

Clinical and Roentgenographic Evaluation of Bipolar Prostheses With Noncemented Anatomic Medullary Locking Femoral Stems

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Fifty-six DePuy anatomic medullary locking femoral bipolar prostheses were reviewed clinically and roentgenographically in 50 patients at an average follow-up period of 30 months (range, 24–71 months). Forty-four of the implantations were in 40 male and 12 were in ten female patients. Forty-five devices were placed in primary operations, while 11 were used in revisions. The overall average age was 53.5 years. The average Harris hip scores for the primary bipolars were 29.8 preoperative and 77.3 postoperative, while the revision bipolars had Harris hip scores of 35.9 preoperative and 75.1 postoperative. Nearly one-half (47%) of all primary and 54% of the revision patients experienced pain to some degree on ambulation. Roentgenographically, all femoral components appeared to be well fixed biologically. Roentgenographic changes occurred with time in both primary and revision prostheses. On roentgenographic zonal analysis of primary prostheses, radiolucencies greater than 1 mm were present most frequently in the most proximal lateral zone and at the distal tip of the prosthesis. Although the use of noncemented bipolar prostheses generally shows acceptable clinical results, noncemented fixed acetabular components with noncemented femoral components produce a more satisfactory clinical result.

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Bipolar hip arthroplasty has enjoyed increasing popularity in recent years. A bipolar prosthesis is believed to offer the advantage over an endoprosthetic replacement of decreasing frictional wear of the acetabulum by allowing motion at both the concave and convex surfaces of the cup. Other theoretical advantages include a possible reduction in stem loosening, a decline in incidence of dislocation, and ease of revision to total hip arthroplasty.³⁴ While initially used primarily as an alternative to fixed endoprosthetic arthroplasty for femoral neck fractures and avascular necrosis,³⁴ the role of bipolar hemiarthroplasty has been expanded to include treatment of nonunion of femoral neck fractures, femoral head fractures, degenerative hip arthritis, and revision of failed total hip arthroplasty.^{8,10,35,56,63} These conditions are often also indications for total hip arthroplasty using a fixed acetabular component. There remains much discussion in the literature regarding treatment recommendations for the various hip joint pathologies.^{3,7,8,11,18,27–30,32,35,45,48–50,53,59,60,62,63}

Clinical results of the use of bipolar prostheses have varied widely. Some of the earliest clinical follow-up studies reported results similar to unipolar devices.^{28,49,67} Comparisons between clinical studies have been made particularly difficult by the variety of hip rating systems employed.