

Cement-in-cement revision of the femur in infected hip arthroplasty: 89 patients across two centres with a minimum 5 year follow up



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Background & Aims

Traditional techniques for septic revision of hip arthroplasty necessitate removal of all bone cement from the femur.

Femoral cement-in-cement (CinC) revision surgery is a well-described alternative technique for aseptic revision¹, reducing morbidity & complications compared with traditional techniques.

Strict criteria for technique adoption must be met (as previously described²), utilising orthogonal radiographs and intraoperative assessment to deem a cement mantle to be well-fixed to bone.

Inadequately fixed cement is removed until well-fixed cement without an intervening cement-bone membrane is reached. Often cement above the level of the lesser trochanter is thus removed.

In such cases, we utilise a CinC technique for both single and the first stage of two-stage procedures across our 2 centres.

Building on our early experience², we report the medium-term outcomes at a minimum of 5 years for our series of 89 patients.



Pre-op:
Infected primary THA



Immediate post-op:
CinC revision

Methods

Clinical, biochemical and radiological results for surviving cases in our consecutive series of 89 patients across 2 centres were analysed.

Follow-up was at a mean of 8.2 years (5.1 to 13.7).

Results

- Median age at index operation was 74.
- Seven patients (7.9%) required further revision for infection at 2 years. Of note, no additional revisions for infection were observed beyond 2 years.
- 2 aseptic reoperations for other reasons were observed (1 revision for a broken stem, 1 periprosthetic fracture).
- In keeping with the demographics of this cohort and the wider PJI literature, a total of 45 patients died of causes unrelated to their infection at latest follow up.
- Of the remaining patients, 37 were infection-free at their final review.
- Radiological review confirms mechanical success of the procedure comparable to the aseptic revision setting, with no cases of radiological failure.
- Postoperative Oxford Hip Scores suggest satisfactory functional outcomes.

Conclusions

CinC revision in the presence of infection and a well-fixed distal femoral cement mantle was **successful in 82 of the patients (92%)** in our series of 89 patients at minimum 5-year follow up.

No revisions for infection were seen in this series beyond 2 years.

These results are comparable to traditional, more invasive techniques and offer a significant potential patient benefit through a reduction in surgical morbidity.

REFERENCES

1. Duncan WW, Hubble MJW, Howell JR, Whitehouse SL, Timperley AJ, Gie GA. Revision of the cemented femoral stem using a cement-in-cement technique. J Bone Joint Surg Br. 2009 May 1;91-B(5):577-582.
2. Fishley WG, Selvaratnam V, Whitehouse SL, Kassam AM, Petheram TG. Cement-in-cement revision of the femur in infected hip arthroplasty in 89 patients across two centres. Bone Joint J. 2022 Feb 1;104-B(2):212-220.