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Using Iterative Scan for Numbering of Lumbosacral Transitional Vertebrae

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PURPOSE

To determine the benefit of iterative scan for numbering lumbar vertebrae compared by identification of iliolumbar ligament, renal artery and aortic bifurcation level.

METHOD AND MATERIALS

We retrospectively reviewed 193 consecutive lumbosacral spine MR images from december 2006 to february 2007. All MR images had additional whole spine iterative scan and coronal T2-weighted images along with routine standard protocol of axial, sagittal T1 and T2-weighted images and sagittal STIR images. Levels of iliolumbar ligament origin, right renal artery and aortic bifurcation were determined using whole spine iterative scan as a gold standard. Axial and coronal images were assessed for level of iliolumbar ligament origin, sagittal images were assessed for level of right renal artery and axial images were assessed for level of aortic bifurcation.

RESULTS

Lumbosacral transitional vertebrae was identified in 22 out of a total 193 patients. Of the 193 patients, only 175(90.7%) of iliolumbar ligament origin was at L5 level. And only 131(67.9%) of right renal artery and 97(87.7%) of aortic bifurcation levels were found at L1-2 level and L4-5 level, respectively.

CONCLUSION

Iterative scan of the whole spine can be achieved in more or less than 60 seconds. The numbering of lumbar vertebrae can be assumed by determining the level of ililumbar ligament level, right renal artery and aortic bifurcation level. However, these structures cannot be a reliable landmark due to its inconsistency. Whole spine iterative scan technique is a fast and accurate method in numbering lumbar vertebrae.

CLINICAL RELEVANCE/APPLICATION

Whole spine iterative scan technique is a fast and accurate method in numbering lumbar vertebrae.