The Utility of Acid Fast Bacillus and Fungal Cultures in Orthopedic Infections

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BACKGROUND

- Orthopedics infections are an unfortunate but common reality in orthopedic practice regardless of subspecialty.
- Acid fast bacillus and fungal cultures are routinely obtained for these infections and are rarely, if ever, positive.
- No research has been published evaluating the guidelines for using these cultures in orthopedic infections.
- This study aimed to begin the process of determining any utility for the use of AFB and fungal cultures.

OBJECTIVES

- Examine our institution's use of AFB and fungal cultures
- Evaluate the utility of obtaining AFB and fungal cultures in orthopedic bone and soft tissue infections
- Provide guidelines for the use of these cultures

METHODS

- Orthopedic surgical cases for suspected infection at one institution from March 2013 to December 2019 were included.
- Data was collected on patient demographics and procedure characteristics for patients with surgical AFB or fungal lab tests ordered
- The percent of positive AFB and fungal cultures were calculated
- Patients with a positive versus negative fungal culture result were compared using Mann-Whitney U tests and Chi-Squared tests

RESULTS

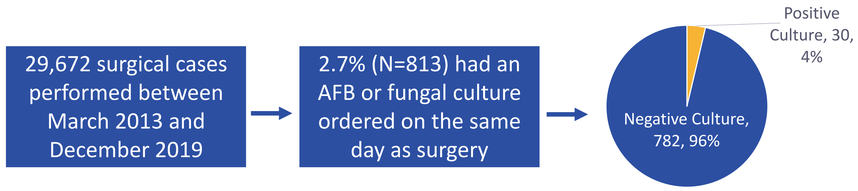


Table 1. Characteristics of patients with a positive vs negative fungal culture result

	Negative fungal culture (N=782)	Positive fungal culture (N=30)	P-value[1]
Average Age (SD)	58 (17)	57 (15)	0.36
Min, Max	2, 95	29, 90	
Sex			
Male	62% (483)	47% (14)	0.14
Female	38% (299)	53% (16)	
Average ASA Score[2] (SD)	2.7 (0.7)	2.8 (0.9)	0.38
Min, Max	1, 4	1, 4	
ASA Score[2]			
1	6% (42)	11% (3)	0.21
2	26% (193)	14% (4)	
3	57% (422)	57% (16)	
4	11% (81)	18% (5)	
5	0% (0)	0% (0)	
Operating Region			
Hand or Foot[3]	35% (271)	73% (22)	<0.001
All Other	65% (511)	27% (8)	
Diabetic	26% (202)	33% (10)	0.48
Obese	17% (131)	17% (5)	>0.99
Peripheral Vascular Disease	6% (48)	23% (7)	0.003
Known HIV or AIDS	0.5% (4)	0% (0)	>0.99

Figure 2. Percent of patients with a positive culture, by peripheral vascular disease status

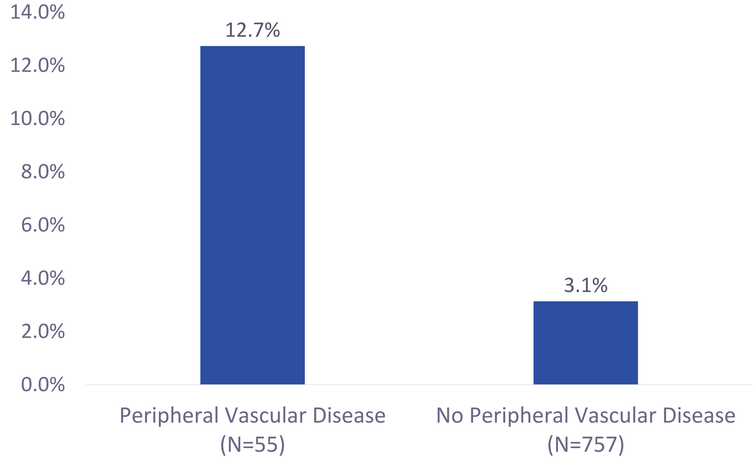
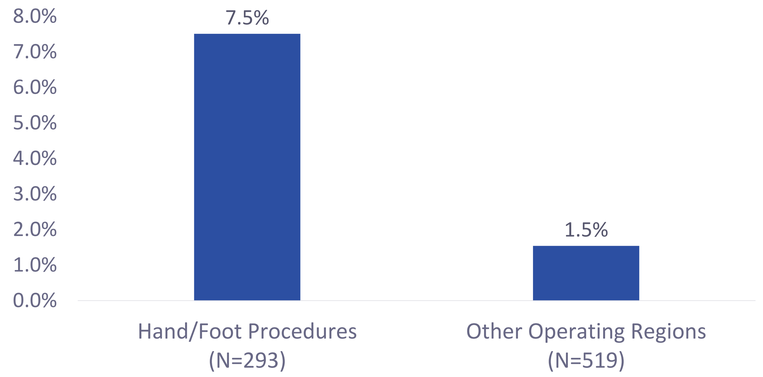


Figure 3. Percent of patients with a positive culture, by operating region



CONCLUSIONS

- Intraoperative fungal cultures may be useful in hand or foot infections and patients with PVD.
- For other body areas or in patients without PVD, fungal cultures may not be warranted.
- AFB cultures may not be warranted in any patient without a history of mycobacterial infection.

FUTURE IMPLICATIONS

- This provides helpful information for future practice regarding workup of orthopedic infections
- This can be used as a starting point for future research in this area
- More detailed evaluation of orthopedic subspecialties and risk factors for positive cultures could be performed

REFERENCES & ACKNOWLEDGEMENTS

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