

Technical note

Processing of morsellised femoral heads with high-pressure saline

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The introduction of impaction grafting techniques for revision total hip arthroplasties has increased the use of morsellised femoral heads enormously (Slooff et al. 1984, Gie et al. 1993). In Nordic countries, femoral heads are stored fresh frozen, which always entails a risk of bacterial contamination (Deijkers et al. 1997, Journeaux et al. 1999). High-pressure lavage has proved to be very effective in reducing the superficial bacterial bioburden of the graft (Hirn et al. 2001). The same technique

can be used for morsellised bone to remove extra blood and fat from the transplant with some additional benefits. Lipid extraction has been shown to enhance bone incorporation and improve cup stability (Aspenberg and Thoren 1990, Ullmark 2000).

Technique

The frozen femoral head is first cleaned of chondral and soft tissue remnants. After crushing, the bone transplant is collected in a sieve, which is placed on a large can (Figure 1). Pulse lavage is used to strain all the loose blood and fat from the bone. The procedure is continued until the morsellised bone appears white (Figure 2) and the saline output is clean. The transparent plastic lid of the package of the pulse lavage tubing set can be used



Figure 1. Washing of the bone transplant with high-pressure saline.



Figure 2. The bone transplant after washing with high-pressure saline.

to prevent splashing of saline (Agorastides and Kumar 1999).

Discussion

To obviate the development of antibiotic-resistant bacteria and reduce the risk of allergic reactions in the recipient, we do not give antibiotics with our femoral heads. Instead, every femoral head, and all morsellised bone are washed with high-pressure saline. This not only improves bacterial safety, but also enables very effective lipid and blood extraction from the transplant. Bone morphogenic proteins are not affected (Reddi 1998). The technique of pulse lavage is simple and available in every hospital. The additional costs are low consisting almost exclusively of extra saline. The pulse lavage system itself is normally present during revision hip arthroplasty. The washing slightly reduces the quantity of the transplant, but the lost material seems to be unnecessary for remodelling of bone. Lipids may inhibit bone incorporation and blood carries the risk of transmissible diseases (Tomford 1995). One must remember that washing does not reduce the need for a thorough donor selection and viral screening.

No benefits of any kind have been or will be obtained from the business interests involved in this article.

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