Fractured Femoral Component Following Total and Unicompartmental Knee Arthroplasty: A Systematic Review

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INTRODUCTION:
Total knee arthroplasty (TKA) complications are devastating and typically require revision surgery. While hardware related fractures typically involve the tibial or polyethylene components, there are multiple case reports that document fractures of the femoral component. Data on complications have been increasing since 2014, but current literature is lacking causes of failure and patterns.
METHODS:
Under PRISMA guidelines, the authors conducted a literature review in various databases with assistance of a medical librarian. Published studies that included femoral component fracture of a total or unicompartmental knee arthroplasty (UKA) were reviewed. Exclusion criteria included studies not detailing femoral component failure, aseptic loosening, mega endoprostheses, review articles, cadaveric studies, or studies lacking full text. No exclusion criteria was applied for age or language of publication. Papers were then reviewed, and data collected.
RESULTS:
945 studies were included in the initial review and after screening 30 studies describing 41 cases of fractured femoral components in 39 patients were included for analysis. Average age at the time of fracture was 67.7 years old across 27 males and 13 females. 8 patients had fracture of a UKA design. Average time from arthroplasty to fracture was 8.3 years. All patients underwent revision surgery. 53.1% were cementless and 46.9% were cemented. Most common presenting symptoms included pain (75%), swelling (37.5%), limited range of motion (31%), and altered gait (31%). Most common mechanism was atraumatic fracture (68.7%) followed by osteolysis contributing to fractured femoral component (25%) and traumatic injuries (6.3%). The medial femoral condyle (MFC) was the most common location of fracture (46.8%) followed by anterior flange junction with MFC (15.6%).
DISCUSSION AND CONCLUSION:
Fracture of the femoral component following total knee arthroplasty is a rare complication; however, isolated knee trauma is not required and fracture should be ruled out in the setting of a painful total knee arthroplasty.