FEMORAL PROSTHESIS EFFECT ON TREATMENT OF PERIPROSTHETIC DISTAL FEMUR FRACTURE AND RETROGRADE INTRAMEDULLARY DEVICE

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Purpose: The purpose of this paper presents a unique case of a medial pivot total knee arthroplasty system which effected the implantation of a retrograde intermedullary nail in the treatment of a periprosthetic distal femur fracture. Currently literature on retrograde intermedullary nail fixation of periprosthetic distal femur fractures in regard to individual total knee arthroplasty femoral component design is lacking. With new and innovative arthroplasty system designs, more research is needed comparing the design of femoral components of total knee arthroplasties and the designs effect on retrograde femoral nail placement.

Methods: The knee arthroplasty femoral component design in this particular case was compared with three other popular knee arthroplasty designs to see if anterior to posterior trochlear femoral metal coverage differed. Caliper measurements of the individual femoral components was obtained and compared for similar sized femoral components. Femoral component width was used as a general reference for overall implant size between systems. The anterior to posterior trochlear femoral metal coverage was compared throughout the size ranges of the four arthroplasty systems.

Results: The medial pivot arthroplasty system that we used in this particular case consistently demonstrated a larger anterior to posterior trochlear femoral coverage of metal compared with implants of similar size. This was also true of another brand’s medial pivot arthroplasty system.

Conclusion: When choosing a retrograde nail traditional cam and post posterior stabilizing arthroplasty design must be ruled out on x-ray. This case also demonstrates that non posterior stabilized knee arthroplasty designs can effect retrograde nail insertion, specifically medial pivot
designs. Further research into individual femoral component design and its effect on retrograde
nail insertion is needed.