P305 Cerebral and fungal infections: a cocktail for catastrophe: a systematic review and meta-analysis with machine learning

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Objectives: we evaluated the magnitudes and factors contributing to poor outcomes among cerebral patients with fungal infections (FIs).

Methods: We searched PubMed, Embase, Ovid, and WOS and included articles reporting mortality in cerebral patients with FIs. We pooled the point and relative-risk (RR) estimates of mortality on random-effects meta-analysis and explored their heterogeneity (I^2) on subgroups, meta-regressions, and machine learning (ML). We assessed the study quality through New-Castle-Ottawa- Scale and outcome-assumptions through Egges regression (CIBD2019142782).

Results: Of 4345, 34 studies (2194 patients) were included (good/poor quality: 12/23/3). Pooled mortality of FIs was 64.4% (95% CI: 55.4 - 72.0, I^2: 12.87%, P < 0.01), which was 2.1 times higher than controls (95% CI: 1.8 - 2.5, 12.89%, P < 0.01). Higher CPP (<-30, 30-<70, 70-<100, >100) and mortality was lower (0.87, 0.27, 0.17, 0.13). 90% CI: 1.7, 2.9; 1.3, 9.4). organ failures, and increased hospital stay (30 vs. 10 days) was reported among cases with FIs. Patients with ALCF (79.4%, 95% CI: 2.2, 9.3), and ICU admission (79.4%, 95% CI: 2.2, 15.6) had the highest mortality. The risk was maximum for pulmonary FIs (79.4%, 95% CI: 2.2, 15.6), followed by peritoneal FIs (63.3%, 95% CI: 2.2, 15.4) and meningitis (54.4%, 95% CI: 2.2, 15.3). The mortality was lower in FIs than bacterial (R.R: 1.7) or non-infections (R.R: 2.9). Estimated mortality was also lower (P < 0.01). Up to 6 courses and 9 other studies were identified on ML, and the estimate-heterogeneity was eliminated on excluding such studies.

Conclusions: A substantially worse prognosis, poorer than bacterial infections in cerebral patients with FIs indicates an urgent need for improving fungal diagnostics and therapeutics in this population. ALCF and ICU admission should be included in the criteria for defining FIs.

P306 Scedosporium spp. and Lomentospora prolificans, fungal agents with unexpected vascular tropism

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Objectives: Intravascular scedosporiasis and lomentosporiosis are deadly fungal infections due to Scedosporium spp. and Lomentospora prolificans. The Scedosporium/Lomentospora Observational Study (S.O.S.) highlighted for the first time a frequent vascular involvement in these infections including aortitis and peripheral arterial FIs. We here describe the clinical, microbiological, radiological and anatomopathological characteristics of these vascular infections.

Methods: We retrospectively reviewed cases of aortitis (with the exception of central nervous system aortitis) from the S.O.S. cohort and from the literature.

Results: Seven cases of vascular infections were identified from the S.O.S. cohort representing 24% (7/29) of the diagnosed Scedosporiasis/Lomentosporiosis. Four cases had both aortitis and PA, 2 patients were diagnosed with PA and one patient with aortitis. A total of 9 aortitis and 4 PA cases were identified from the literature. All 20 cases were proven Scedosporium/Lomentospora. The mean ages was 67 years (60-80) of cases (12/20) followed by L. prolificans (5/17% of cases) in 72% of cases. One infection was caused by both species. A underlying immuno-suppression was present in 76% of the cases (18/24), with 10 cases of solid organ transplantation and 3 cases of hemato-oncological malignancies. The main risk factor for immuno-compromised patients was a previous cutaneous trauma (46%). Interestingly, vascular involvement was identified at diagnosis of the Scedosporium/Lomentospora in only half of the cases. Aortitis was mainly abdominal (8/13). Various PA localizations were reported with frequent thoracic or arterial involvement (4/10). Aortitis was the only localization in only 10% (2/20) of the Scedosporium/Lomentosporiosis, other sites involved being mainly oesophageal (16%), and pulmonary (9/5) followed by central nervous system (5/25), cutaneous localizations (4/20), and endocarditis (4/20). Of note, three-quarters of the cases were diagnosed. An amniotic lesion was the most frequent imaging aspect (8/13 of aortitis and 4/13 of PA) which was complicated by a rupture in half of the aortitis (4/8) and only one PA (1/6). Vascular wall thickening (2/13 of aortitis and 5/10 of PA) and perivascular abscesses (1/13 and 1/10, respectively) were more rarely described. Heterogeneity analysis was constant on PET-CT scan when performed (6/6). When available (11/20), pathological analysis showed an invasion of the arterial wall by fungal hyphae (10/11), particularly in the media and the adventitia. A total of 3-months of mortality related to infection was 64% (8/13), rising to 71% (7/10) in case of fungemia.

Conclusions: The vascular tropism of Scedosporium spp. and L. prolificans underlines the necessity of vascular imaging in the management of these infections, especially in case of dissemination seeking in particular amniotic lesions of the abdominal aorta and infra-renal arteries.

P307 Clinical profile of fusarium infections: case series from a tertiary care hospital

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Objectives: To study the clinical profile of patients with fusarium infections diagnosed at our tertiary care centre during the study period from February 2017 to March 2022.

Methods: We conducted a retrospective case study wherein all consecutive patients with fusarium infections between February 2017 to March 2022 were assessed. The diagnosis was categorized based on either fungal culture alone or fungal culture with histopathology findings.

Results: A total of 12 patients with fusarium infections were encountered during this period. The mean age was 49. In all, 5 were females and 7 were males, and 5 patients had diabetes as a risk factor. Other risk factors included chemotherapy for multiple myeloma (1) and lymphoma (1), polymyositis (1), and surgery after prenatal malformation. A total of 8 (66.7%) patients were on antifungal prophylaxis at the time of diagnosis.

A total of 6 (50%) had localized infections whereas, remainder 6 (50%) had disseminated infection, and 23% presented with orchomycosis. Seven patients were diagnosed based on fungal culture and five were diagnosed based on histopathology findings. A total of 1 patient with fusarium blood stream infections, who expired within 2 weeks of hospitalization.

A total of 10 patients had P. xerotermatica whereas, 2 had F. oxysporum isolated in fungal cultures. In all, 42% of patients in the study had high Bres-18-Glucan (BDG) and 47% of the patients underwent source control of the involved region. A total of 9 patients (75%) received voriconazole as antifungal treatment and 3 patients received Amphotericin B. Four patients expired, those were lose to follow up and five did not develop relapse on follow-up.

Conclusions: Fusarium is an opportunitic human pathogen severely affecting immunocompromised patients, especially patients with hemato-oncological malignancies, prolonged neutropenia, and post-hepatomery stem cell transplantation. Our study records a terrible number of fusarium infections among diabetes and orchomycosis was a common presentation. A high index of suspicion is of utmost importance in patients with risk factors and serum BDG may help in suspicion of invasive Fusarium infections. The 33% mortality in our study stresses the need for early diagnosis and treatment.
Lobomycosis (laçosao) is a chronic subcutaneous disease caused by the unencapsulated fungus Lacazia loboi. This disease was first described in 1951 by Jorge Lobão in Brazil and has been reported in South and Central America. Lobomycosis is a rare disease that affects certain geographic regions, mainly in countries of low socioeconomic status, but its prevalence among indigenous people in Brazil is exceptionally high. The state of Maranhão is located in the northeast region of the country and there are rare clinical reports of imported cases of the disease in our region. This is the first published series of autochthonous cases of lobomycosis in Maranhão.

Objectives: To describe seven cases of Lacazia loboi infections in indigenous patients in an endemic area for other subcutaneous mycoses.

Methods: We retrospectively reviewed the medical records of all patients who developed Jorge Lobão’s disease in a new area recognized as a potential environmental reservoir. An incident case was defined as a patient who developed proven lobomycosis based on the presence of typical fungal elements in the tissue on histopathology or mycologic direct exams. Epidemiological and clinical data on all cases of lobomycosis were collected using a standardized clinical form.

Results: In the period from 2000 to 2021, seven patients were identified. All cases were diagnosed by histopathology and direct mycological examination of the lesions. A total of 6 out of 7 (85.7%) patients were men and the mean age was 57 years (12-70 years). The median time between onset of infection symptoms and diagnosis was 2 years in 6 patients, with 15 years of symptom duration in patient 7. All patients reported having worked with agricultural activities before. A total of 50% of patients were diagnosed with localized lesions and the other half with disseminated lesions. Subcutaneous lesions involved the upper limbs (40%, 44%), ears (28%), lower limbs (10%, 16%), and trunk (35%, 16%). All patients exhibited nodules as a dominant pattern of skin lesion, sometimes coalescing with the tumor’s appearance. Regarding treatment, a combination of itraconazole and clotrimazole therapy was added to all patients. Surgical excision was possible only in 2 episodes due to the limited availability of this procedure at the site. Care was documented in 2 cases, with no recurrence to date.

Conclusions: This series represents the first and largest collection of case studies of lobomycosis in Maranhão state, with all cases classified as autochthonous. Lobomycosis involves mainly adult males with different occupational risk such as agricultural labor, and other workers exposed to contaminated soil and plant materials. Few data are available to support suggested therapy with itraconazole and clotrimazole. Excision surgery is important for treatment due to the absence of clinical trial in the medical literature. Epidemiological surveillance studies of new cases of lobomycosis in Maranhão are important for mapping this new reservoir and developing public policies for diagnosis and treatment.