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Influence of gelatin thrombin matrix tissue sealant on bacterial colony formation and risk of pelvic infection

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Objective: Gelatin thrombin matrix tissue sealant (GTM) use was previously identified as an independent predictor of pelvic infection following hysterectomies. We aim to elucidate contributing factors by assessing influence of GTM on bacterial colony formation and characterizing bacteria present at the vaginal cuff.

Methods: *Escherichia coli* were incubated in phosphate buffered saline (PBS) and pelvic washings with and without GTM to assess influence on colony formation. Pelvic washings of the vaginal cuff were collected from hysterectomies occurring June through October 2015. *In vitro* techniques, quantitative polymerase chain reaction (qPCR) assays for 16S rRNA and 16S amplicon sequencing were performed with washings to characterize bacteria at the vaginal cuff.

Results: Mean bacterial colony formation in PBS following 20 hours incubation was greater for *E. coli* with GTM versus without (1.48×10^7 CFU/ml vs. 9.95×10^5 CFU/ml, $p=0.001$). Out of 61 pelvic washings samples, 3 were culture positive (≥ 5000 CFU/ml) with *Enterococcus faecalis*.

Conclusion: *In vitro* experiments conclude GTM supports colony formation of *E. coli* in PBS. Analysis of pelvic washings revealed presence of *E. faecalis* but results were inconclusive. Further studies are recommended.

Biography

Michael Jarrett holds a Master of Science degree in Biomedical Sciences from Colorado State University. He is currently a fourth-year medical student at the University of Colorado School of Medicine and will be graduating this May of 2016 with a Doctor of Medicine degree. He will be completing his internship and residency in General Surgery at the University of Colorado. Michael is interested in research and Academic surgery and will be completing a research fellowship during his residency training.

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