The Use of Carbon Fiber Implants for Impending or Existing Pathological Fractures
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INTRODUCTION:
The utility of carbon fiber implants (CFI) in the setting of orthopaedic trauma and spine is well described. However, there remains a paucity of literature on its use in the setting of orthopaedic oncology – particularly in an impending or existing pathologic fracture. Therefore, the purpose of this study was to evaluate the utility and complications of using CFI compared to standard, titanium alloy (TI) intramedullary implants for stabilization of impending or existing pathologic fractures.
METHODS:
This is a retrospective comparison of CFI versus TI for the stabilization of impending or existing pathologic fractures at a single institution during the years 2014 to 2019. Data was collected via chart review and included implant type, pathology, indication, adjuvant therapy, and complications. Patient demographics, surgical indications, histologic subtypes, and postoperative complications were compared between treatment groups using descriptive statistics.
RESULTS:
Ninety-four patients undergoing intramedullary fixation of 102 impending or existing pathologic fractures were identified for inclusion. Some 53% of cases utilized a CFI whereas 47% of cases used a TI. There were no differences between groups with regard to anatomic location (p = 0.218), indication for surgery (p = 0.066), histology (p = 0.306), or postoperative adjuvant therapy (p = 0.308). In total, 19% of cases incurred a postoperative complication in each group (p = .530), and no differences were noted with regard to complication type including hardware failure (p = 0.442) and wound complications (p = 0.322). There was a cost savings of $400 with TI implants compared to CFI.
DISCUSSION AND CONCLUSION: This is a high-risk population for postoperative complications following stabilization of pathologic fractures. While there were no differences in complications between CFI and TI, the cost savings benefit from utilizing TI must be weighed against the radiographic advantages of CFI.