Adequacy Of MRI Acquisition In Multiple Myeloma

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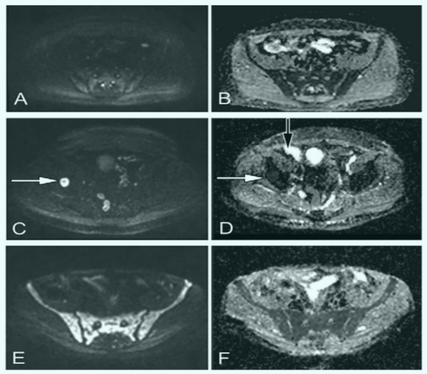
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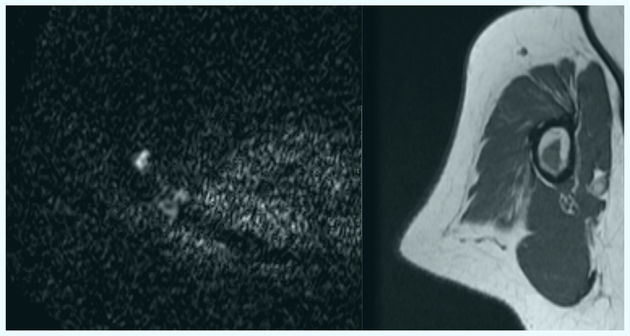
Abstract

The aim of this audit is to evaluate whether MRI acquisition in Multiple Myeloma patients includes Diffusion weighted imaging and ADC mapping according to the guidelines established by Myeloma Response Assessment and Diagnosis System(My RADS) in concordance with the International Myeloma Working Group (IMWG) and National Institute for Care Excellence (NICE).

Background

The National Institute for Clinical Excellence and the International Myeloma Working Group (IMWG) recommend Whole Body-MRI as first line imaging in patients with a suspected diagnosis of Multiple myeloma. MRI is very sensitive in the diagnosis of Multiple Myeloma and the newer MRI technique like Diffusion Weighted (DW) Imaging has a sensitivity of 77% when compared to FDG PET/ CT scans which have a sensitivity of 47%. It is recommended that multisequence evaluations be performed in all known and suspected cases of Multiple Myeloma by using all Diffusion Weighted MR images (low, intermediate [if obtained], and high *b* values) and ADC maps.





Materials and Methods

Retrospectively studying MRI imaging of 100 cases of known and suspected cases of Multiple Myeloma on PACS System in BHRUT and to quantify the number of these cases that have undergone MRI imaging according to guidelines.

Standards

1. All known/new/suspected myeloma patients should have diffusion weighted MRI sequences (extra-axial/ whole body/ atleast spine + pelvis)- target 100%
2. Diffusion sequences should have atleast two B values like 50-100 and 800-1200- target 100%
3. All diffusion sequences should have ADC maps generated- target 100%

Exclusion Criteria

Contra-indications for MRI like patients with severe claustrophobia, patients with pacemakers

Results

1. Total Number of cases: 100
2. It is noticed that diffusion weighted sequence is absent in 27% of the cases undergoing MRI for Myeloma (27/100)
3. In the 73% that has DW sequence, 17.8% has no imaging in low B values (13/73) and 17.8% has no ADC maps generated (13/73). All have images in high B values.
4. 21% of the total 100 cases have extra-axial MRI scan done (21/100)
5. 76% of these extra-axial MRI scans do not have DW sequence (16/21)

Issues identified through this audit

1) Lack of clear guidance to radiographers before imaging.
2) Non-compliance by radiographers in including DW imaging and ADC mapping while imaging Myeloma patients (known and suspected)

Recommendations

1. To create awareness among the radiographers to include DW sequence for all MRIs (whole body/ pelvis/spine/extra-axial) in suspected and confirmed cases of Myeloma
2. The DW sequence must have images in both high and low B values along with generated ADC maps
3. To send a copy of this report to all radiologists so that they are aware of the results.

References

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