Background

• Current approaches for diagnosis of native spondyloptiliditis are variable, as is the yield of image-guided spinal biopsy.
• The sensitivity of image-guided biopsy cultures varies between 30% and 91%.1,2
• The combination of microbiologic and histopathologic analysis of spinal biopsy has been shown to improve overall diagnostic yield.
• We aim to describe the current approach to the diagnosis of native spondyloptiliditis at our institution, including those diagnoses based on blood cultures with or without spinal biopsies, and the sensitivity of the biopsy. We also aim to predictors of a positive biopsy culture.

Methods

• Retrospective cohort study at the University of Kansas Medical Center, from Jan 1, 2007 to July 31, 2017.
• Inclusion: age of >18, imaging suggestive of spondylodiskitis, with either positive blood culture result, or biopsy culture with/without histopathology (HP).
• Exclusion: those with historical diagnoses or surgical site infections.
• Descriptive data was collected via HERON, ICD – guided spinal biopsy.
• Biopsy site
• Blood culture result
• Demographics & health history
• Table 1: Descriptive baseline characteristics with univariate analysis for predictor of positive biopsy culture.

Results

• Over two thirds of our initial identified population were excluded due to diagnoses made outside of our institution or surgical site infections.
• Of those included, 173 (78.3%) had biopsies performed.
• Sensitivity of bone culture was 27.3%, with a specificity of 91.7%.
• Sensitivity of disk culture was 52.6%, with a specificity of 75.0%.
• A single biopsy episode sensitivity was 48.9%, and specificity was 80.8%. Disk culture had a higher yield than bone culture.
• On the logistic regression model, only a positive blood culture was predictive of a positive biopsy culture, with OR 3.42 (95% CI 1.63 – 7.20, p<0.0012).
• In patients with a negative biopsy culture, histopathology adds an estimated 15 – 43% yield in establishing the diagnosis of native spondyloptiliditis by sensitivity analysis.
• 23 subjects had a second spinal biopsy, which added 26% yield.
• Prior antibiotics numerically (not statistically) decreased the biopsy yield, with OR 0.49 (95% CI 0.20 – 1.19, p=0.11).

Conclusion

• Bone culture has a lower yield than disk culture.
• Disk culture has only 52% sensitivity.
• Histopathology of spinal biopsy adds an estimated 15 – 43% yield to the first biopsy, and a second biopsy adds 26% yield.

References:
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