PATELLOFEMORAL ARTHROPLASTY - Consider the Other Compartment


Although not a new concept, patellofemoral arthroplasty has recently gained acceptance as an alternative to total knee replacement in patients with arthritis localized to the anterior compartment of the knee.2

There is evidence that isolated patellofemoral arthritis occurs in at least 10% of patients suffering from osteoarthritis of the knee. Symptomatic patellofemoral osteoarthritis has been reported in 8% of women and 2% of men over the age of 55 years.3

The Vanguard™ Patellofemoral (PFR) System is a bone and ligament sparing implant that employs proven patellar and trochlear geometry and tracking based on a total knee system. The reproducible and instrumented technique may be performed using a traditional or quad-sparing incision.

Advantages of the Vanguard™ PFR Femoral Component

- Interlok® finish with undercut pockets on the undersurface for enhanced cement fixation.

- No anterior pegs allows for easier conversion to total knee arthroplasty without femoral bone loss.

- The intramedullary stabilization peg location is constant from the anterior flange to the center of the peg, allowing for easy size exchange intraoperatively.

Advantages of the Biomet® Patellar Component

- The Vanguard™ PFR femoral implant will work with any Biomet® domed patella.

- Biomet® patellar components are manufactured from ArCom® polyethylene for superior wear properties.4–7

- Choice of one-peg and three-peg fixation models in six sizes, both standard and thin options.

- A true domed patella design is more forgiving to rotational stresses and malalignment than a more conforming, sombrero-shaped or anatomic-shaped patella, which may require a more exact surgical technique in terms of rotatory alignment.8

- A dome-shaped patella can track slightly off-line while maintaining congruent contact in the trochlear groove, allowing for increased contact area and reducing contact stress.8

No Point Loading

Point Loading
Step One
Make a midline skin incision longitudinally from above the patella to a point just medial to the tibial tubercle.

Step Two
Make a 6mm hole in line with the femoral shaft, avoiding all ligaments and soft tissue attachments.

Step Three
Insert the fluted intramedullary rod engaging the fins into the femoral canal.

Step Four
Position the alignment guide block so that it approximates the distal femur.

Step Five
Insert the PFR alignment rod into the alignment guide block. Using the handles and anterior prominence, adjust rotation manually in both the sagittal and transverse plane. The femoral component is placed on the anterior surface of the femur in neutral alignment. Do not align the implant in external rotation. Lock the alignment guide block into place on the fluted rod and remove the alignment rod.

Step Six
Attach the stylus to the femoral resection guide and insert into the alignment block, bringing the stylus into contact with the anterior femur. Stabilize the rotation of the guide by placing a quick release drill bit through the pin hole on the guide and the stylus.

Step Seven
Make the anterior cut through the slot in the resection guide. The saw blade should emerge from the bone at the tip of the stylus.

Step Eight
Remove the femoral cutting guide and the fluted rod.
Step Nine
Rasp the intercondylar area as necessary, removing any remaining cartilage and osteophites.

Step Ten
Choose the size of femoral implant that broadly fills the anterior surface of the femur. Do not undersize the component. Drill the peg hole with the 8mm step-drill.

Clinical Results
- 24 patellofemoral arthroplasties in 21 patients with the longest follow-up at 4+ years. One patient died after one year due to unrelated causes.
- One patient with femoral implant mal-position was revised and continues to do well.
- One patient has shown progression to tri-compartmental disease, but has not required revision.
- No failures due to implant or loosening of femoral component. One patella was revised.
- Survival rate of 92% with an end result of revision for any reason.

References
1 Abendschein WF. Patellofemoral Arthroplasty: Consider the Other Compartment. Presented at the 2005 Annual Meeting of the American Academy of Orthopaedic Surgeons at the Biomet Educational Center.
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4 Meding J. 4.4mm of Tibial Polyethylene: A Ten-Year Follow-Up Study. CORR, 388, 112–117.
6 Ritter M. Direct Compression Molded Polyethylene for Total Hip and Knee Replacements. CORR, No. 393; 94–100.

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