Digging a little deeper: A technical tip to improve intraoperative sampling in prosthetic joint infection

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The diagnosis and treatment of periprosthetic joint infection (PJI) remains challenging and, with a current reported rate of 0.7%,¹ is an ever-increasing burden on the NHS. Although some patients present with clear evidence of infection, many present insidiously. Techniques to improve the diagnosis of PJI are being developed constantly, including the use of biomarkers.²

Positive periprosthetic cultures are a diagnostic criterion for PJI, with a consensus on three to six distinct intraoperative samples collected from the joint interface for analysis.³ As PJIs are associated with biofilm bacterial growth and acute planktonic phases,⁴ deep canal sampling should aid microbiological diagnosis, as the canal provides a finite space for bacterial proliferation.

TECHNIQUE

During PJI revision surgery, when the femoral and/or tibial canal is exposed, additional samples can be obtained from deep within

the canal using a separate long curette, sampling the bone itself (Figure 1). Each sample is taken with a new curette to prevent any cross-contamination. These biopsies are then processed identically to those of periprosthetic tissue.

DISCUSSION

This technical tip adds to the armamentarium of the orthopaedic surgeon managing a patient with a suspected PJI.

While expensive new biomarkers are being developed, this simple method of sampling the canal may improve the sensitivity of culture results at little extra cost.

CONFLICTS OF INTEREST

None declared.

References

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Figure 1 **A.** The current standards for intraoperative biopsy for suspected prosthetic joint infection include tissue and samples taken from the joint interface area alone. **AB.** Additional deep canal sampling should aid microbiological diagnosis of prosthetic joint infections, as the canal provides a finite space for bacterial proliferation. **C.** A long curette, such as the one pictured, can be used to obtain these samples.