

TABLE E-1 Published Retrieval Analysis of Both Metal-on-Polyethylene and Metal-on-Metal Hip Resurfacing Implants

| | Implant Fixation | Number of Hips Analyzed | Definition of Osteonecrosis | Percent of Hips with Osteonecrosis | Surgical Approach |
|--------------------------------------|---------------------------------|-------------------------|---|------------------------------------|---------------------------------|
| Old-generation metal-on-polyethylene | | | | | |
| Bogoch et al. ¹⁵ | All cemented | 6 | Presence or absence of osteocytes, presence of degenerate or "ghost" forms of osteocytes, evidence of amorphous eosinophilic material | 50.0 | Posterior |
| Bell et al. ⁶⁵ | All cemented | 18 | Empty osteocyte lacunae and replacement of marrow by eosinophilic debris | 5.6 | Anterior |
| Head ⁶⁴ | All cemented | 14 | Not stated | 50.0 | Trans-trochanteric/ anterior |
| Jolley et al. ²⁷ | All cemented | 7 | Necrotic marrow and dead bone trabeculae with empty lacunae | 28.6 | Trans-trochanteric |
| Bradley et al. ¹⁸ | All cemented | 25 | No evidence of cellular infiltration, revascularization, or repair reaction | 8.0 | Lateral |
| Howie et al. ¹⁷ | All cemented | 72 | Absence of normal osteocytes in $\geq 90\%$ of the bone | 4.2 | Anterior |
| Campbell et al. ¹⁶ | All cemented and all cementless | 25 | Lack of hematopoietic elements in the marrow, areas of saponification, and absence of hematoxyphilic osteocyte nuclei in the bone | 0.0 | Trans-trochanteric |
| New-generation metal-on-metal | | | | | |
| Amstutz et al. ³⁴ | Hybrid | 5 | Total absence of viable bone and marrow | 0.2 | Posterior |
| Little et al. ¹⁹ | Hybrid | 15 | Appositional new bone around bone with absent osteocyte nuclei, degeneration of marrow | 92.3 | Posterior |
| Campbell et al. ⁵⁴ | Hybrid | 98 | Lack of hematopoietic elements in the marrow, areas of saponification, and absence of hematoxyphilic osteocyte nuclei in the bone | 7.1 | Posterior |