

# HAC 2016 ABSTRACT for Oral Presentations

**Presentation no.:** F3.3

**Presenting Author:**

**Project title**

Does Barbed Suture Lower Cost and Improve Outcome in Total Knee Arthroplasty? A Randomize Controlled Trial.

**Author(s)**

Chan WKV (1) Chan PK (1) Chiu KY (1)(2) Yan CH (1)(2) Ng FY  
(1) Department of Orthopaedics and Traumatology, Queen Mary Hospital. (2)Department of Orthopaedics and Traumatology, Faculty of Medicine, University of Hong Kong.

**Keyword(s)**

Total knee arthroplasty  
Randomized controlled trial  
Barbed suture

**Approval by Ethics Committee:** Y

\*\*\*\*\*

**Introduction**

Due to aging population, knee osteoarthritis is a major cause of morbidity in elderlies. Despite allocating more resources into total knee arthroplasty (TKA), waiting time has not been shorten. This is because the demand is also rising rapidly. Therefore, it is important to improve the efficiency of TKA. Wound closure is critical in TKA. Traditionally, arthrotomy closure is time-consuming with multiple knots. Recently introduced barbed suture allows more efficient wound closure with continuous knotless suturing. Barbed suture can distribute tension more evenly, eliminate multiple bulky knots, which can potential reduce wound complication and hasten rehabilitation.

**Objectives**

Primary aim is to compare efficiency of barbed and traditional sutures in terms of wound closure time and cost. Secondary aim is to compare any differences in wound complications, wound cosmesis and clinical outcome after TKA (Knee Society Score (KSS) and knee movement range (ROM))

**Methodology**

This is a single-centre, patient and assessor blinded, randomized controlled study approved by our Institutional Review Board. Inclusion criterion includes valid informed consent, knee osteoarthritis scheduled for primary TKA. Exclusion criterion includes underlying dermatological diseases and refuse consent. Patients were randomized into either barbed or traditional group. All TKAs were performed by the same surgical team with standardized technique. All pre- and post-operative care were also standardized. For traditional group, interrupted and continuous sutures were used for arthrotomy and subcutaneous closure respectively. For barbed group, continuous knotless suturing with bidirectional barbed suture was used for both arthrotomy and subcutaneous closure. Arthrotomy and subcutaneous closure time was recorded. Leak test was performed to test for water-tight closure of arthrotomy. Patients were followed up at 2 weeks, 6 weeks and 3 months.

**Result**

109 TKAs (55 barbed; 54 traditional) were included for analysis. Both arthrotomy and subcutaneous closure time was significantly shorter in barbed group (arthrotomy 325 seconds versus 491 seconds ( $p < 0.01$ ); subcutaneous 306 seconds versus 381 seconds ( $p < 0.01$ )). Significantly more positive Leak test (arthrotomy leakage) in traditional group ( 10 versus 2 ( $p < 0.02$ )). Total wound complication were significantly more in traditional group (11 versus 2 ( $p < 0.03$ )). Wound cosmetic rating, ROM and KSS were comparable at follow-ups ( $p > 0.05$ ). In conclusion, barbed suture can improve efficiency of TKA through shortening operation time and reducing wound complications.