

RESULTS OF ARTHROSCOPIC DEBRIDEMENT FOR EARLY POST-OPERATIVE AND ACUTE HEMATOGENOUS PERIPROSTHETIC KNEE INFECTIONS COMPARED TO OPEN SURGERY

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Periprosthetic joint knee infection is a complication that can significantly affect the function of the knee. In literature success rates between 35% to 82% for open DAIR and from 38% to 100% for arthroscopic technique DAIR are documented.

PURPOSE

Compare efficacy of arthroscopic versus open debridement and implant retention for periprosthetic knee infection.

MATERIAL AND METHODS

Retrospective review of patient data who were treated for periprosthetic knee infection at the University Hospital of Basel between 01/2005 and 05/2015. Inclusion criteria were (1) acute infection according to Zimmerli et al. 2004¹, (2) patients having a total knee arthroplasty, and (3) at least two years' follow-up after arthroscopic or open DAIR. Postoperative patients were treated with antibiotics according to the guidelines published by Zimmerli et al. 2004¹. Treatment was monitored by ID specialists.

RESULTS

Overall 45 knees have been included. In 35 TKA bacterial samples showed specific microorganism. The most common bacteria were staphylococcus aureus and streptococcus. Sex distribution showed 23 male knees. Average patient age was 71 years. Of the included 45 knees, 16 were primarily treated arthroscopically and 29 with open DAIR. All were treated with antibiotics as well following the advice of the infectiologist. With only one surgical intervention 19% of patients in the arthroscopic group were cured whereas 72% in the open group. Salvage of prosthesis could not be achieved in 6 knees which were treated with open surgery and in 1 knee which was treated primarily arthroscopically. Of the open treated cases where no salvage was possible there had been 2 infections with staphylococcus aureus, 3 with streptococcus and 1 with E. coli. In the arthroscopy group it was an infection with staphylococcus aureus which made an exchange of prosthesis necessary.

DISCUSSION

We found worse results in patients treated with arthroscopic debridement. This finding is corresponding to the most recent literature². It can be assumed that the treatment with arthroscopy is inferior to open surgery due to the fact that synovectomy can not be performed as radical as in open procedures. Furthermore, the bacterial biofilm located on the PE insert cannot be addressed without changing the liner. In our patients all cases which made a prosthesis exchange necessary were infections caused by bacteria with biofilm formation.

CONCLUSION

From our data we can not recommend to perform arthroscopic debridement routinely because of the high incidence of treatment failure. Open DAIR in combination with a PE liner exchange should be the standard of care.

No. of knees	Bacteria
10	Staphylococcus aureus
10	Streptococcus
3	Escherichia coli
3	Coagulase negative staphylococcus
2	Propionibacterium acnes
1	Propionibacterium acnes, coagulase negative staphylococcus
1	Salmonella
1	Dermabacter hominis, coagulase negative staphylococcus, actinomyces species, propionibacterium acnes
1	Streptococcus, propionibacterium acnes
1	Staphylococcus aureus, coagulase negative staphylococcus
1	Pseudomonas aeruginose
1	Corynebacterium amycolatum, corynebacterium tuberculostearicum, fusobacterium

1 Zimmerli W, Trampuz A, Ochsner PE (2004) Prosthetic-joint infections. N Engl J Med 351:1645–1654.

2 Johns BP, Loewenthal MR, Davis JS, Dewar DC (2020) Open Debridement is Superior to Arthroscopic Debridement for the Infected Total Knee Arthroplasty. J Arthroplasty 35:3716–3723.