

Purpose: We propose a possible new proton therapy technique -- “Proton Knife” that may enhance the superiority of proton therapy to other external beam therapy techniques.

Method and Materials: Proton beam therapy is considered to be superior to X-ray beam radiation therapy because of proton’s sharp Bragg peak, though clinical studies of proton therapy verse other kinds of radiotherapy are still debatable and not conclusive. Compromise between capital cost and clinical effect becomes a major issue for proton therapy. We propose a preliminary new strategy to take advantage of the proton Bragg peak, which greatly enhances Tumor Control Probability (TCP) and Normal Tissue Complication Probability (NTCP). The feasibility of this technique will be carried out through Monte-Carlo simulation.

Results: A flow chart describing this technique is presented and the feasibility will be discussed.

Conclusion: A preliminary technique of “Proton Knife” is proposed and discussed.

Conflict of Interest (only if applicable): The authors of this abstract here claim that any actual or potential conflicts of interest *do not* exist in this abstract.