

## **Complex primary Total Knee managed by Stemless Constrained condylar knee (CCK) prosthesis**

**Background :** Addressing fixed flexion and fixed varus deformities, genu valgum and secondary medial collateral ligament incompetence with or without bone loss poses a challenge in achieving a balanced Knee arthroplasty ; most often necessitating stemmed implants . Stemless constrained implants were introduced to address these problems; however, this has been met with alleged concerns of higher failure rates due to increased stresses at the bone–implant interface. However, the alternative stemmed implants, in addition to extra cost, are also associated with end-of-stem pain, stress shielding, risk of subsidence, reduced local bone density with possible loosening and periprosthetic fractures. We present our experience and success of ten years in the use of stemless constrained implants and some technical pearls.

**Objectives:** The reason behind our use of stemless CCK implants was to benefit from the enhanced stability of CCK implants without the complications and cost of stemmed implants, avoiding extensive lateral ligament releases , medial ligament imbrication/ advancement , saving costs and reducing operating time .Possible better range of motion and ease if revision if needed.

**Study Design & Methods:** Two arthroplasty surgeon, single implant PS Constrained Total PFC®SIGMA®TC3, DePuy Johnson & Johnson with an oversized post, which is thicker, wider and rectangular in shape that engages fully into Femoral box providing stability. An experience with 60 cases over a four years period. Follow up of seven years ( 5-10 years ) . Aseptic loosening over the period was observed both clinical or radiographic observation, some cases needed to undergo SPECT/CT arthrography. Revision rates for infection or any other cause noted. Patient reported outcome measures (PROMs), used Oxford Knee sore improvement and Knee Society Clinical Rating System 2011. All analyses were two-tailed and significance was defined as  $p < 0.05$ . Multivariable logistic regression was employed to indicate influencing factors on outcome of the surgical procedure.

**Results:** All the 60 patients were reviewed specifically for identifying the outcome of use of stemless constrained (CCK) arthroplasty implant after ten years of implantation, however, the follow up was between 8-14 years. 23 had valgus and 27 case had varus and fixed flexion deformities with varying degrees of tibial bone loss ( Ahlbäck grade I /II ). There was no aseptic loosening. There were no revisions for any for any other cause. The PROMS improvement by 10-15 points in oxford knee sore and 90-95% satisfaction rate via Knee Society Clinical Rating System 2011. We also developed pearls and techniques tips during our experience.

**Conclusions:** Stemless CCK implants have a role in circumstances, like non-obese patient with relatively good bone stock with associated ligamentous laxity requiring additional implant constraint without the use of stemmed implants invading the intramedullary canal, increased embolization risk, no end stem pain, avoiding increased operative time and increased cost. The VVS implants have comparable longevity, patient satisfaction, less operative time and comparatively reduced cost per procedure . We describe surgical indications and surgical pearls for the use of CCK implants based upon our experience.

