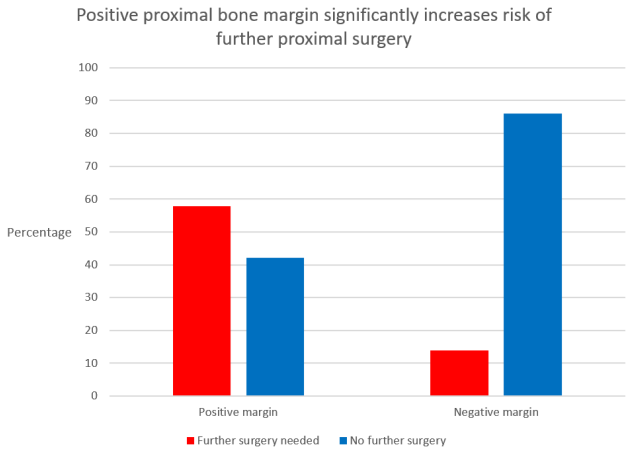
Methods: We conducted a retrospective cohort study at a VA hospital reviewing 84 patients. We evaluated patients who had a diagnosis of diabetes mellitus with diabetic foot osteomyelitis who were treated with limb-sparing amputations. All cases that were included had adequate histopathological description of the proximal margin of the amputation site. We also collected relevant clinical data including comorbidities, labs, culture data and pre-op and post-op antibiotics. The primary outcome was defined as the need for further proximal resection at the amputation site within six months of the original amputation or death from all causes within three months of the original amputation. Categorical variables were compared using Fischer's exact test or the Chi-Square test. Continuous variables were compared using the t-test.

Results: We found a statistically significant difference (p=0.0003) of the primary outcome with 10 of 19 (53%) patients with positive margins needing further surgical resection and 1 of 19 (5%) patients dying. Of the patients with negative margins, 9 of 55 (14%) patients needed further surgery and none died.



Conclusion: Our study showed that patients with residual osteomyelitis at the proximal margin were more likely to need further proximal amputation or die. We did not have adequate power to assess whether extended antibiotic therapy improved outcomes for patients with positive margins, but there was no suggestion that it did. Further research will be needed to elucidate what the ideal duration of antibiotic therapy is for residual osteomyelitis after amputation for diabetic foot osteomyelitis.

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189. Risk Factors and Outcomes of Hematogenous Vertebral Osteomyelitis in Patients with *staphylococcus Aureus* Bacteremia: Results from a 20-year Prospective Cohort

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Session: O-37. Skin, Soft Tissue, Bone & Joint Infections

Background: Hematogenous vertebral osteomyelitis (HVOM) is a rare, but devastating complication of *Staphylococcus aureus* bacteremia (SAB). Risk factors and outcomes associated with HVOM among patients with SAB remain incompletely understood.

Methods: All adult, hospitalized, non-neutropenic patients with SAB were prospectively enrolled from 1995 to 2015. Additional data was subsequently collected on all patients with HVOM. Diagnosis of HVOM was made either radiographically or microbiologically by culture from the infection site. Patients who underwent lumbar puncture or spinal surgery within 30 days prior to the diagnosis of HVOM were excluded.

Results: Of 2,475 cases of prospectively enrolled patients with SAB, 90 (3.6%) developed HVOM. The most common site of involvement was the lumbar spine (65.6%). MRI was used in the diagnosis of 90% of patients and although only 28.9% underwent bone biopsy, 88.5% of these bone cultures grew *S. aureus*. Patients with HVOM were more likely to have community-acquired SAB (22.2% vs. 9.9%, $P < 0.0001$) and persistent bacteremia (47.8% vs. 20.5%, $P < 0.0001$). Patients with HVOM who required surgical intervention were more likely to have motor deficit (60.9% vs. 21.4%, $P = 0.0013$) and have associated epidural abscesses (69.6% vs. 44.8%, $P = 0.0400$). Prolonged antibiotic use for HVOM was common, with 13.3% remaining on therapeutic antibiotics and 16.6% on suppressive therapy at 6 months. This dropped to 2.2% on therapeutic and 15.5% on suppressive therapy at 12 months. All-cause mortality was high in the HVOM cohort at 14.4% at 90-days, increasing to a cumulative 18.9% and 20.0% at 6 and 12-months, respectively. Rates of readmission, recurrent bacteremia, paralysis, and mortality at 6 and 12-months were similar for those who required surgical intervention and those who did not.

Demographics, comorbidities, and clinical characteristics of patients with and without hematogenous vertebral osteomyelitis (HVOM)

	No HVOM (n = 2385)	HVOM (n = 90)	P-value
Demographics			
	Count (column %)[a]		
Age (median, IQR[b])	60 (47 – 71)	63 (52 – 70)	0.1577
Female Sex	1043 (43.7)	31 (34.4)	0.0839
Race			0.3706
White/Caucasian	1437 (60.7)	57 (3.3)	
Black/African American	870 (36.7)	29 (2.2)	
Other	62 (2.6)	4 (4.4)	
Site of Acquisition			**< 0.0001**
Community Acquired	235 (9.9)	20 (22.2)	
Healthcare-associated Community-Acquired	1412 (59.2)	61 (67.8)	
Hospital Acquired	737 (30.9)	9 (10.0)	
Comorbidities			
Infective endocarditis	70 (2.9)	6 (6.7)	0.0561
Diabetes	919 (38.6)	44 (48.9)	0.0606
Dialysis	507 (21.3)	17 (18.9)	0.6936
Malignancy	481 (20.2)	8 (8.9)	**0.0066**
Transplant	164 (6.9)	3 (3.3)	0.2804
HIV/AIDS	71 (3.0)	1 (1.1)	0.5191
IV drug use	100 (4.2)	8 (8.9)	0.0571
Foreign device	1288 (54.1)	46 (51.1)	0.5917
Steroids	453 (19.0)	21 (23.3)	0.3390
Total APACHE II Score (median, IQR)	15 (11 – 19)	13.5 (10 – 17)	**0.0404**
Bacteremia Characteristics			
Persistent bacteremia	490 (20.5)	43 (47.8)	**< 0.0001**
USA-300	181 (7.6)	11 (12.2)	0.1086
MRSA	1147 (48.1)	41 (45.6)	0.6682
Outcomes of Bacteremia			
90-Day Bacteremia outcomes			0.0748
Alive	1526 (64.4)	68 (76.4)	
Recurrent bacteremia	205 (8.6)	8 (9.0)	
Death due to bacteremia	329 (13.9)	7 (7.9)	
Death due to other causes	310 (13.1)	6 (6.7)	

[a]Unless otherwise specified; discrepancies due to missing data
[b]Interquartile range

Conclusion: HVOM in patients with SAB was associated with high rates of all-cause mortality up to 12 months following date of diagnosis. Patients with community-acquired bacteremia and persistent bacteremia were more likely to develop HVOM.

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190. Osteomyelitis Following Mandibular Reconstruction with Free Fibula Flap: A Cohort Study of an Emerging and Complex Bone and Joint Infection

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Lyon BJI study group

Session: O-37. Skin, Soft Tissue, Bone & Joint Infections

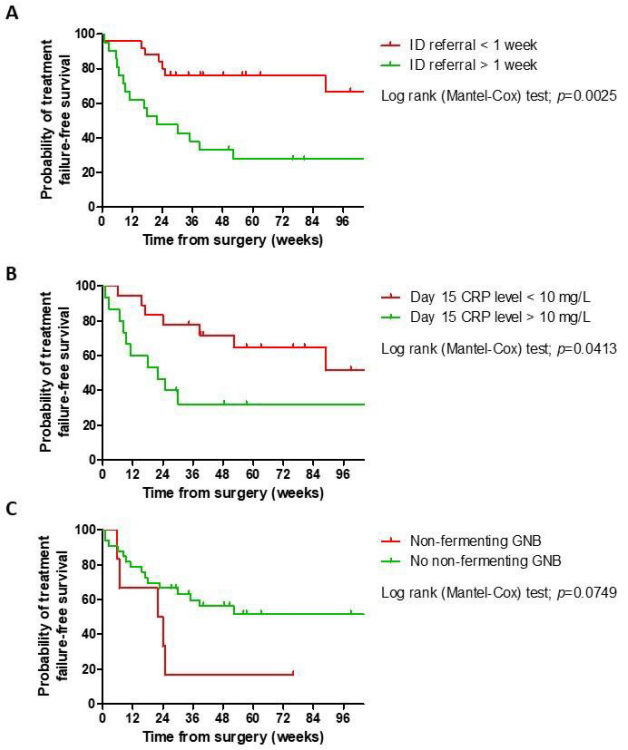
Background: Free fibular flap (FFF) mandible reconstruction is at high risk of complications due to patient comorbidities, microvascular surgery after neck

irradiation and intrabuccal exposure. We aimed to describe clinical and microbiological features, management and outcome of osteomyelitis following mandibular reconstruction with FFF.

Methods: Patients referred to our reference center for an osteomyelitis following FFF reconstruction of the mandible were included in a retrospective cohort. Microbiology was described based on gold-standard samples. Risk factors for treatment failure (infection persistence or relapse, need for additional surgery for septic reason, infection-related death) were assessed by logistic regression and Kaplan-Meier survival curve analysis.

Results: 48 patients (age, 60.5 [IQR, 52.4–66.6]; 30 males; 62.5%; modified Charlson comorbidity index, 4 [3–5]) were included. Indications for FFF mandible reconstruction were mostly carcinoma (n=27; 56.3%) and osteoradionecrosis (n=12; 25.0%), with 44 (82.9%) previous neck irradiation. FFF osteomyelitis were mostly early (≤ 3 months post-surgery; n=43; 89.6%). Main symptoms were local inflammation (n=28; 59.6%), ununion or sinus tract (n=28; 59.6%), bone or device exposure (n=21; 44.7%), and were associated with radiological signs for infection in 33 (75.0%) cases. Microbiological documentation highlighted *Enterobacteriaceae* (n=25; 61.0%), *Streptococcus* spp. (n=22; 53.7%), *S. aureus* (n=10; 24.4%), anaerobes (n=10, 24.4%), *Enterococcus* spp. (n=9; 22.0%) and non-fermenting Gram negative bacilli (GNB; n=8; 19.5%). Thirty-nine (81.3%) required surgery, consisting in debridement with implant retention in 25 (64.1%) cases, associated with a 93 (64–128) day course of antibiotherapy. After a follow-up of 18 (11–31) months, 24 (50.0%) treatment failure were observed. An early ID-specialist referral was the only significant predictor of favorable outcome (OR, 0.167; *p*=0.005). Non-fermenting GNB infections tended to be associated with a higher risk of failure (OR, 8.4; *p*=0.058).

Probability of treatment failure of osteomyelitis following FFF mandible reconstruction according to ID-referral (A), CRP level 2 weeks after surgery (B) and presence of non-fermenting GNB



Conclusion: Osteomyelitis following mandibular reconstruction with FFF represent difficult-to-treat infections. Our results advocate for a multidisciplinary management, including an early ID-specialist referral.

Disclosures: **All Authors**: No reported disclosures

191. oral versus Intravenous Antibiotic Treatment in Skin and Soft Tissue Infections as a Consequence of Intravenous Drug Use: A Retrospective Study to Demonstrate Noninferiority

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Session: O-37. Skin, Soft Tissue, Bone & Joint Infections

Background: Skin and soft tissue infections (SSTIs) are among the most prevalent infectious complications of intravenous drug use (IVDU). Given its polymicrobial nature, studies focusing on SSTIs in the general population may not be generalizable this group. We completed a retrospective chart review to better characterize the safety and efficacy of oral versus intravenous (IV) antibiotics for the treatment SSTIs in IVDU.

Methods: We reviewed patients admitted with bacterial SSTIs and IVDU from January 01, 2012 to December 31, 2019 based on ICD-10 codes. SSTIs complicated by bacteremia, endocarditis, bone or joint involvement on index admission were excluded. Patients who received < 48 hours of IV antibiotics were considered oral therapy, otherwise they were considered IV therapy. Patient comorbidities, incision and drainage (I&D) status, substance use, microbiology and antimicrobial data were reviewed.

Results: Of 231 eligible patients, 84 received oral therapy. There was no statistical difference in patient characteristics between the two therapy groups. *Streptococcus anginosus* group were the most common organisms found (33%) followed by *Staphylococcus aureus* (31%). There was no statistical difference between rates of readmission (p=0.87), recurrent primary site infection (p=1.00), repeat debridement (p=0.08) or occurrence of deep-seated infections within 90 days of treatment completion. No morality was observed. The oral group had shorter length of stay (3 vs. 5 days, p < 0.001) and shorter total duration of antibiotics (10 vs. 13 days, p < 0.001). Overall, 90% of those with abscess underwent I&D, which did not differ between therapy groups. Time to I&D was shorter (0 vs. 1 day, p=0.005) in the oral group. Patients who did not receive and I&D were more likely to be readmitted within 90 days (p=0.025).

Conclusion: In SSTIs related to IVDU, oral antibiotic therapy was noninferior to IV in terms of mortality, readmission, and deep-seated infection rates within 90 days of treatment completion and had a decreased length of stay and total treatment duration. A delay in I&D led to increased length of stay and lack of I&D increased readmission rate. Therefore, a prompt I&D may allow a safe and effective early transition to oral therapy in SSTIs related to IVDU.

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192. The Use of Area Under the Curve to Determine Therapeutic Vancomycin Dosing in Skin and Soft Tissue Infections

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Session: O-37. Skin, Soft Tissue, Bone & Joint Infections

Background: The vancomycin AUC/MIC target ratio of 400 to 600 mg*h/L that is recommended (level IA+) in the 2020 IDSA/ASHP vancomycin TDM guidelines is appropriate for patients with complicated MRSA infections; using lower targets for less complicated infections may reduce the risk for nephrotoxicity without compromising efficacy. The current methodology surrounding vancomycin AUC/MIC targets is unrefined, with no source specific targets identified, especially for relatively lower risk MRSA infections such as skin and soft tissue infections (SSTIs).

Methods: This was a retrospective observational study of hospitalized patients at the Veterans Affairs Health Care System in San Diego, CA with a SSTI and prescribed intravenous vancomycin between January 1, 2016 and December 31, 2019. Patients included were adults, 18 years of age and older, treated with IV vancomycin with ≥1 measured concentration for at least one of the ICD-10 CM codes for SSTI. Patients were excluded if they had any of the following SSTIs: (1) osteomyelitis; (2) infection related to chronic ulcers or wounds; (3) head SSTI; (4) peri-rectal SSTI; (5) human or animal bite SSTI; (6) SSTI related to retained foreign body; (7) necrotizing SSTI; (8) surgical site infection. Patients were also excluded if they were undergoing dialysis or had severe immunosuppression.

Results: A total of 722 patients on vancomycin for a SSTI were identified from the database query for screening, and 243 (34%) met inclusion criteria for the study. Classification and Regression Tree (CART) modeling identified a calculated AUC of >253 as having the highest correlation with clinical success. Clinical cure was significantly different between the AUC ≤253 (6/9 [67%]) and AUC >253 (214/234 [91%]) cohorts (p=0.043). There were no differences in hospital length of stay or duration of vancomycin therapy. Nephrotoxicity occurred in seven patients, all of who had AUC >253.

Conclusion: Overall treatment success in patients with SSTIs was associated with a vancomycin AUC >253, which is lower than the guideline recommended range of 400–600. Identification of vancomycin AUC targets for other low risk sources of infection, such as UTIs, is needed to prevent vancomycin overexposure.

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193. quality Improvement Initiative for Non-purulent Cellulitis Management in Urgent care setting: provider-level Performance Feedback

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Session: O-37. Skin, Soft Tissue, Bone & Joint Infections

Background: Methicillin-resistant *Staphylococcus aureus* (MRSA) has emerged as a common cause of skin and soft-tissue infections (SSTIs). This has resulted in an 88% increase in MRSA-directed antibiotic use in emergency departments. However, the majority of cellulitis presents as non-purulent due to Group A streptococci. An unintended consequence is that many with non-purulent cellulitis receive sub-optimal antibiotics and unnecessary diagnostics. Clinical guidelines at our institution recommend beta-lactam antibiotics and discourage empiric MRSA coverage for non-purulent cellulitis. The aim of this study is to use an audit-feedback intervention to optimize urgent care providers management of mild/moderate non-purulent cellulitis.

Methods: We identified all consecutive patients presenting to our urgent care with a diagnosis of lower extremity non-purulent cellulitis using ICD coding. We conducted a prospective pre and post-intervention study from 10/2018-3/2019 and 11/2019-4/2020 respectively. Intervention included review of practice guidelines with providers and feedback