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The Germ Theory of Disease or "Where Have All the Cultures Gone?"

Some of the most significant advances in the practice of medicine have been related to the realization that microorganisms cause disease. These bacteria have certain susceptibilities that allow the practitioner to prescribe appropriate antimicrobial therapy and, with remarkable reliability, participate in the resolution of disease-caused symptoms. Sophisticated microbiologic techniques used in research settings have allowed the characterization of pathogens and their antibiograms. This information has immediate clinical applicability in that recommendations for specific antibiotic therapy can be made. In fact, the information has been considered so helpful that most clinicians considering the diagnosis of infection would culture the appropriate site, check the culture results, and followup with the antibiogram to ensure that resistance is not a problem.

We are now entering a time in medicine when such practice may not be the case. The economic pressures of medicine in the late 20th century suggest that obtaining laboratory data, in this case, cultures, that do not have an immediate impact on patient management is to be discouraged. We rely on the microbiology laboratories of research centers to determine the microbial etiology of infections in our local setting, assuming they are similar. It is clearly a situation of being penny-wise but pound-foolish. This practice is never more evident than in the management of postoperative infections. Operative sites, such as the endomyometrium, supravaginal tissues, and abdominal wounds, commonly become infected despite the use of prophylactic antibiotics. However, the common approach to evaluating these patients in many cases does not even include a pelvic examination, much less a culture of the operative site. Fever equals infection in too many clinicians' eyes, and antibiotics are prescribed without thoughtful consideration of a differential diagnosis. Moreover, when the patient fails to respond to "triple antibiotic therapy," the consultant has no culture data upon which to recommend solutions. Indeed, without culture data, no institution practicing obstetrics in this country would be able to identify potential group A streptococcal outbreaks, which still occur.[1,2]

It is clear that routine urine cultures in young women with cystitis are unnecessary, but cultures are very appropriate for the patient with recurrent, persistent, or complicated infections. Testing for sexually transmitted infections confirms associated diagnoses and facilitates tracing and treatment of the patient's sexual contacts. Appropriate cultures from operative site infections can guide prophylaxis, confirm the judicious selection of a regimen of antimicrobial therapy, and rule out the emergence of resistant bacteria.

Our failure to teach our students and residents the importance of cultures in the management of infections in general and in obstetric and gynecologic infections in particular is of significant concern. It will lead to a generation of specialists in women's health who fail to appreciate a logical approach to the evaluation of women with fever and/or infections. It leads not only to empiric diagnosis but to empiric therapy, without the opportunity to document disease. It allows for no future planning in the case of emerging resistant microorganisms, a situation that

is becoming more important in what is considered pansusceptible "polymicrobial infections" today.

In an economy that spends millions of dollars on advanced technologies, a culture and sensitivity test, thoughtfully ordered and appropriately collected, remains a bargain. Let us not regress to the time of Ignaz Phillipe Semmelweiss, in which an "out of sight, out of mind" mentality led to dismal maternal morbidity and mortality. Indeed, there is a germ theory of disease that needs to be reconfirmed in our practices daily.

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