

Results of total knee arthroplasty with Nexgen[®] implant using navigation system (Brainlab[®]): results with a 5-year follow up

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Purpose: To evaluate the clinical and radiological results of patients that underwent total knee arthroplasty (TKA) with a NexGen Zimmer[®] implant using Navigation system (Brainlab[®]), and who were followed up for at least 5 years.

Materials & Methods: Between January 2001 and December 2005, 55 knees (PS type 35, CR type 20) in 46 patients (4 male and 42 female, mean age 67, 43 patient were OA patients and 3 patient were RA patients) which used the NexGen[®] implant with Navigation system (Brainlab[®] Vector Vision[®], Heirnstetter, Germany) for primary TKA were clinically and radiologically evaluated after a minimum follow up of five years.

Evaluation included preoperative and postoperative range of motion (ROM), Knee Society Score (KSS), knee functional score, tibio femoral angle, radiological lucency and post operative complications

OP method: In all cases, mid vastus approach was done by one operator. Using Brainlab Navigation system, it was possible to evaluate soft tissue balancing as well as coronal and sagittal alignment and rotation. And after component implantation, Femoral Cutting Angle, Tibia Cutting Angle, Tibia Cutting Slope were evaluated by cutting block adaptor as a verification tool.

After operation in order to prevent deep vein thrombosis and pulmonary embolism, anti thrombotic stocking was applied. Drain removed post operative 2~3 days, and starting continuous passive motion, weight bearing ambulation was allowed in post operative 5~6 days.

Results: Knee ROM was increased from 118.9° (90°-150°) preoperatively to 126.9° (100°-150°) at the last follow up.. In addition, the preoperative flexion contracture was improved from 6.5° (0°-20°) to 1.8° (0°-10°) postoperatively. The mean KSS and functional score were improved from 59.8, 51.2 to postoperative 86.4 and 85.2 respectively. Rate of appearance of radiolucency in X-ray finding was in 12 knees (21.8% femoral component anterior area: 6, posterior area: 4, tibial component medial portion: 2. anterior: 2)

Post operative femoral component angle was 95.2°(91°-99°), tibial component angle was 92.3°(89°-97°), in lateral x ray view, flexion angle of femoral component was 3.24°(0°-6°), posterior slope of tibial component was 84.7°(81°-89°). Difference between post operative and last follow up result was not significant difference of clinical result & range of motion between PS type and CR type was not significant. Selective patella resurfacing was done in 45 cases. Two cases of complication were noted, one case of superficial skin infection (patient was suffered from diabetes) and one case of aseptic loosening which did not need a revision surgery.

Conclusion: Total knee arthroplasty with NexGen[®] implant using Navigation system (Brainlab[®]) showed a satisfactory improvement in pain relief and function, such as range of motion, as well as lower occurrence rate of complications, at the same time relatively good correction of mechanical axis and rotation, sagittal alignment but more long term follow up and comparison with conventional total knee arthroplasty will be needed to complete verification.