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Educational Abstract

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Dual Energy Applications on a Single-Source 512-slice Computed Tomography (CT) Scanner with Kilo-voltage (kV) Switching Technique- A Single Centre Experience

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Objectives

Experience sharing of Dual Energy applications on a Single-scource 512-slice CT scanner

Background

Our center installed a single-source 512-slice CT scanner in January 2018. The scanner is capable for Gemstone Spectral Imaging (GSI) with rapid Kilo-voltage (kV) switching scan mode which is a novel dual energy application. The rapid kV switching acquires the dual energy samples almost simultaneously to generate material density data that is processed for the separation of materials and derivation of monochromatic spectral images using a projection based reconstruction algorithm

Procedure Details

Dual-Energy scanning protocols were set up with GSI scanning mode. Applications including metal artifact reduction, reduced usage of contrast volume, differentiation of blood and contrast, kidney stone characterization, iodine extraction and enhancement of vessels with low Kev technique will be discussed. Radiation dose for GSI imaging will also be addressed in comparison with conventional single-energy imaging.

Conclusions

GSI application expands the use of CT beyond conventional single-energy method. GSI can provide both anatomic and functional information of different organ systems. Radiation dose of GSI imaging is comparable to conventional single-energy imaging.