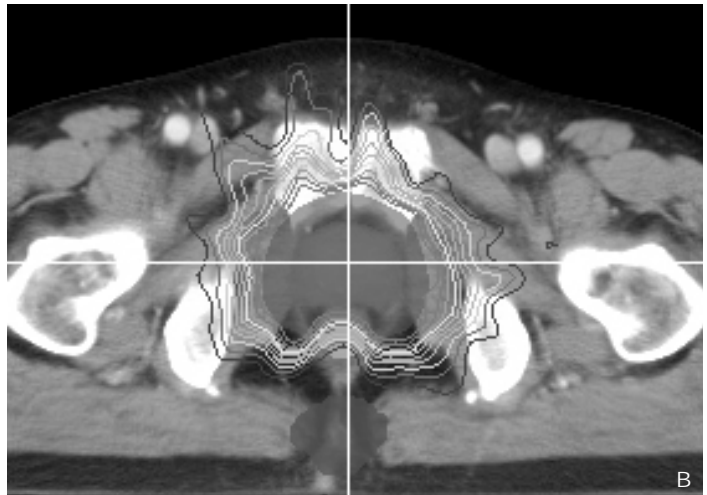
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가

3



(A) 20 (MLC) 가



(B) ( ) 가

2. (IMRT)

가 , 가  
 ( 1).

3 Iodine - 125, Palladium - 103 (radioisotope seed) ( 3).

Iridium - 192

가 Iodine - 125

가 가 가 3

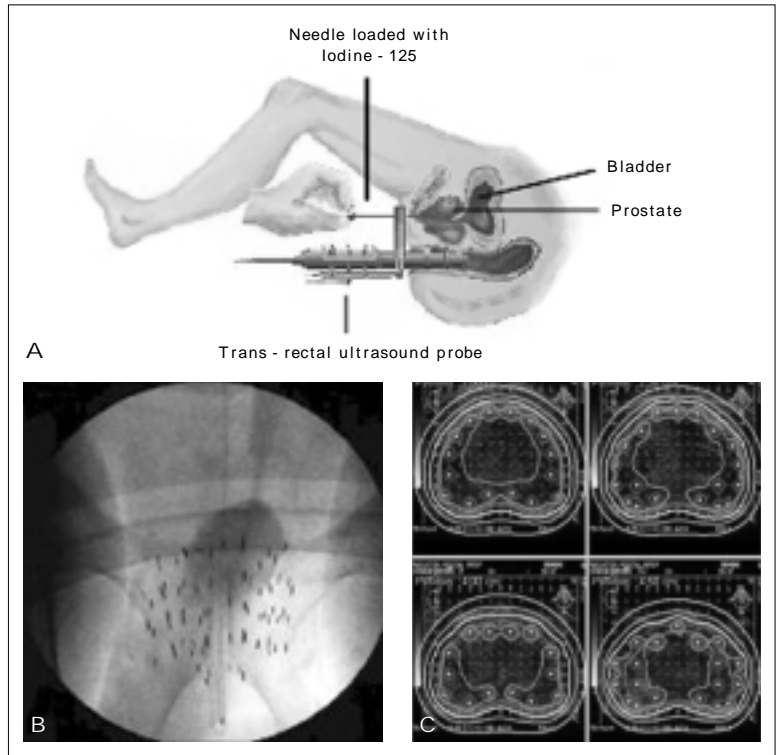
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(Multi - leaf collimator) ( 2). RTOG(Radiation Therapy Oncology Group) Grade 2

(4). 가  
가

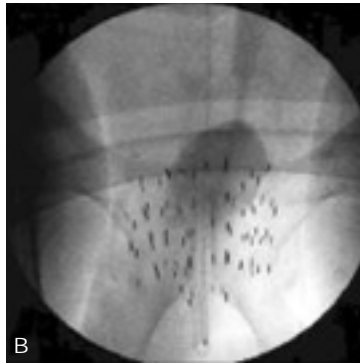
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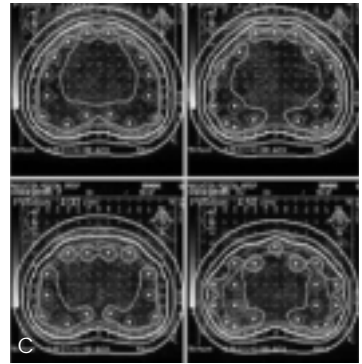


A

Trans - rectal ultrasound probe



B



C

A)  
B)  
C)

3. (Brachytherapy)

(6). T1b 가

T1a, N0, M0, G1(Gleason

가

2~4)

(5). 50

(50~60 )

가

(6).

가

(7~9).

10

93%

75%,

85% (10), 가 Stage A2(T1b) 10%, Stage B1 (T2a) 18%, Stage B2(T2b) 50~60% (12, 13), 가

가 Jewett Stage C, AJCC TNM T3, N0, M0, any G 가 , 가

(3 )가 , 가 3 2 Richard Peschel John Colberg , 가 3 가 T1c, T2 가 가 (14, 15). Radiation Therapy Oncology Group(RTOG) T2b (Bio-chemical Failure) (11). TURP 4~6 (16). Iodine - 125, Palladium - 103 가 , (hormone re-fractory) 가 가 가 가 (Stage A or B, T1 or T2) (Nerve - Sparing)

30 ng/ml PSA 가 4.7 ng/ml , 3  
 PSA (19).  
 PSA  
 Zagar 0~4( , 1.2) ng/ml, Ritter  
 가 , , 0~3.2( 1.1) ng/ml .  
 , PSA 가 (Nadir PSA  
 가 value) 가  
 가 PSA 가 (20), PSA (Nadir PSA value)  
 (17). 3 가  
 가 .  
 5 (Biochemical disease free (Biochemical failure, PSA rising)  
 survival), 5 PSA 가 , PSA (Nadir PSA value)  
 가 (11). 가 PSA  
 PSA (17).  
 가  
 ,  
 .  
 , , .  
 PSA .  
 PSA 가 0.2 ng/ml (21). (Sexual potency)  
 PSA 가 (21).  
 (TURP) 4~6  
 PSA 가 . Ritter  
 PSA 가 (22).  
 , 가 가  
 PSA 가 가  
 43 58.5 (18). Zagar 가 .

1.			
	+	+++	+
	+++	++	+
	+++	+	+
	+	+	+++

가 , Gleason Score, PAS , 가  
 , (retention) , 가  
 Nerve - sparing

(Nerve - sparing)

가  
 , 가  
 가 1  
 ,  
 ,  
 ,  
 가  
 ,  
 (Nerve - sparing sur-  
 gery) CT

3

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