Head CT s/p left frontal craniotomy with resection & evacuation of abscess

Conclusion. Different Nocardia species have a wide geographic distribution with varying pathogenic traits, and antimicrobial susceptibility. Hence, the identification of the specific species of Nocardia is crucial to provide a proficient level of patient care. Nocardia beijingensis is a newly discovered species of Nocardia that was first isolated in 2001 in China. Only six cases of N. beijingensis affecting CNS have been reported up to date in the United States. It is unclear of the geographic distribution and variable antimicrobial susceptibility of Nocardia beijingensis but we can confirm the first reported case of an opportunistic disseminated infection in a renal transplant patient in the United States.

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261. A Rare Case of Meningitis and Symptomatic Hydrocephalus by Listeria Monocytogenes in Dermatomyositis: A Case Report
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Session: P-13. CNS Infection

Background. Listeria monocytogenes is a gram-positive, facultative anaerobic bacillus common in the intestinal flora of many animals and humans. We describe an unusual case of meningitis by Listeria monocytogenes (LM) complicated by hydrocephalus in a child with dermatomyositis. 

Methods. A 15-year-old girl presented to an outside hospital (OH) after a three-day history of headache, fever and was hospitalized with a diagnosis of meningitis and lumbar puncture performed. CSF sample could not be evaluated clearly due to its hemorrhagic nature. Her past medical history was significant for dermatomyositis for five years. She had received induction of IVIG five days prior. She was also taking cyclosporin A and hydroxychloroquine. She was empirically treated with intravenous cefotaxime, vancomycin, and acyclovir. She was urgently transferred to the theatre for an external shunt placement in the right lateral ventricle. The interval between the first symptoms and the diagnosis of hydrocephalus was around 4 days. CSF from this catheter showed growth of LM with sensitivity to meropenem and resistance to erythromycin, ampicillin, and sulfamethoxazole-trimethoprim. Gram staining of CSF resulted negative for bacteria. Cefotaxime was switched to intravenous meropenem. Immunological screening of cellular and humoral immunity, complement, and blood iron levels were normal. SARS-Cov2 PCR and HIV tests were negative. Herpes virus, mycobacterium tuberculosis real-time PCR, respiratory viral panel studied in the CSF sample were negative. MRI and Angio of the brain showed no abnormality. She is being followed in the pediatric intensive care unit as intubated.

Results. In patients who received immunosuppressive medication, L. monocytogenes should be evaluated in the differential diagnosis of central nervous system infections. Even if effective antibiotic therapy has been initiated, this case highlights the need of recognizing early hydrocephalus as a consequence of Listeria meningitis in children with neurological deterioration a few days after initial presentation.
Conclusion. The literature on the management and outcome of Listeria meningitis-related hydrocephalus in children is limited.

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262. Epidemiology, Treatment, and Clinical Outcomes of Methicillin-Sensitive Staphylococcus aureus (MSSA) Bacteremia Complicated by Central Nervous System (CNS) Disease within the Veterans Affairs (VA) Healthcare System Jill Provenzak, MD1; Jesse Sutton, PharmD, MS2; Emily S. Park, MD, MS3; Emily S. Park, MD, MS4; University of Utah, Division of Infectious Disease, Salt Lake City, Utah; Veterans Affairs Healthcare System, Salt Lake City, Utah; VA HSR&D Center of Excellence for Clinical Neurosciences, Salt Lake City, Utah

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Background. The epidemiology of methicillin-sensitive Staphylococcus aureus (MSSA) bacteremia complicated by central nervous system (CNS) involvement is not well defined or described. We aimed to identify patients with MSSA BSI with CNS disease using imaging reports and define the epidemiology, characteristics, management, and associated clinical outcomes.

Methods. We conducted a retrospective study of inpatients (1/1/2014 to 10/31/2019) with MSSA BSI and head imaging (≥7 days of BSI). Imaging reports were categorized into probable, possible, or no CNS involvement. Charts were reviewed to assess source and metastatic sites of infection, severity of illness, and clinical course. Demographics, comorbidities, antibiotic use, and morbidity and mortality were electronically extracted from the corporate data warehouse. Primary antibiotic treatment was defined as the antibiotic received for the highest proportion of treatment course.

Results. 1852 patients had MSSA BSI and a head imaging performed. 151 (8%) had probable and 56 (3%) had possible CNS involvement. Embolic disease (n=167 [87%]) was the most common type of CNS disease (136 [83%] with probable CNS disease). Overall, high severity of illness defined by ICD-10 admission (52%), vasoplegic (7%), or mechanical ventilation (15%) was observed overall and was more common with probable CNS disease. Cefazolin was the most common primary antibiotic (71 [40%]), followed by nafcillin or oxacillin (51 [29%]); 16 (31%) patients had an adverse reaction to cefazolin (33% patients died by day 43%) by day 90. Recurrent CNS infections and bacteremia by day 90 was observed in 11 (6%) and 6 (3%).

Conclusion. We propose a definition of MSSA bacteremia complicated by CNS disease. CNS disease with MSSA bacteremia is infrequent with the most common manifestation being embolic disease. A significant number of patients with MSSA bacteremia were treated with cefazolin despite evidence of CNS disease. Overall mortality was high. Given higher rates of adverse drug events with nafcillin or oxacillin, comparative effectiveness studies are needed to further define the role of cefazolin for MSSA bacteremia with CNS disease.

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263. Antibody Spill-Over vs. True Coccidioidal Meningitis in a Patient with HIV/AIDS and Disseminated Coccidiodomycosis Renee E. Newby, MD1; Danny L. Sam, MD2; Joseph Cooper, MD2; Kaiser Permanente Santa Clara, SAN JOSE, California; Santa Clara Valley Medical Center, San Jose, California

Session: P-13. CNS Infection

Background. The diagnosis of coccidioidal meningitis merits life-long antifungal therapy given high rates of disease recurrence. Accurate diagnosis is important. Antibody spill-over into cerebrospinal fluid (CSF) can happen when serum titers are high. We present a case of antibody spill-over vs. true coccidioides-resistant coccidiodal meningitis.

Methods. A 49-year-old man presented with 6 months of intermittent fever, myalgias, decreased appetite, vomiting, diarrhea, unsteadiness and 60-pound weight loss. He was recently diagnosed with HIV and a prior lymph node biopsy had grown Coccidioides immitis (C. i) for which he was given fluconazole 100 mg twice daily.

Results. Vital signs revealed a temperature of 102°F. He was cachectic and a 0.5 cm right supraclavicular lymph node was palpable. No meningeal signs were appreciated. CD4 count was 50/µL (18%). HIV-1 viral load 2,969,945 copies/mL. Computed tomography (CT) of the abdomen/pelvis suggested lung and spleen involvement. Serum C. i enzyme immunoassay (EIA) was 1.38 ng/mL, immunodiffusion (ID) was positive and complement fixation (CF) titer was 1:256. C. i was isolated from expectorated sputum. CSF cell count was normal, but ID was positive and CF titer was 1:2 however, lab reported concern for spil-overflow due to high serum IgG titer. He left against medical advice with fluconazole 400 mg daily. He was hospitalized a month later for failure to thrive. MRI head revealed enlarged lateral and third ventricles with increased periventricular hyperintensity concerning for coccidioidal meningitis. Repeat serum studies were stable. CSF revealed CF 1:4 and C. i antigen by EIA 1.31 ng/mL, distin- guishing between spill-over and meningitis. Susceptibility results showed resistance to fluconazole and amphotericin B with minimum inhibitory concentrations (MICs) of 50 and 4 respectively; posaconazole susceptibility (MIC <1) and itraconazole border- line (MIC 3.7). Despite amphotericin B resistance, it was used for bridge to posacona- zole. ART was initiated after concern for immune reconstitution had resolved.

Conclusion. This case highlights the difficulty in making an accurate diagnosis of coccidioidal meningitis. It also describes a fluconazole-resistant C. i isolate in the setting of prolonged low-dose fluconazole therapy.

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264. A 20-Year Study of Intracranial Pyogenic Complications of Sinusitis in Children Jennifer Tat, MB BCH BAO, MSc1; Mina Smiljikovic, MD2; Susan E. Richardson, MD, FRCP(C)3; Aaron Campigotto1; Sharon Cushing, MD, FRCP(C)1; Vikram Wijethunga, MD, MSc, FRCP(C), FCAP2; Peter Dekker, MD, PhD1; Frank A. Beugelsdijk, MD, FRCP(C)2; Ari Bitoun, MD3; The Hospital for Sick Children, University of Toronto, Toronto, Ontario, Canada; The Hospital for Sick Children, Toronto, Ontario, Canada; 1Hospital for Sick Children, Toronto, ON, Canada

Session: P-13. CNS Infection

Background. Intracranial pyogenic complications of sinusitis in children are relatively uncommon but can lead to serious sequelae. The objective of this study was to characterize the clinical, epidemiologic and microbiologic characteristics of children with such complications over a 20-year period (2000-2019).

Methods. Single-center retrospective chart reviews. Cases were identified based on International Classification of Diseases (ICD)-10 diagnostic codes (intracranial abscess or granuloma, extradural and subdural abscess, Pott's puffy tumor, acute or chronic sinu-sitis) and by reviewing all microbiological samples of intracranial pus, tissue or fluid.

Results. 108 cases of clinically and/or radiologically diagnosed sinusitis were included after review of 1591 charts. The majority were adolescents (median age 12, IQR 9-14); 72 were male (67%). The most common presenting symptoms were fever (94%), headache (87%) and symptoms of upper respiratory tract infection (57%). Median symptom duration was 10 days (IQR 5-21) and 55 cases (51%) received oral antibiotics prior to admission. The most frequent complications were epidural empyema (n=50, 46%), subdural empyema (n=46, 43%) and Pott’s puffy tumor (n=31, 29%). 50% (n=54) underwent neurosurgery, of which 20% (n=11) required multiple cranectomies. 38% (n=41) underwent otolaryngological surgery. Microbiological data from sterile specimens demonstrated single organisms in 36 cases (59%) and polymicrobial growth in 25 cases (41%). The most frequently identified pathogens were Streptococcus anginosus species (n=40, 66%) followed by Pseudomonas aeruginosa (n=10, 16%) and Prevotella species (n=10, 16%). Most cases were treated with combination anti- biotic therapy (n=68, 63%) and 14% (n=15) with a carbapenem. The median duration of intravenous antibiotic therapy was 51 days (IQR 42-80). One child died and 23% (n=25) suffered neurological sequelae (median follow-up 344 days). 48 cases (44%) occurred between 2014-2019.

Conclusion. Intracranial complications of sinusitis continue to cause significant morbidity in children. The predominant causative pathogen was Streptococcus anginosus. Polymicrobial infections are common, confirming the need for prolonged broad-spectrum antibiotic treatment.

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265. Rocky Mountain Spotted Fever Encephalopathy Sangetha Isaac, MD1; Mohammed Afzal Pasla, MD1; Jean H. Vincent, Internal Medicine & Infectious Disease2; Khusdeep Chahal, MD1; North Alabama Medical Center, Florence, Alabama; 2North Alabama Internal Medicine Residency Program, Florence, Alabama

Session: P-13. CNS Infection

Background. Rocky mountain spotted fever (RMSF) is a rickettsial disease with incidence of 11 per million and is rarely associated with encephalopathy. We discuss a patient with RMSF encephalopathy, highlighting the natural course.

Methods. A 54 year old man with history of hypertension and chronic progressive external ophthalmoplegia, presented with waning and worsening confusion, headache, slurred speech, agitation and difficulty swallowing. He was afebrile and hemodynamically stable. Investigations showed leukocytosis of 15,400 and mild transaminitis. Computed-tomography (CT) head was unremarkable. Lumbar puncture revealed normal pressure. Cerebrospinal fluid (CSF) analysis was not notable. Amylase, glucose 76 and moderately elevated total protein 114. Urine drug screen was negative. Blood, fungal, and CSF cultures were sent and empiric therapy with vancomycin, ceftriaxone, ampicillin and acyclovir commenced, for suspected