Total Knee Replacement Surgery

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Introduction
Total knee replacement surgery is a reliable method of treating painful knee arthritis. The good to excellent results are as high as 98% in most long-term studies. The typical patient requiring a total knee replacement surgery is one who has failed non-surgical treatment. This group of patients have tried painkillers, glucosamine sulphate and physiotherapy to treat their knee pain. Some patients have also tried steroid or synthetic hyaluronic acid (joint lubricant) injections directly into the knee joint but the pain still persists.

Current total knee replacement surgery has not changed very much in the past two decades in terms of the surgical technique or the design of implants. The advances being practiced today would be the use of computer surgical navigation to improve alignment of the knee implant, early post-operative pain control and early rehabilitation.

Computer Surgical Navigation
The use of computers to guide total knee replacement surgery is in practice today. The advantages is that it provides better alignment of the implants and lower limb compared to conventional techniques. There are other advantages which include reducing the amount of emboli (blood clots) during surgery. Computer surgical navigation is also reported to allow the surgeons to perform smaller incisions or use muscle-sparing techniques that leads to better early post-operative results in terms of pain control and rehabilitation but does not show a difference in the long term results when compared with conventional methods.

Surgical navigation computer

Trackers are used to pick up signals from the computer

Accurate placement of knee implants

Post-operative pain control and rehabilitation
Early post-operative pain control is helped by the use of a cocktail of painkillers injected into the knee joint during the surgical procedure. I find this particularly useful as it significantly reduces pain in my patients compared with conventional painkillers (e.g. morphine or NSAIDs). This would allow patients to undergo rehabilitation earlier with the ability to walk on the same day or next day after surgery.

Clinical examples of difficult cases
Severe right knee varus requiring blocks and stems
Previous high tibial osteotomy with right knee varus

Results and complications:
Usually knee replacement surgery is an uneventful operation with a high success rate (98%). However, there are complications that can arise and all patients must be fully aware of the risks before the surgery. The rate of complications varies from person to person. In an elderly person, the rate quoted is between 1-2%. The list of complications include:

1. Bleeding
2. Nerve and blood vessel injury
3. Wound and implant infection
4. Joint stiffness
5. Fracture of bone
6. Others: Acute myocardial infarction (heart attack), stroke, deep vein thrombosis/pulmonary embolism (clots in the veins of the leg), urinary tract infection, pneumonia.

References:
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