Arthroscopy after Total Knee Arthroplasty is Associated with Increased Infection and Revision Rates

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(No Disclosures Reported Relevant to this Study for any of the Authors)

Introduction:
Arthroscopy of a non-infected total knee arthroplasty (TKA) is considered for patients with patellar clunk, tethered patella, stiffness, impinging PCL stump, or painful TKA that have failed conservative interventions. The purpose of the present study is to determine if arthroscopy after TKA is associated with increased rates of infection or eventual revision TKA utilizing a large, established national administrative database. Our hypothesis was that knee arthroscopy after TKA would be associated with increased infection and revision rates.

Methods:
The PearlDiver Patient Records Database was utilized to identify patients who underwent knee arthroscopy after TKA using CPT codes (27447, 29870, 29873, 29875, 29876, 29884). Laterality modifiers were utilized to ensure that the arthroscopy was performed ipsilateral to the TKA. Patients were excluded if they did not have laterality designated, had a previous diagnosis of periprosthetic infection, or if the arthroscopy procedure was performed for a diagnosis of infection. All patients with prior TKA or undergoing revision TKA were also excluded. A matched control group that did not undergo knee arthroscopy after TKA was created by selecting patients with a CPT for TKA (27447).

Postoperative infection for both the study cohort and matched controls was characterized by either a diagnosis of or procedure for either wound or deep infection within 3 or 6 months using CPT and ICD-9 codes. Revision TKA within 2 years and up to 8 years (the limit of the database) was assessed using CPT and ICD-9 procedure codes.

Results:
Four hundred seventy patients who underwent ipsilateral knee arthroscopy after TKA were identified in the database from 2005-2012. 32,095 control TKA were matched to the study patients. The cohorts were very well matched, with no significant differences in age group, sex, obesity, smoking and diabetes between the groups. The incidence of postoperative infection within 3 months (4.0%) and 6 months (5.7%) after the knee arthroscopy in the study group was significantly higher than the infection rates in matched controls, with odds ratios ranging from 1.9 at 6 months ($p = 0.002$) to 2.1 at 3 months ($p = 0.003$). The incidence of revision TKA within 2 years (15.1% vs 2.8%, O.R. 6.1, $p < 0.0001$) and up to 8 years (18.5% vs 4.1%, O.R. 5.3, $p < 0.0001$) was significantly higher in patients who underwent knee arthroscopy after TKA compared to the matched controls who did not undergo post-TKA knee arthroscopy.

Discussion:
The role of knee arthroscopy following primary TKA has been well established for patellar clunk syndrome and stiffness with good results. Periprosthetic joint infection is a devastating and expensive postoperative complication. For primary TKA, large prospective and database studies have estimated the risk to be between 0.4% and 2%. The infection rate in our control cohort was 2.0% (within 3 months) and 3.1% (within 6 months). There was also an increased revision rate seen in patients who underwent knee arthroscopy following TKA compared to the matched control group. This could be due to selection bias of patient's clinical symptoms not improving with knee arthroscopy or failure of the procedure.

Conclusion:
Knee arthroscopy for non-infectious indications following TKA is associated with significantly increased rates of both subsequent infection and revision TKA. Although knee arthroscopy following TKA has shown promising results, the surgeon must discuss and counsel the patient in the increased risk of potential devastating periprosthetic infection and/or need for future revision surgery.