



Short Communication

Copyright © All rights are reserved by A Berman

# Diagnostic Value of MRI Symptoms in Patients with Diabetic Foot and Osteomyelitis: Clinical Follow-Up Analysis Preferred Presentation Format

A Ageev, J Babushkina, E Burleva and A Berman\*

Federal State Budgetary Institution Ural Research Institute for Maternal and Infancy Protection of the Ministry of Health of Russia, Yekaterinburg, Russia

\*Corresponding author: A Berman, Federal State Budgetary Institution Ural Research Institute for Maternal and Infancy Protection of the Ministry of Health of Russia, Yekaterinburg, Russia.

Received Date: Dec 01, 2022

Published Date: Dec 09, 2022

## Abstract

The purpose of the study was to evaluate diagnostic value of magnetic resonance symptoms usually used in differential diagnosis of acute osteoarthropathy and osteomyelitis of the foot in patients with diabetes mellitus.

## Materials and Methods

44 adult patients with diabetes mellitus were included in this study: 28 men and 16 women underwent operative treatment.

Patients with clinically proven osteomyelitis were included in the positive group while patients uncomplicated osteoarthropathy were included in the negative group (Table 1).

Table 1:

Sample size	44
Positive group <sup>a</sup>	17(38,64%)
Negative group <sup>b</sup>	27(61,36%)

<sup>a</sup>Group=1

<sup>b</sup>Group=0

Following MRI findings were analyzed:

- Bone marrow edema: subchondral and diffuse edema counted separately.
- Bone marrow edema in weight bearing zones, including displaced cuboid and talus bones.
- Diffusion restriction in bone marrow.

- Diffusion restriction in soft tissue.
- Visible with MRI skin ulceration and traveling to weight bearing zone fistula.

Analyzed findings were compared to complex clinical data including post-operative histological data.

ROC-analysis were applied to evaluate diagnostic value of the listed symptoms.

## Result

Area under curve as the criterion of diagnostic accuracy is decreasing in following sequence: Fistula (AUC=0,760), bone

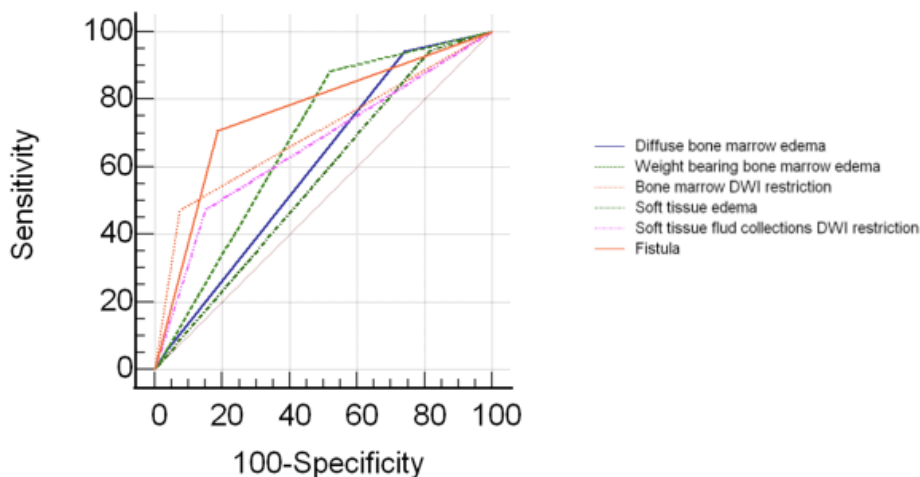
marrow DWI restriction (AUC=0,698), weight bearing bone marrow edema (AUC=0,682), soft tissue fluid collections DWI restriction (AUC=0,661), diffuse bone marrow edema (AUC=0,605), soft tissue edema (AUC=0,563) (Table 2) (Figure 1).

**Table 2:** Comparison of diagnostic accuracy of MRI findings in patients with diabetic foot.

MRI finding	AUC	SE <sup>a</sup>	95% CI <sup>b</sup>
Fistula	0,760	0,0685	0,608 to 0,876
Bonemarrow DWI restriction	0,698	0,0675	0,541 to 0,827
Weight bearing bone marrow edema	0,682	0,0634	0,524 to 0,814
Soft tissue fluid collections DWI restriction	0,661	0,0715	0,503 to 0,797
Diffusebonemarrowedema	0,605	0,0588	0,446 to 0,749
Softtissueedema	0,563	0,0481	0,406 to 0,712

<sup>a</sup>DeLongetal., 1988

<sup>b</sup>Binomialexact



**Figure 1:** Comparison of ROC-curves of MRI findings in patients with diabetic foot.

## Conclusion

The best MRI diagnostic finding was MRI presentation of fistula but AUC of 0,760 demonstrates insufficient diagnostic value, and this finding also can be easily detected without MRI. Therefore, no one MRI finding is recommended to be taken as sole criterion for deciding on the presence of osteomyelitis, complicating the diabetic osteoarthropathy.

## Acknowledgment

None.

## Conflict of Interest

No conflict of interest.