

Title:

Incidental findings detected on preoperative CT imaging obtained for robotic-assisted joint replacements: clinical importance and the effect on the scheduled arthroplasty

Introduction:

To determine the type and frequency of incidental findings detected on preoperative computed tomography (CT) imaging obtained for robotic-assisted joint replacements and their effect on the planned arthroplasty.

Materials and methods:

All preoperative CT examinations performed for a robotic-assisted knee or total hip arthroplasty were obtained. This resulted in 1432 examinations performed between September 2016 and February 2020 at our institution. These examinations were initially interpreted by 1 of 9 fellowship-trained musculoskeletal radiologists. Using a diagnosis search, the examination reports were then reviewed to catalog all incidental findings and further classify as significant or non-significant findings. Demographic information was obtained. In those with significant findings, a chart review was performed to record the relevant workup, outcomes, and if the planned arthroplasty was affected.

Results:

Incidental findings were diagnosed in 740 (51.7%) patients. Of those with incidental findings, 41 (5.5%) were considered significant. A significant finding was more likely to be detected in males ($P = 0.007$) and on the hip protocol CT ($P = 0.014$). In 8 patients, these diagnoses resulted in either delay or cancelation of the arthroplasty. A planned total hip arthroplasty was more likely to be altered as compared to a knee arthroplasty ($P = 0.018$).

Conclusion:

Incidental findings are commonly detected by radiologists on preoperative CT imaging obtained for robotic-assisted joint replacement. Several were valuable findings and resulted in a delay or even cancelation of the planned arthroplasty after the detection of critical diagnoses, which if not identified may have resulted in devastating outcomes.