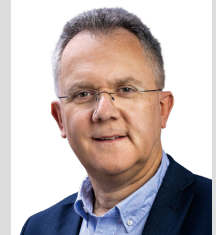


CT Lung Screening at the Radiation Dose of a Chest X-ray

"SilverBeam combined with AiCE Deep Learning Reconstruction could mark the end of the chest X-ray."

Dr. Russell Bull

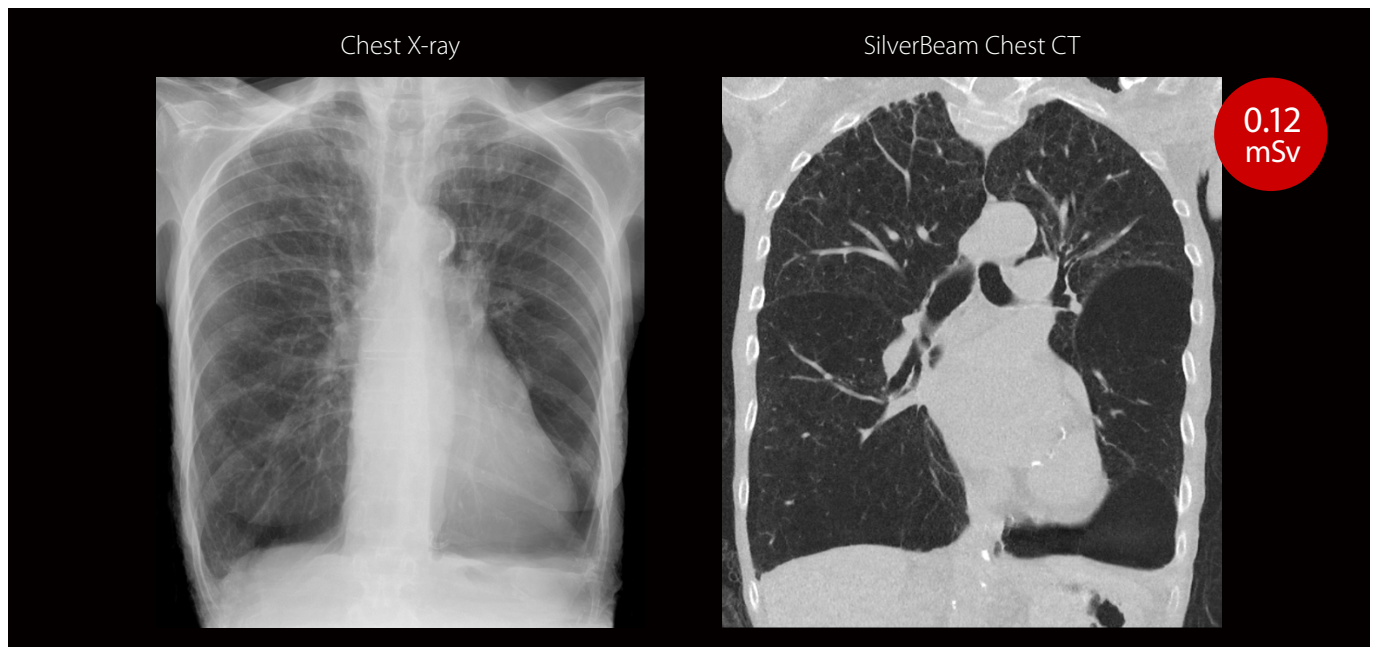
Royal Bournemouth Hospital, Bournemouth, UK



Patient History

An 80-year-old woman who was a smoker presented with a 3-month history of shortness of breath and weight loss. A chest X-ray showed hyperexpanded lungs. A non-contrast CT Chest scan was requested to rule out neoplasm as a cause of the patient's symptoms. This exam was performed with the SilverBeam Filter and reconstructed with Advanced intelligent Clear-IQ Engine (AiCE), Deep Learning Reconstruction (DLR).

Result



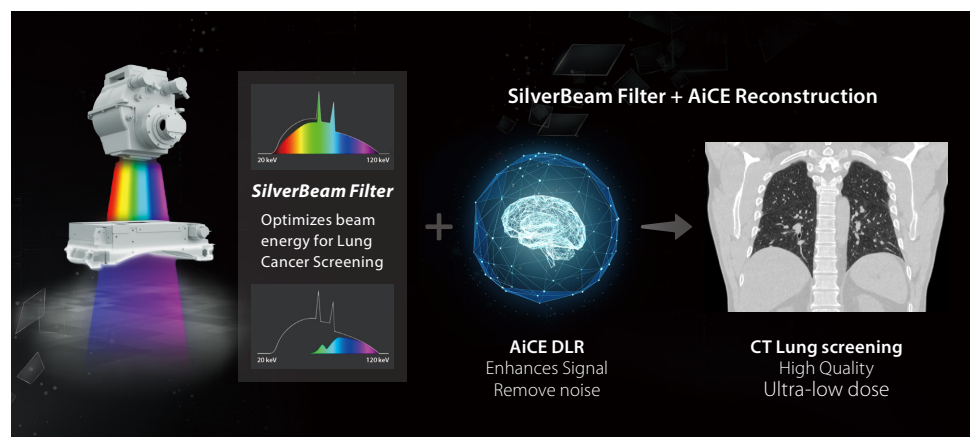
Findings

The SilverBeam Chest CT in combination with AiCE DLR provided excellent image quality at a dose of just 0.12 mSv, which is comparable to the patient's prior two view chest X-ray. Generalized emphysema was clearly shown bilaterally, particularly affecting the lower lobes which was not apparent on the chest X-ray. The chest CT showed no evidence of neoplasm and therefore no further imaging was required.

Technology

The combination of the SilverBeam Filter with AiCE DLR sets a new standard for chest CT by delivering unparalleled image quality and resolution at extremely low dose levels.

The SilverBeam Filter selectively removes low energy photons from the X-ray beam, optimizing the energy spectrum for high contrast imaging tasks while significantly reducing radiation exposure. The preservation of anatomical detail is ensured by capitalizing on the power of AiCE Deep Learning Reconstruction. This intelligent reconstruction algorithm has been trained to remove noise and boost signal to provide ultra-low dose CT chest images that are sharp, clear, and distinct.



Conclusion

This case demonstrates that chest CT performed with the SilverBeam Filter and reconstructed with AiCE DLR can provide superior diagnostic information compared to a chest X-ray at a similar radiation dose.

Considering the frequent need for additional CT scans following initial chest X-rays, the Royal Bournemouth Hospital is evaluating a potential shift towards utilizing SilverBeam Chest CT as the primary diagnostic imaging tool. This strategic change aims to harness the latest advancements in imaging technology to enhance patient care, reduce unnecessary radiation exposure, and streamline the diagnostic process.

The combination of SilverBeam and AiCE DLR technologies establishes new standards in low-dose chest CT, representing a substantial leap in patient safety and image quality.

Acquisition

Scanner Model:	Aquilion Serve
Scan Mode:	SilverBeam
Collimation:	0.5 mm × 80
Exposure:	120 kV, 50 mA
Rotation Time:	0.5 s
CTDIvol:	0.22 mGy
DLP:	8.69 mGy-cm
Effective Dose:	0.12 mSv
k-factor:	0.014*

* American Association of
Physicists in Medicine (AAPM)
Report 96, 2008.

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