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High ten years survivorship and functional results of robotic-arm-assisted lateral unicompartmental knee arthroplasty

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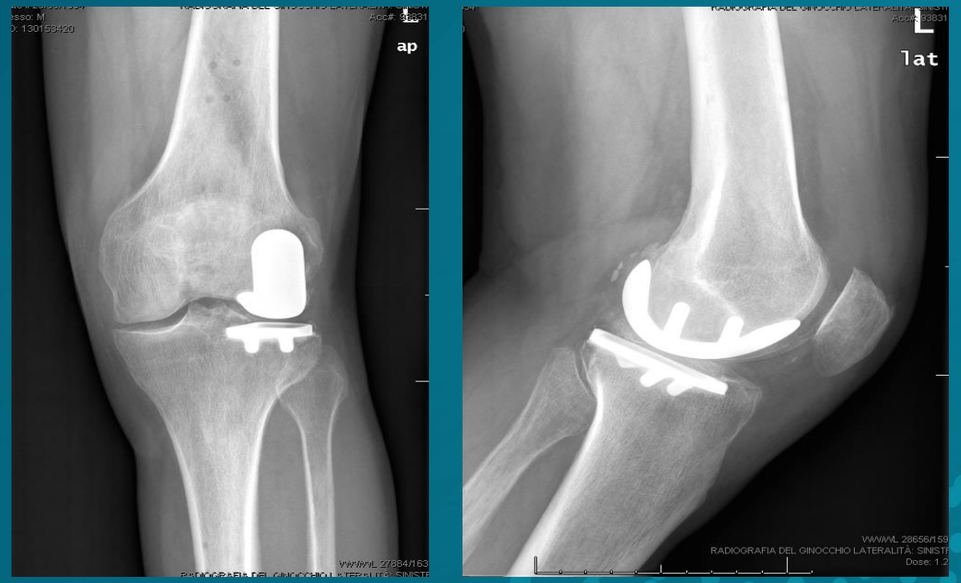
Faculty Disclosure Information

- Nothing to disclosure

Background



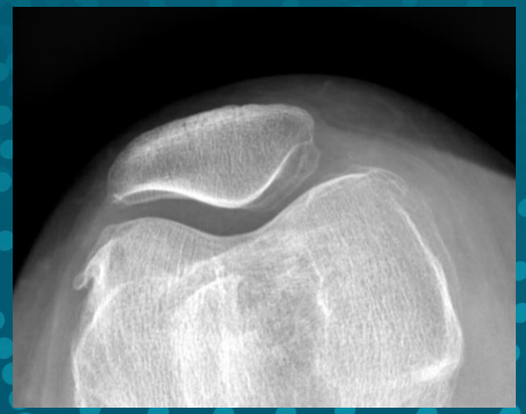
- Robotic-arm assisted arthroplasty leads to higher accuracy and fewer alignment outliers than conventional arthroplasty
- To-date, there are just a few studies reporting on long term outcomes of robotic-arm-assisted lateral unicompartmental knee arthroplasty (UKA)
- Our purpose is to evaluate long-term survivorship and patient-reported outcomes of robotic-arm-assisted lateral UKA

Indications

- Symptomatic lateral knee osteoarthritis

and

- Full-thickness cartilage in the medial compartment
- Intact ligaments
- A correctable valgus deformity (limit of 12° to 15°)
- A flexion contracture < 10 degrees
- No inflammatory arthropathy



Advantages of UKA over TKA

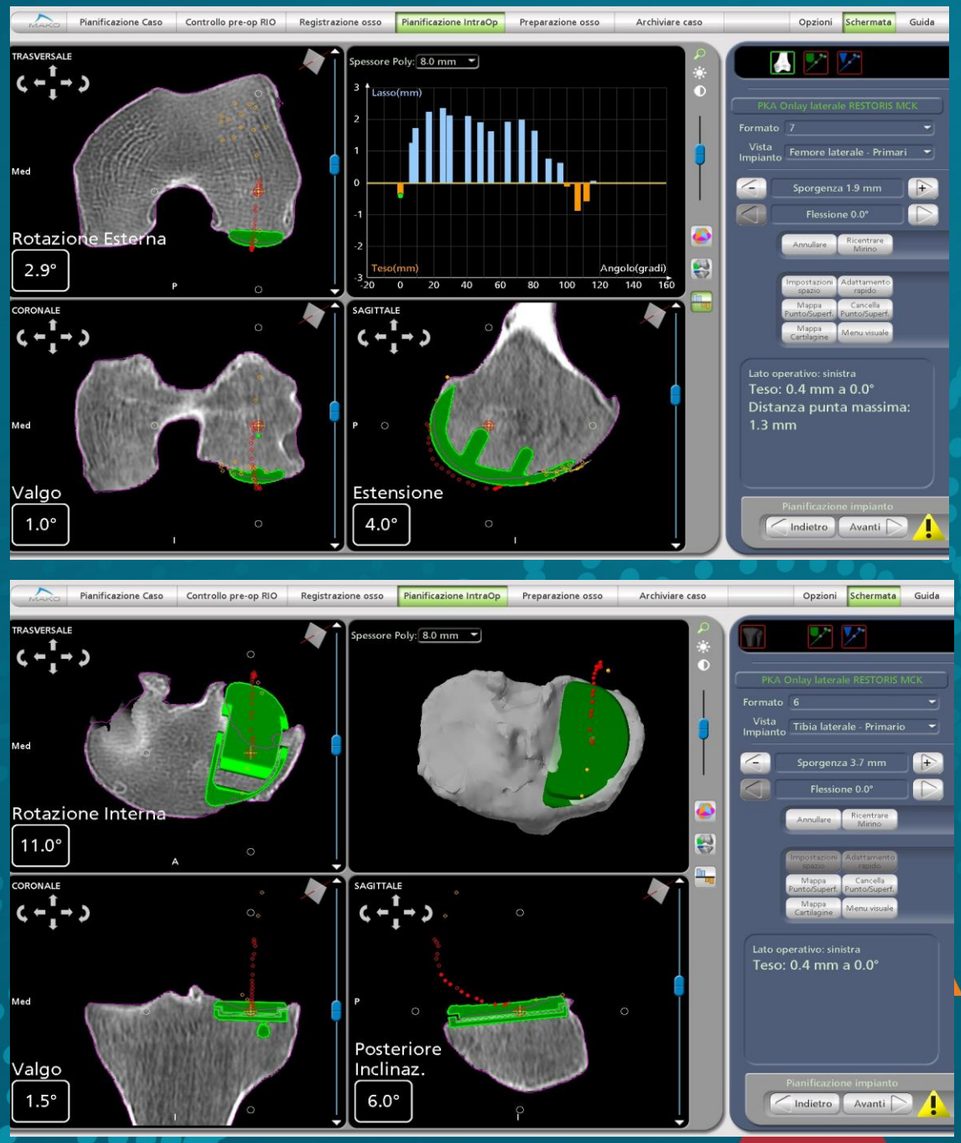
- Faster recovery
- Better range of motion
- Better function
- Lower complication rate

Technical considerations

- **Lateral parapatellar approach**
- **Tibial component**: internal tibial rotation and tibial slope
- **Femoral component**: aligned with the lateral femoral cortex and 1- to 2-mm below the demarcation line between cartilage and bone
- **Alignment**: no overcorrection into varus (ideal 3°-7° of valgus)

Why robot

- Component position and alignment are critical to achieve target knee kinematics
- Robotic UKA improves accuracy of implant positioning and final alignment
- Robot allows for real-time visual feedback



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Methods

- We perform a cemented, fixed-bearing tibial onlay lateral UKA (Restoris MCK System, Stryker) with robotic arm assistance (MAKO System, Stryker)
- A retrospective review of patients who had undergone robotic-arm-assisted lateral UKA before August 2016
- Questionnaire about revision surgery and level of satisfaction
- The Forgotten Joint Score (FJS) and the Knee Injury and Osteoarthritis Outcome Scores (KOOS) were used to analyse the functional results

Results

- A total of 103 knees (102 patients) underwent lateral UKA - 32 patients were lost to follow up
- A total of 71 knees (70 patients) were included in the study
- The mean follow up was 10.2 years (range 8-13.1)
- Three knees were revised, with an overall survivorship of 95.7%
- The cause for revision was progression of osteoarthritis in two cases (66.6%) and unexplained pain in the other one (33.3%)
- All the patients reported improvement in the functional scores and 87.7% of them were satisfied or very satisfied with their lateral UKA
- No intraoperative complications occurred

Survivorship

- Overall survivorship of 95.7% at a mean follow up of 10.2 years

- Reasons for revision to TKA:
  - 1 for unexplained pain
  - 1 for progression of medial OA
  - 1 for progression of PF OA

❖ The Hospital for Special Surgery report a survivorship of 96.1% at 10 years with robotic surgery

❖ Systematic reviews and registry-studies of conventional lateral UKA report a survivorship from 84.9% to 94% at ten years

Functional results

- All the patients reported improvement in the functional scores
- KOOS of 85.1 ± 14.3
- FJS of 89.7 ± 19.2
- 87.7% of them were satisfied or very satisfied with their lateral UKA

❖ In literature both robotic both manual lateral UKA show satisfactory clinical outcomes

Conclusions

- Lateral UKA is a valid option of treatment of lateral OA when there is the right indication
- Robotic UKA improves accuracy of implant positioning and robot provides real-time visual feedback on knee kinematics through the arc of flexion
- Robotic-arm-assisted lateral UKA provide high implant survivorship and patient satisfaction at ten years of follow up
- Limitations of the study: retrospective cohort study

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