



APPEARANCE OF DOT-IN-CIRCLE MANIFESTATION OF MYCETOMA PATIENTS USING MAGNETIC RESONANCE IMAGING

Clinical Science

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ABSTRACT

Magnetic resonance imaging (MRI) since introduced has gained in popularity as diagnostic tool of disorder, many doctors believe that MRI is an accurate noninvasive method to diagnose and give sufficient information to conservative treatment. {1} Mycetoma is a chronic granulomatous disease of the subcutaneous and deep tissues which lead to progressive destruction of tissue leads to loss of function of the affected site. {2, 3} The term of dot- in-circle which is linked with MRI image of mycetoma patient first proposed and described by Sarris et al. {4} This research deal with Appearance of dot-in-circle manifestation on Magnetic Resonance Imaging of mycetoma patients

KEYWORDS

mycetoma dot-in-circle manifestation

Introduction

Mycetoma was disease caused by certain types of bacteria or fungi which found in the soil, it enter the body through break skin. {5} Sudan seems to be the homeland of mycetoma. The disease is known in the Sudan, before the advent of modern medicine, by its present common name of "Nebit" {6}.

When the mycetoma is caused by a fungus, the swelling is called a euomycetoma, and when caused by bacteria it is called an actinomycetoma {7, 8}.

The dot in circle is unique name given for sign of mycetoma grain of causes species surrounded by abundant granulation tissue. {9, 10}

The figure 1 below demonstrated the appearance of dote in circle on MRI image of foot {11}



Figure (1) STIR image showing well define hyperintense lesion with hypointense rim in medial aspect of distal foot (arrows).

Materials and methods

This hospital-based cross-sectional descriptive study was conduct at the Mycetoma Research Centre, Khartoum Sudan during the period September 2019 up to march 2022.

The study included 300 MRI images of patients diagnosed and refer to MRI department to perform Magnetic Resonance Imaging. The questionnaire was given to radiologist to collect the data.

The patient refer to three MRI diagnostic center

I ANTALIA DIGNOSTIC CENTER (The magnet from General Electric Company type is close, the magnet made of super-conductive material, the magnetic field strength created by the magnet is 1.5 Tesla).

II Dar AL-ELAJ HOSPITAL (The magnet from Philips Company type is closed, the magnet made of superconductive material, the magnetic field strength created by the magnet is 1.5 Tesla).

III FADIAL HOSPITAL (The magnet is from Siemens Company type is closed, the magnet made of superconductive material the magnetic field strength created by the magnet is 1.5 tesla).

And the data were collected by direct interview after that the data were managed by statistical package for social science programme (SPSS version 26).

Result

Table (1) Frequency distribution of Dot in circle appearance

Dot in circle appearance	Frequency	Percent
good appear	209	69.7%
acceptable appear	90	30.0
poor appear	1	.3
Not appear	0	0
Total	300	100.0

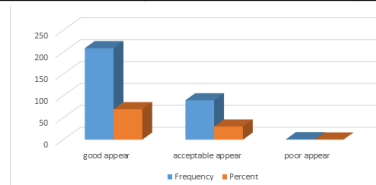


Figure (2) Frequency distribution of Dot in circle appearance

Discussion

This scoping review that the issue as shown in table (1) and figure (2) shows repetition of manifestation sign of dot in circle on the images. All the cases show the sign on it, which agreed with result of Laohawiriyakamol research in 2014. {12}

Appearance was divided to good, acceptable, poor and not-appear according the ability to noticeable the sign.

The dot in circle appearance was appear in all samples as shown in table (1) and figure (2) with high percentage of good appearance which represented 209 case or 69.7% from the sample; and acceptable appear – may disturbed with other manifestation repeated in 90 case which act as the 30% from total sample lowest frequency was presented 1 or 0.3 % case this observed in poor appearance cases and this percentage was not significant percentage.

Conclusion

The study found that all Magnetic Resonance Images shows the sign of dot- in-circle which mean the sign is key diagnose of mycetoma.

Repetition with good appearance repeat with the most sample. Repetition with acceptable appearance repeat less than good appearance ;both appearances –good,acceptable- shows prominent of the sample.

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