Press release

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Basic information

Name: Jenny Bertholet Email: jenny.bertholet@icr.ac.uk Phone: +44 (0) 758 7194 385

Department of: Clinical Medicine

Main supervisor: Associate professor Per Rugaard Poulsen

Title of dissertation: Image based monitoring of liver tumor motion in stereotactic body radiation therapy

Date for defence: 17 November at (time of day): 14:00 Place: Aarhus Universitetshospital – K-Auditorium
Nørrebrogade 44, bygn. 7, kælderen, 8000 Aarhus C

Press release (Danish)
Overskrift PhD-forsvar om præcis strålehandling in leveren

Manchet Bevægelse af levertumorer under stråleterapi samt metoder til monitorering af bevægelsen i sand tid blev undersøgt i et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Jenny Bertholet, der forsvarer det d. 17/11 2017

Pressemeddelelsen - Formålet med stråleterapi er at levere en høj stråledossis til en tumor, mens rask væv skånes mest muligt for bestråling. Ved Aarhus Universitetshospital behandles levertumorer med såkaldt stereotaktisk strålebehandlining, hvor ganske få behandlinger med meget høj stråledosis gives til tumoren. Høj præcision er yderst vigtig for behandlingen, men også vanskelig at opnå, da tumoren kan bevæge sig meget med vejrtrækningen og den daglige genlejring af patienten. Da tumoren ikke i sig selv er synlig i røntgenbilleder, benyttes implanterede røntgensynlige guldmarkører ofte som pejlemærker til lokalisering af tumoren i billeder optaget under behandlingen.
I dette PhD-projekt blev tumorbevægelsen undersøgt vha sådanne røntgenbilleder, og en metode til monitorering af tumorbevægelsen i sand tid blev udviklet og anvendt for en række patienter. I fremtiden kan monitoreringen benyttes til mere præcis strålebehandling med tilpasning af behandlingen til den observerede tumorbevægelse.
Forsvaret af ph.d.-projektet er offentligt og finder sted den 17/11 kl. 14 i K auditorium, Aarhus Universitetshospital, Nørrebrogade 44, Building 7, Aarhus. Titlen på projektet er ”Image based monitoring of liver tumor motion in stereotactic body radiation therapy”. Yderligere oplysninger: Ph.d.-studerende Jenny Bertholet, e-mail: jenny.bertholet@icr.ac.uk, tlf. +44 758 7194 385.

Bedømmelsesudvalg: påfør de tre medlemmer af udvalget med navn, titel og arbejdssted

Press release (English)
Headline Defense of PhD project on accurate radiotherapy in the liver

The motion of liver tumours during radiotherapy and how to monitor it in real-time was investigated. The project was carried out by Jenny Bertholet, who is defending her dissertation on 17/11.

Radiation therapy aims at delivering a high dose to the tumour while sparing healthy organs. At Aarhus University Hospital, liver radiotherapy is delivered in a stereotactic regimen which means that the treatment is delivered in only a few fractions with a high dose and therefore relies on high delivery accuracy. This is particularly difficult in liver radiation therapy because of respiratory motion and day-to-day anatomical changes. In addition, liver tumours are not visible on x-ray images. Therefore

fiducial gold markers are often implanted near the tumour to act as surrogate for the tumour position on x-ray images acquired during radiation therapy.
In this PhD, liver tumour motion was investigated using x-ray images of implanted markers and a method for real-time motion monitoring was developed and used for real-time motion monitoring at a conventional treatment machine during a patient treatment.
Real-time motion monitoring with this method would allow to adapt patient treatments based on the observe motion to improve tumour targeting.

The defence is public and takes place on 17/11 at 14:00 in Auditorium K, Aarhus University Hospital, Nørrebrogade 44, Building 7, Aarhus. The title of the project is Image base monitoring of liver tumor motion in stereotactic body radiation therapy. For more information, please contact PhD student Jenny Bertholet, email: jenny.bertholet@icr.ac.uk, Phone +44
758 7194 385.

Assessment committee:
Antje Christin Knopf, Associate Professor, PhD
Faculty of Medical Sciences
Universitair Medish Centrum Groningen, The Netherlands

Tom Depuydt, Head of Medical Physics, Assistant Professor, PhD
Radiation Oncology department and parTICLe Proton Therapy Project
UZ Leuven, Leuven, Belgium

Frank Viborg Mortensen, Professor, PhD, dr med
Department of Surgery
Aarhus University Hospital, Denmark
(Chairman)

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