



MALIGNANT OTITIS EXTERNA MANIFESTATIONS, DIAGNOSIS AMONG A SAMPLE FROM DAMASCUS HOSPITALS

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ABSTRACT

Background: malignant otitis externa is a dangerous condition and can be fatal. Our objective is to analyze the diagnostic approach from signs and symptoms, examination to the radiological methods used and compare the efficacy of each. **Methods:** This study included 30 patients that were diagnosed with MOE in the department of Otorhinolaryngology in Al-mouasat University Hospital, Syrian Red Crescent, Hospital and Damascus Hospital at Damascus, Syrian Arab Republic. Age, gender characteristics of otorrhea, otic symptoms, clinical manifestation, biopsy, CT scan Findings, and radiologic findings were all assessed. **Results:** The mean age of the patients was 70-79 (20 males 10 females). The most common otic symptom was otorrhea and hearing loss 96.7%. the most common clinical found was Auditory canal Oedema by 76.7%. radiological density and deterioration of the Auditory canal as the most common finding by 54.2%. on the CT. The Tc-99m scan findings that show patients with osteomyelitis were 72.7%: N=8\11. **Conclusion:** Moe is considered a serious condition that requires conservative management and it is important to make a diagnosis as soon as possible. Ct is considered a standard method in MOE patients and has a big role in determining the presence of osteomyelitis.

KEYWORDS: Malignant otitis externa, rhinorrhea, otic symptoms, diabetes.

BACKGROUND

Malignant otitis externa is a dangerous condition known as an infection that affects the external auditory canal and spreads to the temporal bone, it spreads randomly and deeply that's why it is gives a malignancies characteristic, hence the name and the poor prognosis. The major risk factor for this disease is immunodepression cases that include too many conditions and diseases such as Diabetes- the most common risk factor.^[1] Also the most common bacterial factor to cause the infection is *Pseudomonas Aeruginosa*.^[1] The typical presentation and the main symptoms that the patient's review with is: severe, intractable otalgia^[2], purulent otorrhea, and the involvement of the skull is represented by cranial nerves palsy.^[2,3] In the case of the involvement of the skull nerves or (cranial nerves) the most common nerve to get involved and threatened is the VII nerve.^[4] The diagnosis is reached by the information that had been collected and the medical and surgical history of the patients to determine the case and its effectiveness.^[2,5] Also, other methods used to diagnose like: CT and Gallium and Technetium imaging, and a biopsy. The management includes both pharmacological and surgical options.^[6,7,8,9,10]

Our study aims to evaluate the clinical presentation especially the characteristics of otorrhea, the clinical manifestations, and the prevalence among gender, age, and otic symptoms. also, to evaluate the efficacy of diagnostic approach by the biopsy and CT, Gallium and Technetium imaging and to detect how much these diagnose elements well help to reach to the right and correct diagnose.

MATERIAL AND METHODS

A retrospective observational study from 2015 to 2020 conducted in Al-mouasat University Hospital and Syrian Red Crescent Hospital and Damascus Hospital at Damascus, Syrian Arab Republic. The total number of patients was 30 cases. The data collected suited at an Excel sheet included age and gender, characteristics of otorrhea, otic symptoms, clinical manifestation, biopsy, CT scan Findings, and radiologic findings.

We enrolled all the patients who were diagnosed with malignant (necrotizing) otitis externa and excluded the ones that weren't diagnosed or the biopsy was negative to MOE.

The data collected were entered into a Microsoft Excel spreadsheet and analyzed using IBM SPSS Statistics

Version 23 and we used one way ANOVA to study the static differences between different groups of patients by using fisher statistics.

RESULTS

Out of 30 patients from our study (66.7%: N= 20) of them were males while females were (33.3%: N= 10).

The most frequent ages among the participant were (70-79 years old) whereas the less group were the ages between (80-89 years old). The youngest participant was 50 years old. The entire age distribution is shown in table (1).

| Age | | | |
|-----|--------------|-----------|------------|
| | 50 -59 | 5 | 16.7 |
| | 60 -69 | 10 | 33.3 |
| | 70-79 | 13 | 43.3 |
| | 80 – 89 | 2 | 6.7 |
| | Total | 30 | 100 |

From the total participant and according to the otic symptoms we found that: the hearing loss and the otorrhea by (96.7%) each out of the total. While the pain as a symptom was employing (93.3%). the less common symptoms were tinnitus with (40%), then itching and vertigo by (16.7%) and 3.3 respectively. All the mentioned data are shown in table (2).

| | | N | % |
|---------------|--------------|----|------|
| Otic symptoms | Pain | 28 | 93.3 |
| | hearing loss | 29 | 96.7 |
| | vertigo | 1 | 3.3 |
| | tinnitus | 12 | 40 |
| | itching | 5 | 16.7 |
| | otorrhea | 29 | 96.7 |

Out of the 29 patients with otorrhea the manifestation of this otorrhea was: purulent in (90%) of the cases. Malodorous discharge (60%). Bloody within (23.3%) of the cases. Lastly luxuriant discharge by (6.7%).

According to the CT scan finding, we found the following radiological findings: radiological density and deterioration of the Auditory canal as the most common finding by (54.2%). inflammatory density in (29.2%) of the total. deterioration of Auditory canal (12.5%). while (4.2%) didn't have any CT finding.

(80%) of the patient didn't get a biopsy while (20%) have a biopsies report. The reports show that all the specimens were inflammatory biopsies.

Clinical examination for the participants shows that: the most common clinical found was Auditory canal Oedema by (76.7%). granular appearance (70%). Lastly, the Auditory canal collapsing 30% of the total.

Scintigraphy with Tc-99m and Ga. These radiation methods applied to 12 participants. The Tc-99m scan findings that show patients with osteomyelitis were (72.7%): N=8\11. The only participant who did the Ga scan showed osteomyelitis.

DISCUSSION

Malignant otitis externa is a serious infection that affects the ear and the skull base.

It mainly affects the elderly with diabetes, in our study we had 30 cases of MOE, 25 of them have diabetes (83%) whereas, in a study conducted by İsa Kaya and his colleagues^[11] conducted on 26 patients, all of them were diabetic (100%). Rubin and Yu (2) reported that microangiopathy and impaired blood circulation in patients with diabetes may play a main role in the pathogenesis of MOE. The mean age in our study was between 70-79 (43.3%) (20 males and 10 females) whereas, in the İsa Kaya study, it was 69.68 (18 males and 7 females).

According to a study conducted by Bhat et al.,^[12] the most common symptom of MOE is otalgia, and the second most common symptom was ear otorrhea and in the study of İsa Kaya et al. All the patients in their study had severe otalgia; (72%) of them had chronic otorrhea and the second most common symptom was headache (80%) whereas, in our study, the most common symptoms were otorrhea and hearing loss which were found 29 patient (96.7%) and the second most common was otalgia were 28 (93.3%). No previous studies observed the different characteristics of the otorrhea, in our study, the discharge was purulent in (90%) of cases and hematic (bloody otorrhea) in 23.3% and has a bad smell in (60%) and abundant in (6.7%).

According to the findings of the examination, 23 (76.7%) of the patients had oedema, 21 (70%) of them had granulation and 9 (30%) deterioration of the canal, whereas all patients had oedema and granulations in the external auditory canal in the study of İsa Kaya et al.

According to the study of İsa Kaya et al. 12 patients (48%) had positive CT findings, Eight (32%) patients had bone erosion, two (8%) patients had soft-tissue involvement, and two (8%) patients had mastoid involvement in their CT scans. Another study by Rubin J. et al. (2) showed that CT scans were obtained in 11 consecutive patients with MOE demonstrated that all patients had abnormalities. In our study, CT was obtained in 24 patients, 23 of them had positive findings, 54.2% with erosions in the canal and inflammation, 29.2% with inflammatory findings and 12.5% were had only erosion.

Bone scanning with Technetium, where the radionuclide accumulates at sites of osteoblastic activity is very sensitive in making the diagnosis, but it is not specific because it can be positive in simple external otitis. In our

study, 11 patients obtained technetium scans, 8 of them had positive results 72.7% and 3 of them was negative (27.3%) and at the study of İsa Kaya *et al.* Scintigraphy using technetium-99 was performed for all patients, and nine (36%) patients had positive signs. Nine (36%) patients showed high tissue activity at the skull base, temporal bone, and mastoid bone on scintigraphy. A study from Ostfeld *et al.*, (7) showed the value of using T-99 in the early stages of MOE.

Scanning using gallium on the other hand appears to be more specific because it incorporated into granulocyte and bacteria. In our study, it was obtained in one patient and it was positive. The biopsy is conducted with the aim of excluding malignancy. There are only two reports of both malignancy and malignant otitis occurring at the same time.^[13,14]

In our study, the biopsy was taken from 6 patients and it was inflammatory in (20%) of the total. In the study of İsa Kaya *et al.*, A biopsy was taken from all patients with granulation tissue in the external auditory canal (80%), and histopathological examination of the biopsy showed features of inflammatory granulation tissue.

CONCLUSION

Our study shows the manifestations and the diagnosis of the malignant otitis externa, the radiation role in diagnosis.

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