

Purpose; The normal organ (bladder, rectum) sparing is very important for radiation therapy of the pelvis. Many people are studying with the effort for rectal and bladder sparing, however the actual circumstances to be satisfied which can not find the method.

In this study, the decrease used the balloon to order the rectal dose. The aim of the study was to investigate the dose volume effects of a water-filled rectal balloon in the rectum.

Materials and Methods; We inserted the balloon(100cc water filled, 10cm length, 3cm diameter) in rectum for 10 proton therapy patients with prostate cancers. The systems were loaded with Eclipse proton planning system(Ver. 7.5) and Two sets of CT images before and after ballooning were acquired. Rectum and bladder volumes were delineated on 3-mm-thick CT images. A comparison between dose volume histogram(DVH) with and without

balloon in rectum for proton therapy of the prostate cancers. **Results;** More organ and target volume changes with shape because inserted the balloon in rectum. Mean dose of rectal difference between with and without balloon was about 20%, because volume of rectum escape from a radiation area due to the balloon. Mean dose of bladder difference between with and without balloon was about 6%.

Conclusion; The rectal balloon is very useful for bladder and rectal sparing with proton therapy of the prostate cancers. This research is believed to be sufficiently accurate and clinically useful.