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Abstract Submission Form

Poster Title: **Infection, Mortality, and Healthcare Utilization in Open Periprosthetic Fractures of the Distal Femur: A Case Series**

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Category: **Clinical Research**

Introduction: In the present study we aimed to compare open and closed distal femur periprosthetic fractures by: (1) mechanism of injury (MOI), (2) intraoperative outcomes, (3) healthcare utilization, (4) incidence of surgical site infection, and (5) 1-year mortality.

Methods*:* All patients ≥ 18 years of age who presented with periprosthetic distal femur fracture from 2009 to 2018 were retrospectively reviewed. There were 68 patients were available for inclusion. Patients who underwent nonoperative treatment (n=14, 20.6%) or had initial treatment of amputation (n=1, 2.1%) were excluded. In total, 53 patients (5 open vs 48 closed) were available for final analysis. Patient underwent open reduction internal fixation (ORIF) by one of 12 fellowship-trained traumatologist. The average follow-up was 50.6 months [Standard Deviation (SD), 48.7 months)] and 24.6 months (SD, 32.5 months) in the open and closed groups, respectively.

Results: Most patients (n=43, 81.1%) experienced a periprosthetic fracture as result of a fall. Only one patient (2.1%) presented with vascular injury. Intraoperative outcomes were similar between the open and closed groups, respectively with regards to operative time (121.6 min vs 133.0 min; p=0.933), and estimated blood loss (310.0 mL vs 200.6 mL; p=0.933). Postoperatively, patients experienced similar rates of 90-day readmission (open, n=2, 40% vs closed, n=9, 18.8%; p=0.275). There was no significant difference in the incidence of surgical site infections (open: n=1, 20% vs closed: n=2, 4.2%; p=0.262). The majority of the cohort was discharge to a skilled nursing facility (open, n=4, 80%; closed, n=35, 73%). Patient mortality at 1-year following injury was similar (open: n=1, 20% vs closed: n=5, 10.4%; p=0.465). The single patient death in the open group was secondary to severe infection related to the open fracture. The closed group experienced one death secondary to sepsis related to surgical wound infection, two secondary to sepsis unrelated to the surgical wound, and two following complications of congestive heart failure.

Conclusions: Prior studies have not compared the etiology of open and closed periprosthetic distal femur fractures. Notably, most open fractures occurred secondary to a fall. While native open fractures are often the result of high-energy trauma, patients suspected of periprosthetic fractures require careful evaluation to rule out open fracture, even in the setting of low-energy mechanisms of injury. Although infection and mortality rates were similar, the high overall prevalence of these outcomes in this cohort underscores the risk associated with periprosthetic fractures. As periprosthetic fractures become more prevalent, more studies are needed to assess postoperative outcomes and improve the care of these patients.