Letter to the Editor

Aseptic Loosening of Total Hip Arthroplasty

Infection Always Should be Ruled Out

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We welcome the study by Parvizi et al. [3] published in the May edition of the journal and the attention it draws to the misdiagnosis of aseptic loosening which may occur if infection is not rigorously excluded. This supports the work of other authors, who have confirmed infection in as much as 13% of cases of presumed aseptic loosening [2]. The methodology of the study however poses some questions.

First, the distinction between patients with infection and without infection must be questioned as a large proportion of patients deemed to be correctly diagnosed as having aseptic loosening did not have specimens sent for culture. In patients who did have specimens sent, a minimum of three intraoperative specimens were cultured but this number has been shown to be inadequate [1]. Sending less than five intraoperative specimens is especially likely to be insensitive for the low virulence organisms which are most likely to masquerade as aseptic loosening.

There is also the likelihood that a proportion of the patients assigned to Group 1 (prosthetic joint infection) on the grounds of definite prosthetic joint infection at the time of subsequent rerevision actually had infection after their revision surgery rather than representing falsely diagnosed aseptic loosening. Also, in patients assigned to Group 1 on

the basis of positive cultures, the number of tissues required to be positive for a diagnosis of infection is not stated. It is recognized that positive cultures from one tissue specimen are likely to represent contamination, again emphasizing the need to send an adequate number of specimens [1].

After arrival at the laboratory, the microbiologic processing of the specimens is not detailed. Variations in processing technique are recognized to greatly impact on the sensitivity and specificity of orthopaedic tissue culture.

Correctly diagnosing prosthetic joint infection is a team effort requiring an appropriate number of correctly taken specimens to be rapidly transported to a microbiology laboratory. The specimens need to be processed correctly, avoiding contamination but optimizing the potential for growth of any pathogenic organisms. Important in this regard are the use of broth cultures (and their subsequent terminal subculture at the end of prolonged incubation) in addition to direct cultures and prolongation of incubation to detect slow-growing low virulence organisms [4]. Finally, the organisms grown need to be identified correctly, their significance interpreted, and an appropriate management plan formulated between surgeon and microbiologist. Ideally patients with possible prosthetic joint infections should be under the care of a surgeon with a specialist interest in the field and the diagnostic process facilitated by the use of a microbiology laboratory and reporting microbiologist specializing in orthopaedic infections. By adopting this approach the number of incorrect diagnoses of aseptic loosening can be minimized.

(Re: Parvizi J, Suh D-H, Jafari SM, Mullan A, Purtill JJ. Aseptic loosening of total hip arthroplasty: infection always should be ruled out. *Clin Orthop Relat Res*. 2011;469:1401–1405.)

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