REX 3 - YEAR 2022

Incident description

A patient is treated with stereotactic body radiation therapy (SBRT) for a lesion on the 7th dorsal vertebra. The treatment scheme prescribed is 5 * 8 Gy = 40 Gy.

The 2nd fraction, the prescribed SBRT protocol is not properly followed. The collected CBCT images are matched incorrectly and the physician on-call is not contacted for supervision. As a result, the treatment fraction is applied to the wrong vertebra. The error was discovered the next day in the evening during offline review by the attending physician, which is an additional check.

The patient and general practitioner were informed of the error the week after.

Root cause analysis

The following root causes have been identified:

Human factor: External
The prescribed SBRT protocol is not properly followed.

Human factor: Coordination
The physician on-call is not contacted for matching/supervision.

Corrective actions:

1. The medical physicist checked if an additional fraction could be added at the end of the treatment, to ensure optimal treatment of the target volume. However, this was not possible due to a dose overlap of 20% on the vertebra effectively to be treated, which would exceed spinal cord tolerance.
2. The incident was discussed with the nurse involved.
3. Emphasis was placed on the importance of following protocols.
4. During the last three fractions, the physician was always called to evaluate the CBCT images together with the RTT's.
5. Planification of a refresher course of the SBRT protocol.
6. Brainstorm session on how to obtain the best images for SBRT treatments: rely solely on CBCT images or switch to planar kV images for bone irradiation.