Upright Proton Therapy: A New Opportunity for Proton Imaging

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Abstract

In recent years, there has been significant progress in developing systems for upright proton therapy utilizing a fixed, horizontal beam source and rotating the patient to deliver different beam angles. With the elimination of the treatment gantry, the upright system architecture presents a new opportunity for simplifying the integration of proton imaging systems with the added potential of improved image quality as compared to gantry-mounted imaging. The Mevion upright proton therapy system, the S250-FIT, is described including beam output parameters. Potential design approaches for imaging-compatible beam output as well as system mechanical integration of proton imaging are presented.

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