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Background

Malignant otitis externa is a fatal infection of the external ear and temporal bone. *Pseudomonas aeruginosa* is the most common causative organism, while fungi are a rare cause of malignant otitis externa. We aimed to compare the clinical, therapeutic and evolutionary features between bacterial and fungal malignant otitis externa.

Background

Malignant otitis externa is a fatal infection of the external ear and temporal bone. *Pseudomonas aeruginosa* is the most common causative organism, while fungi are a rare cause of malignant otitis externa. We aimed to compare the clinical, therapeutic and evolutionary features between bacterial and fungal malignant otitis externa.

Methods

We conducted a retrospective study including all patients hospitalized for malignant otitis externa in the infectious diseases department between 2000 and 2018.

Results

Overall, we encountered 82 cases of malignant otitis externa, among which there were 54 cases (65.9%) of bacterial malignant otitis externa (BMO) and 28 cases (34.1%) of fungal malignant otitis externa (FMO). The main cause was *Pseudomonas aeruginosa* among BMO cases (57.4% vs 50%, $p=0.5$). Patients with BMO were significantly older (70.4 years vs 67.2 years, $p=0.001$) and had medical history of diabetes mellitus more frequently (86.4% vs 72.8%, $p<0.05$). The use of topical corticosteroids was significantly more reported among FMO cases (28.6% vs 5.4%, $p=0.006$). Otorrhea (76.4% vs 91.3%), otalgia (70% vs 61.7%) and rhinopathy (86.4% vs 62.1%) were the most frequent symptoms among BMO and FMO, respectively, with no significant difference. Tenderness to palpation of the mastoid bone (84.2% vs 88.9%, $p=0.2$) and stenosis of the external auditory canal (82.1% vs 72.8%, $p=0.02$) were significantly more frequent among FMO cases. Complications were significantly more frequent among FMO cases (62.1% vs 9.3%, $p<0.001$). Treatment duration was significantly longer among FMO cases (70[40-90] days vs 45[34-75] days, $p=0.03$).

Conclusion

Our study showed that FMO affected more frequently the elderly and diabetic patients, when compared with BMO. Regardless of the causative agent, the clinical presentation was similar. However, the outcome was poor among FMO cases with the occurrence of complications, requiring a longer duration of treatment.

Methods

We conducted a retrospective study including all patients hospitalized for malignant otitis externa in the infectious diseases department between 2000 and 2018.

Results

- ▶ **Total:** 82 cases
- ▶ **The distribution of cases:**
 - Bacterial malignant otitis externa (BMO): 54 cases: 65.9%
 - Fungal malignant otitis externa (FMO): 28 cases: 34.1%
- ▶ **Demographic characteristics:** Patients with FMO were significantly older ($p<0.001$) (Table 1)

Table 1: Comparison of demographic characteristics of patients with bacterial and fungal malignant otitis externa

	BMO	FMO	p-value
Males gender, n (%)	31 (57.4)	14 (50)	0.5
Mean age \pm SD, years	61 \pm 10	70 \pm 9	< 0.001
Diabetes mellitus, n (%)	42 (77.8)	27 (96.4)	0.03
Topical corticosteroids use	3 (5.6)	8 (28.6)	0.006

BMO: Bacterial malignant otitis externa, FMO: Fungal malignant otitis externa, n: number, %: percentage, SD: standard deviation

- ▶ **Clinical symptoms:** No significance difference was noted between BMO and FMO cases (Table 2)

Table 2: Comparison of clinical symptoms presented by patients with bacterial and fungal malignant otitis externa

	BMO	FMO	p-value
Otalgia, n (%)	44 (81.5)	27 (96.4)	0.08
Otorrhea, n (%)	36 (66.7)	21 (75)	0.4
Cephalalgia, n (%)	23 (42.6)	13 (46.4)	0.7
Hearing loss, n (%)	22 (40.7)	6 (21.4)	0.8

BMO: Bacterial malignant otitis externa, FMO: Fungal malignant otitis externa, n: number, %: percentage

- ▶ **Complications:** were significantly more frequent among FMO cases (42.9% vs 9.3%; $p<0.001$).

- ▶ **Physical examination signs:** Stenosis of the external auditory canal was significantly more frequent among FMO cases ($p=0.02$) (Table 3)

Table 3: Comparison of physical examination signs between patients with bacterial and fungal malignant otitis externa

	BMO	FMO	p-value
Tenderness to palpation of the mastoid bone, n (%)	21 (38.9)	18 (64.3)	0.029
Stenosis of the external auditory canal, n (%)	39 (72.2)	26 (92.9)	0.02
Facial paralysis, n (%)	7 (13)	4 (14.3)	0.8

BMO: Bacterial malignant otitis externa, FMO: Fungal malignant otitis externa, n: number, %: percentage

- ▶ **Treatment duration:** was significantly longer among FMO cases (70[40-90] days vs 45[34-75] days; $p=0.03$).

Conclusion

Our study showed that FMO affected more frequently the elderly and diabetic patients, when compared with BMO. Regardless of the causative agent, the clinical presentation was similar. However, the outcome was poor among FMO cases with the occurrence of complications, requiring a longer duration of treatment.