Malignant Otitis Externa: Is it Being Overdiagnosed?

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Introduction

- Malignant otitis externa (MOE), or necrotizing otitis externa, is a rare infection of the external auditory canal and surrounding tissues with severe complications.
- MOE is commonly linked to immunocompromised or elderly diabetic patients and is predominantly caused by *Pseudomonas aeruginosa*.
- Recent increases in reported MOE cases highlight shifts in patient demographics and the emergence of non-classical causative organisms.
- Whether these trends reflect a true rise in incidence or result from misdiagnosis and overreporting remains uncertain, underscoring the need for updated clinical insights.
- In our retrospective cohort study, we analyze the risk factors and treatment approaches following encounters with an MOE diagnosis to understand current trends and management strategies.

Methods and Materials

- Retrospective cohort study of the Epic Cosmos database of patients with an encounter including a diagnosis of MOE between January 2010 and December 2023.
- Demographic information, pertinent medical history, all-cause mortality rate, antibiotic prescribing patterns, and rates of surgical intervention were collected.

Results

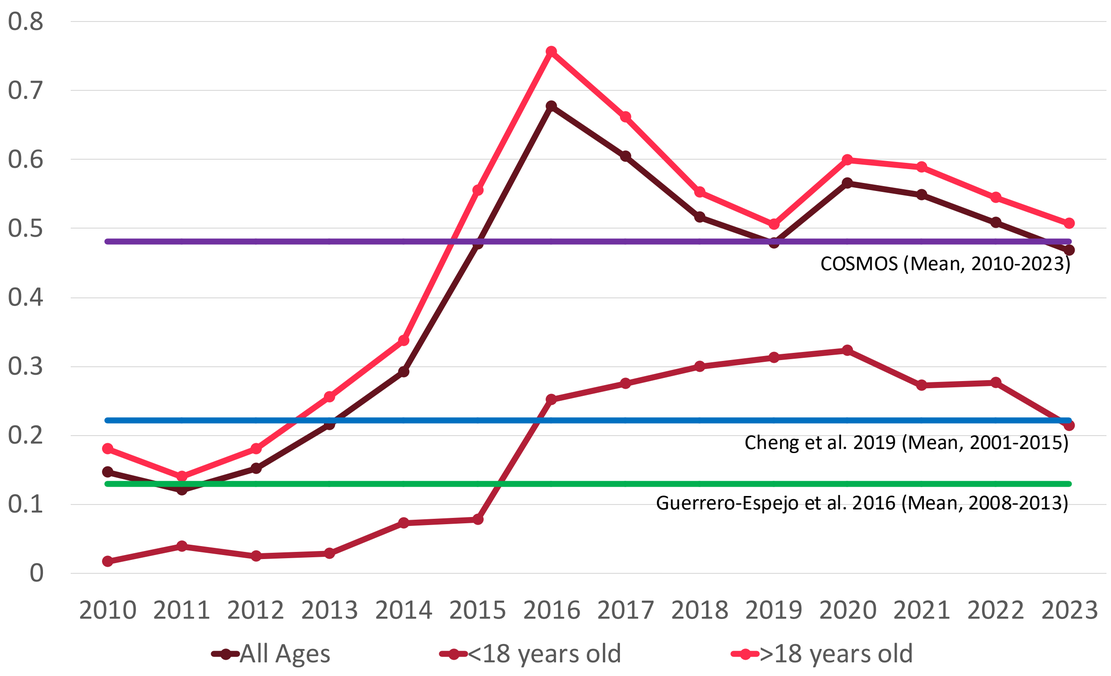

Figure 1. MOE Diagnosis Between 2010-2023 per 100,000 Encounters

Table 1. Patient and Encounter Characteristics

	COSMOS – n (%)	Reported Literature
Patient Demographics		
Average Age *	59.53 (21.44)	69.2 – 74 [1-2]
Male Sex	4066 (51.69%)	59.2 – 70.42% [1-3]
Inpatient	1692 (9.23%)	---
Risk Factors		
HIV	86 (1.09%)	---
Malignancy	2045 (26.00%)	---
Chemotherapy	560 (7.12%)	---
DM	5353 (68.05%)	64.4 – 84% [1-3]
HTN	4950 (62.93%)	40 – 68.1% [1,3]
No Risk Factor	2206 (28.04%)	10 – 20% [1,4]
Complications		
Cranial neuropathy †	151 (0.82%)	14.6 – 21% [1-3]; 67% [4]
Brain abscess	99 (0.54%)	---
Meningitis	78 (0.43%)	---
Dural venous sinus thrombosis	38 (0.21%)	8% [4]
Mortality ‡	1143 (14.53%)	14 – 19.2% [6-7]

*Average age is represented as a mean (standard deviation) for COSMOS and as a median in the cited literature. †Cranial neuropathy (CN) is reported as the presence of any CN in COSMOS and as the presence of a cranial nerve VII palsy (first value) and or any CN (second value) in the cited literature. ‡Mortality is represented as an all-cause in COSMOS and is disease-specific in the cited literature.

Results

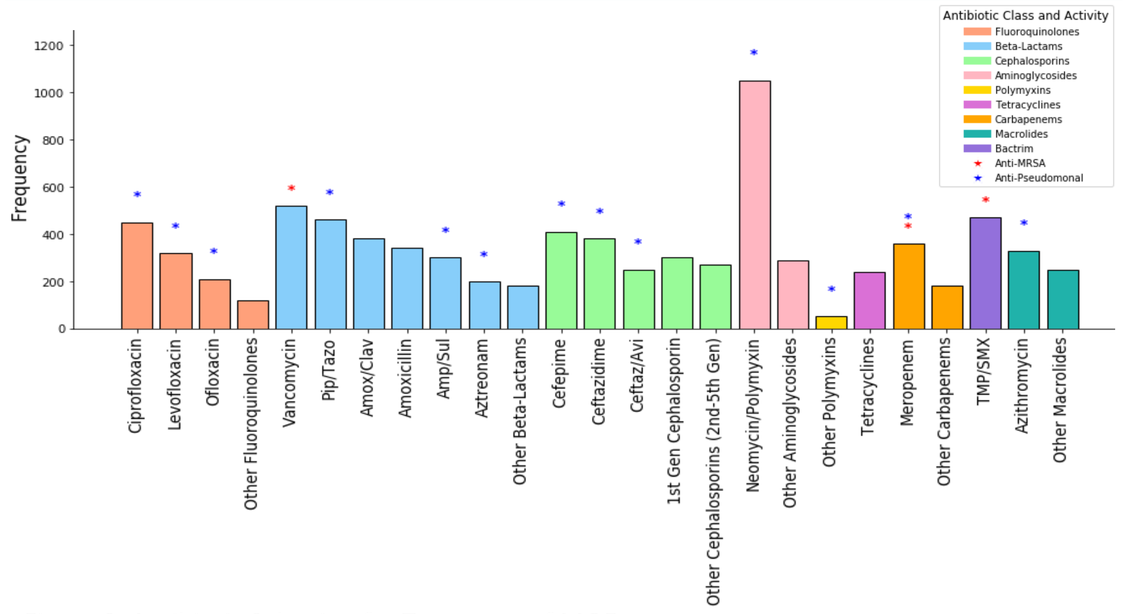

Figure 3. Antibiotic Selection for Treatment of MOE

Table 2. Anti-fungal Selection for Treatment of MOE

Anti-fungal	Fluconazole	Nystatin	Clotrimazole	Voriconazole	Micafungin	Ketoconazole	Other
Number of Prescriptions	230	127	120	82	30	28	79
Percent Prescribed	33.0%	18.2%	17.2%	11.8%	4.3%	4.0%	11.4%

Table 3. Characteristics of Surgical Management

	COSMOS – n (%)	Reported Literature
Overall Surgical Intervention	364 (2.0%)	19.2 – 22.7% [1,3,6]
External Auditory Canal Debridement (% of surgeries)	64 (17.6%)	40 – 60% [1,4,6]
Mastoid Surgery (% of surgeries)	179 (49.2%)	31 – 50% [1,3-4]

Results Summary

- The incidence of MOE diagnoses significantly increased between 2010 and 2023, peaking at 0.677 per 100,000 encounters in 2016.
- The overall incidence in our population (0.481) is more than twice the incidence reported in the literature.
- MOE predominantly affects older adults, with a mean patient age of 59.5 years. However, there is a decade difference between the median age reported in the literature.
- DM was the most common risk factor (68.05%), followed by HTN (62.93%) and malignancy (26.00%). However, 28.04% had no known risk factor.
- Patients with malignancy and chemotherapy had notably higher all-cause mortality rates (30.2% and 41.8%, respectively).
- Complications, including cranial neuropathy, were rare in our population.
- All-cause mortality was only 14.53% compared to the 14-19.2% disease-specific mortality reported in the literature.
- Most cases were managed medically with Pseudomonas-targeted antibiotics, though 15% received suboptimal regimens.
- Surgery was rare (2.0%) compared to the cited literature (19.2-22.7%), with mastoid surgery comprising nearly half (49.2%) of these cases.

Conclusions

- The rising incidence of MOE may reflect an aging population, increased diabetes prevalence, improved diagnostics, or increased utilization of the electronic health record.
- However, low rates of surgical intervention, frequent antibiotic mismatches, and a lower-than-expected prevalence of known risk factors suggest potential overdiagnosis.
- Extremely low complication rates— including cranial neuropathy, which is present in two-thirds of MOE cases— strongly supports mild disease and MOE overdiagnosis.
- Developing standardized diagnostic criteria or seeking expert consultation could help reduce overdiagnosis, improve accuracy in future cases, and enhance the quality of reporting in the medical literature.

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