

Conclusion. PICC complications are common after PJI treatment accounting for nearly 20% of 90-day ED visits. Of these, malpositioning and occlusion of the PICC line occupy the vast majority of these complaints. This high level of utilization early in the course of outpatient parenteral antibiotic therapy represents areas of optimization and potential cost containment in the postoperative care of PJI patients.

Disclosures. William Jiranek, MD, Depuy Synthes (Other Financial or Material Support, Royalty/Licensing) Michael Bolognesi, MD, Heron Therapeutics, Inc. (Consultant) Total Joint Orthopedics, Inc. (Other Financial or Material Support, Royalty/Licensing) Zimmer Biomet Holdings, Inc. (Other Financial or Material Support, Royalty/Licensing) Thorsten Seyler, MD/PhD, Depuy Synthes (Other Financial or Material Support, Resident Educational Support) Extrel Therapeutics (Board Member, Shareholder) Heraeus Medical (Consultant) MiCare Path (Board Member, Shareholder) OREF (Grant/Research Support) Pattern health (Board Member) Restor3D (Other Financial or Material Support, Royalties) Smith+Nephew, Inc. (Grant/Research Support, Speaker's Bureau) Stryker (Other Financial or Material Support, Resident Educational Support) Total Joint Orthopedics, Inc. (Consultant) Wolters Kluwer Health (Other Financial or Material Support, Royalties) Zimmer Biomet (Grant/Research Support)

257. Outcomes in Fungal Prosthetic Joint Infection

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Session: P-12. Bone and Joint

Background. There is a paucity of data in the literature regarding the most effective treatment and related outcomes of fungal prosthetic joint infection. The majority of reported cases are treated using a two stage revision method in which the initial prosthesis is removed and the patient is treated with systemic antifungal medications and potentially irrigation of the joint cavity with antifungal and antibacterial agents. Alternately, others have suggested a one-stage revision in order to prevent a period of significant functional impairment and potentially improved functional outcomes and lower overall costs. Cases of radical removal of the prosthesis without replacement have been reported. To date, the largest studies of total hip arthroplasty and total knee arthroplasty have included 37 and 45 patients, respectively.

Methods. A retrospective record review of patients admitted within two health systems between January 1, 2007 and December 31, 2018 with prosthetic joints and a deep culture of the joint positive for fungal organisms was performed.

Results. Eighteen patients fit criteria. Nine patients had knee replacements and nine patients had hip replacements. The average age at time of infection was 61. Ten patients were female. Average BMI was 32.1. Twelve presented with a painful joint, eight presented with drainage, and one with dehiscence. Average WBC count was 9.3, average ESR was 47, and average CRP was 11.8. All patients were noted with Candida species. Eight patients were treated with two stage revisions, three received one stage revisions as destination therapy. One required amputation. All but one patient was associated with concurrent bacterial infection. Of the twelve patients that had known outcomes, six were noted with cure and six were noted with relapse. All patients that were cured received two stage exchange or girdlestone procedure.

Conclusion. In our study, fungal prosthetic joint infection was associated with poor outcomes. All of the patients in our study were noted with Candida species, which is in concordance with the known literature. Two stage exchange was associated with better outcomes.

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258. D-Dimer, Erythrocyte Sedimentation Rate, and C-Reactive Protein Sensitivity for PJI Diagnosis

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Background. Consensus criteria for the diagnosis of acute PJI now include D-dimer. Additionally, Erythrocyte Sedimentation Rate (ESR) is of questionable use in the diagnosis of acute PJI. There is scarce and contradicting evidence on the diagnostic value for these biomarkers, and further studies on larger cohorts are needed for validation. We sought to quantify the sensitivities of D-dimer and ESR compared to C-Reactive Protein (CRP) in the diagnosis of acute PJI at a tertiary referral center.

Sensitivity Table for D-Dimer and ESR

Table 1. Sensitivities of D-Dimer, ESR, and CRP in acute PJI patients

Diagnostic Lab (threshold value)	Patient count	N over threshold (%)	N under threshold (%)	Sensitivity
D-Dimer (860 ng/mL)	123**	113 (91.9)	10 (8.1)	91.9%
ESR (50 mm/hr)	904**	379 (41.9)	525 (58.1)	41.9%
ESR (30 mm/hr)	904**	554 (61.3)	350 (38.7)	61.3%
CRP (1 mg/dL)	904**	603 (66.7)	301 (33.3)	66.7%

**number of patients with results for all three tests

**number of patients with results for ESR and CRP only

Methods. An institutional database was queried for patients undergoing revision procedures for PJI after total hip arthroplasty (THA) and total knee arthroplasty (TKA) from 2014 to present. Patients were included if they had a PJI diagnosis code with subsequent revision procedure CPT codes and PICC line placement within 21 days of revision surgery. Patients with inflammatory arthropathies were excluded. Diagnostic labs, including CRP, ESR, and D-dimer, were collected within 90 days pre- and post-operatively and sensitivities for the diagnosis of PJI were calculated. Cutoff values included CRP >1 mg/dL, ESR >30 mm/hr and >50 mm/hr, and D-dimer >860 ng/mL.

Results. In total, 961 PJI patients were identified. Of those, 904 had ESR and CRP values collected, and 123 had ESR, CRP, and D-dimer collected. In the cohort of patients with ESR and CRP, 603 patients had elevated CRP, 554 had ESR >30 mm/hr, and 379 had ESR >50 mm/hr, corresponding to sensitivities of 66.7%, 61.3%, and 41.9%, respectively. In the cohort of patients with all three biomarkers, 113 had an elevated D-dimer, corresponding to a sensitivity of 91.9%.

Conclusion. In this cohort, CRP and ESR were of comparable sensitivity in diagnosing PJI. D-dimer was the most sensitive, but further pooled studies are needed to confirm this. Providers should continue to use this information in the context of other data and MSIS criteria to inform decision-making.

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259. Impact of a Multiplex Meningitis and Encephalitis PCR on the Management of CNS Infections in Adults and Children, Houston, Texas

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Session: P-13. CNS Infection

Background. The majority of adults and children with meningitis and encephalitis have unknown etiologies fostering universal admission, prolonged length of stay, empirical antibiotic and antiviral therapies. A qualitative multiplexed nucleic acid-based in vitro diagnostic test (FilmArray) is helping clinicians identify organisms and improve clinical outcomes.

Methods. Patients presenting between July 5, 2018, to April 26, 2021, with meningitis or encephalitis, cerebrospinal fluid (CSF) with WBC >5 cells/mm³, and leftover CSF were available for testing. All CSF specimens underwent testing with the Biofire® Film Array Meningitis Encephalitis (FAME) panel. This multiplex PCR tool utilizes 0.2 ml CSF sample to identify the presence of 14 viral, bacterial and fungal pathogens in 1 hour.

Results. Of 5291 CSF specimens screened, 285 (5.3%) met the criteria for meningitis or encephalitis and underwent FAME testing. The majority were adults (240, 84.2%), male (147, 51.5%), White (111, 38.9%), immunocompetent (213, 74.3%) and (212, 74.3%) had meningitis presentation. Median age was 41 years (0 mo-100 yrs) and (283, 99.2%) were admitted to the hospital. Median duration between CSF collection and viral PCR result was 13 hrs for Enterovirus, 31 hrs for HSV, and 57 hrs for VZV. The FAME panel detected a pathogen in 103 patients (36.1%) of whom 76 (73.7%) had a viral etiology. 166 (58.2%) patients were discharged with unknown etiology of whom FAME was positive in 24 (14.4%) [VZV (37.5%), HSV2 (16.6%), Enterovirus (16.6%), *Haemophilus influenzae*

(8.3%), HHV6 (8.3%), *Streptococcus pneumoniae* (8.3%) and HSV1 (4.1%). The addition of the FAME panel to the standard of care evaluation increased the known etiologies from 119 (41.7%) to 197 pathogens (69.1%), ($p < 0.05$). 52 patients (18.2%) underwent a repeat LP (30, 57.6% done for additional testing). Empirical antibiotic and antiviral therapy were given to 89% and 63% of patients, respectively.

Conclusion. A rapid multiplex PCR decreases the proportion of unknown etiologies and has the potential to decrease length of stay and the use of empirical antibiotic and antiviral therapies. Testing with the FA ME panel resulted in pathogen detections not previously recognized and for which treatment is recommended.

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260. The Unfortunate Consequence of Immunosuppression in a Renal Transplant Patient

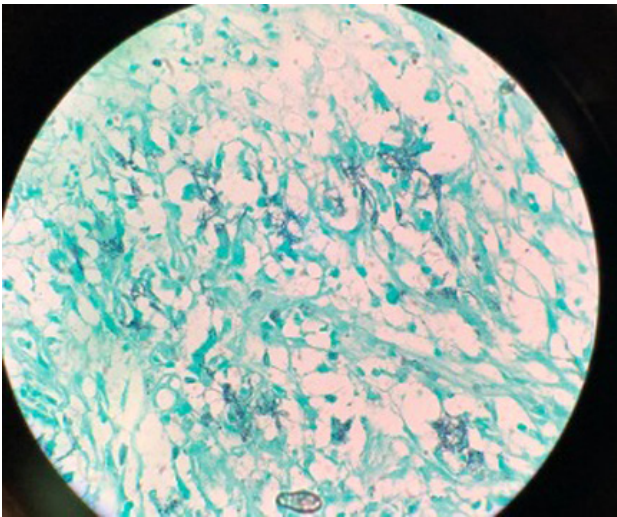
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Session: P-13. CNS Infection

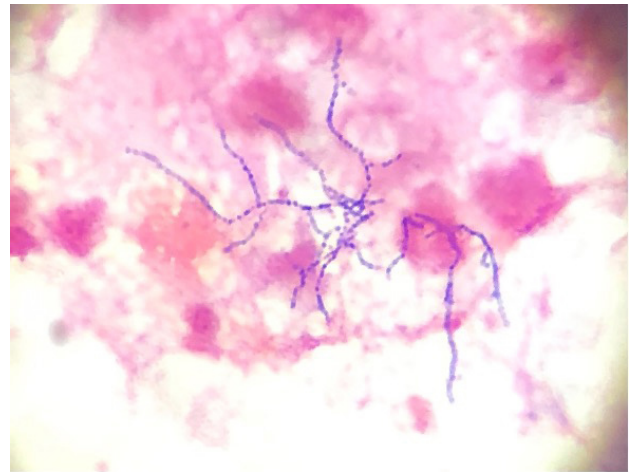
Background. *Nocardia* is a slow-growing aerobic-actinomycete that belongs to the family Nocardaceae. Major predisposing factors include corticosteroid use, organ transplantation, low CD4 count, and hematologic malignancies. The most commonly affected organs are lungs, mainly via inhalation; however, the most common extrapulmonary site is central nervous system.

Methods. Matrix Assisted Laser Desorption Ionization - Time of Flight (MALDI-ToF) or 16srRNA sequencing are more reliable methodologies for accurate identification of *Nocardia* to the species level. To our knowledge, our patient represented the first U.S. case of *N. beijingensis* opportunistic disseminated infection in a renal transplant patient although similar cases have been previously reported outside the U.S.

GMS stain



Gram Stain of Nocardia



Results. We present a 31-year-old Caucasian male status post renal transplant four years ago on immunosuppressants with left arm myoclonic jerks. In addition, there was an associated unilateral left frontal headache of four to five day duration. His chest CT revealed consolidative process in the right lower lobe and pleural effusion. MRI of the brain revealed multiple ring-enhancing lesions. Patient underwent left frontal craniotomy with resection and a complete evacuation of brain abscess. His brain abscess and pleural fluid cultures revealed Gram positive rods, which were subsequently identified as *Nocardia beijingensis* by MALDI-TOF and confirmed by 16srRNA sequencing. He was treated with intravenous imipenem & trimethoprim - sulfamethoxazole with subsequent clinical improvement.

MRI Brain w/ contrast

