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MRI Cervical Spine Findings in Patients Presenting With Neck Pain

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Conflicts of Interest: Nil

Abstract

Background: MRI is now widely acknowledged as the imaging modality of choice to demonstrate diseases and abnormalities of the spinal column and the intervertebral discs.

Methods: This retrospective study was conducted at Department of Radiology, Sardar patel Medical College, Bikaner, using data of patients who had an MRI of the cervical spine between Jan.2017 and April 2017.

Result- out of 100 patients, 62 % patients were males and 38% patients were females. 36% patients from 41-50 age group. 13 patients were normal finding and another 87 patients were found in degenerative change. Cervical disc lesion most common (37%) in disc between C5 and C6.

Conclusion -Considering the diagnostic accuracy, non-invasiveness, non hazardous and have very few contraindications of the procedure and better visualization of the lesions in different sections.

Keywords: MRI evaluation, Neck pain, space occupying lesion (SOL).

Introduction

MRI is now widely acknowledged as the imaging modality of choice to demonstrate diseases and abnormalities of the spinal column and the intervertebral discs. Its superior soft tissue differentiation and ability to visualize and detect lesions within the bone marrow, the spinal cord and the intervertebral disc (IVD) give it this advantage over other imaging modalities [1]. It is non-invasive, gives detailed information about the morphology and integrity of the IVD, vertebrae, intervertebral foramina, facet joints and ligaments on both T1W and T2W images, especially sagittal plane images [2].

The cervical spine has the most spinal mobility with as much as 600 movements per hour in a normal individual, thus its high susceptibility to degenerative changes [3]. Neck pain and cervical radiculopathy are common reasons for requests of MRI of the cervical spine, however as well as requests for the evaluation of spondylitis, trauma and less frequently neoplastic disease processes of the neck in order to achieve better patient outcome [4]. Overall, MRI has a high diagnostic accuracy in differentiating these various disease processes.

Material and Method

This retrospective study was conducted at Department of Radiology, Sardar patel Medical College, Bikaner , using data of patients who had an MRI of the cervical spine between Jan.2017 and April 2017.

All MRI images were interpreted by two radiologists comprised of one younger and one senior radiologist who was the most experienced with reporting MRIs. In the very few instances of inter rater differences, a Professor of Radiology gave the final review. A departmental grading system was agreed on for evaluating the images. Cervical spondylosis (which for the purpose of this study) was

defined as the reduction in signal intensity of the disk material on T2W images with or without a decrease in disk height. We classified all forms and severities of disc bulging, herniation and migration simply as disk prolapse. The data were analyzed using SPSS, (version16). The results were presented as tables and figures as appropriate. Limitations encountered included incomplete patient information from the record book.

Results

A total of 100 MRI examinations of the cervical spine were included in this study. There were 62 males and 38 females .

Table I: Frequency of neck pain in different age group (n=100).

Age group (Yrs)	Frequency
0-20	3
21-30	8
31-40	21
41-50	36
51-60	24
61-70	5
More than 70	3
Total	100

36% patients from 41-50 age groups.

Table II: MRI Findings among the study group.

Findings	Frequency
Normal	13
Prolapse	11
Spondylosis & prolapsed	36
Spondylosis	38
TB	2
Total	100

13 patients were normal finding and another 87 patients were found in degenerative change.

Table-III : Distribution of intervertebral disc lesions in the cervical region by MRI.

Intervertebral disc involved	Number of Patients
Disc in between C2 and C3	05
Disc in between C3 and C4	13
Disc in between C4 and C5	19
Disc in between C5 and C6	37
Disc in between C6 and C7	23
Disc in between C7 and T1	03

Cervical disc lesion most common (37%) in disc between C5 and C6.

Discussion

Several recent development came to enrich clinical acumen and technical modalities and expertise, among which plain x-ray is the most popular one used in diagnosis of neck pain. On the other hand MRI is the gold standard modality for diagnosis of neck pathology [5].

Analysis of distribution of intervertebral disc lesion in cervical region by MRI showed that disc lesions were common in C5-6 and C6-7 and uncommon in C2-3 and C7- T1 levels. In another study of 150 cases of cervical spondylosis Ahn et al observed most common disc lesion in C5-6 and C6-7 levels [6].

Conclusion

Considering the diagnostic accuracy, non-invasiveness, non hazardous and have very few contraindications of the procedure and better visualization of the lesions in different sections, MRI should be the pre and post operative diagnostic modality of the spine. The only disadvantage of MRI is its high cost, still then it is good considering the diagnostic accuracy and cost effectiveness.

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