J Clin Case Rep 2018, Volume 8
DOI: 10.4172/2165-7920-C1-018

Long-term outcome of the proximal femur reconstruction: Comparison of cemented and uncemented allograft-prosthetic composite

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Purposes: To compare the clinical, radiographic and complications outcomes between cemented and uncemented APC (allograft-prosthetic composite) and illustrate our experiences about APC reconstruction.

Methods: Twenty-eight and twelve patients who underwent cemented and uncemented APC reconstruction of the proximal femur were evaluated at an average follow-up of 74.0 and 59.0 months respectively. Clinical records, radiographs, MSTS score and HHS score were evaluated.

Results: Host bone and allograft union rate showed significant differences between cemented group (89.3%, range 9-18 months) and the uncemented group (100%, range 5-9 months). In cemented and uncemented groups respectively, fracture of the greater trochanter was seen in 8 of the 20 patients (40.0%) and 4 of the 9 patients (44.4%); resorption was seen in 9 of the 28 patients (32.1%) and 2 of the 12 patients (16.7%). There were 2 hips (8.0%) observed asymptomatic wear of acetabulum in cemented group. And there were three periprosthetic fractures fixed using cerclage wire during surgery in the uncemented group, but one in cemented group. The average MSTS score was 25.5 and 26.2 points in cemented and uncemented groups. The average HHS scores were 76.9 and 80.6 points. The average postoperative manual muscle grade of hip abductors was 4.2 and 4.3 points in cemented and uncemented groups. Metastasis was found in 8 hips in cemented group and 3 in the uncemented group. There were no infection and recurrence.

Conclusions: Different APCs have their own advantages and disadvantages. The advantages of cemented APC are: easier operative learning curve, better initial fixation, shorter-term functional recovery; and the advantages of uncemented APC are: promoting bone union through compression at the host-allograft junction and regeneration of the blood vessels, and easier revision. Surgeons should choose the appropriate APC depending on the patient's condition and their surgical experience.

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