

MENISCAL TRANSPLANTATION

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The knee, as a weight-bearing joint, undergoes high stresses with daily activities like walking and running. The meniscus protects the joint and is a ring-like structure made of fibrocartilage, that acts like a shock absorber and protects the cartilage between the femur (thigh bone) and the tibia (shin bone). There are two such structures in each knee, one on the outside (lateral meniscus) and one on the inside (medial meniscus). These structures can tear, causing joint pain, popping, swelling and loss of function, and arthroscopic surgery is usually required to treat them.

In arthroscopic surgery, the surgeon inserts a tube-like instrument into a joint to inspect, diagnose and repair tissues. In cases where the meniscus is removed, the patient can experience post-meniscectomy syndrome; the knee transmits force abnormally because there is no shock absorber, leading to early arthritis and eventually chronic pain.

In the elderly, the best option would be an artificial joint replacement. However, in younger patients (less than 50 years old), artificial joint replacement is not recommended as they usually wish to continue an active lifestyle. This group of patients would benefit from meniscus transplantation, a surgery where a new meniscus is placed into the knee. The new meniscus refers to the human tissue, taken from a person who has passed on (allograft transplantation).

Clinical evidence shows that meniscus allograft transplantation can decrease symptoms and increase activities, with good pain relief. The aim is to reduce pain, restore function as well as delay and avoid joint replacement. However, only younger patients with persistent pain are suitable. Other pre-requisites for this transplantation include normal alignment of the knees (no bowing of the knees or knock-knees), normal stability (no ligament injury like anterior cruciate ligament rupture) and fairly normal cartilage (no cartilage ulcers). Where such concurrent problems are present, meniscus transplants have been performed with simultaneous realignment and instability procedures with good outcomes. Studies have shown that concurrent cartilage restoration offers good results for patients with focal, full-thickness cartilage lesions. X-rays of the knees are taken to determine the size of the meniscus that will fit the knee. The allograft is tested for diseases to minimise the risk of disease transmission.

SURGICAL TECHNIQUES

Surgical techniques for patients vary depending on their conditions. The technique is usually arthroscopic assisted, like a full arthroscopic technique or may require additional or larger incisions.

The use of allograft with bone block requires very precise sizing of the knee joint (Fig. 1). There is a need to cut a trough in the patient's knee in order to fit the bone block (Fig. 2). Usually, additional incisions will be required.

The use of pure soft tissue meniscus allograft (Fig. 3) presents the option of a total arthroscopic method, with no additional incisions required and there is no need to cut the patient's bone. The allograft is then inserted into the knee (Fig. 4).



Fig. 1 Meniscus allograft with attached bone block. This is cut to size with special jigs.



Fig. 2 A small incision is usually required for the insertion of the allograft (bone block) into knee. A trough of bone is also removed from the knee in order to fit the bone block.



Fig. 3 Pure soft tissue meniscus allograft. Graft is prepared by securing the ends with sutures and marking it.



Fig. 4 By toggling sutures, the graft is inserted into the knee via existing incisions.

Arthroscopy is performed by inserting a camera (which is connected to a video monitor) into the knee via small incisions under general anaesthesia. The surgeon will perform a check to determine the health of other tissues in the knee and ascertain that it is appropriate to proceed with a meniscus transplant. Depending on the method used, additional incisions may be made to insert the new meniscus into the knee. This is then secured in place with devices, which can include sutures and screws.

Following surgery, the patient can walk (with partial weight-bearing) using crutches. He will also need to limit his motion in the initial postoperative period. Normal gait should be attained by three months and jogging can be started by five months. Satisfaction score from patients showed that 85 percent of them were completely satisfied with their surgeries.



A QUICK FIX For Rotator Cuff Tear

Winter Olympic speed skater Ivan Skobrev isn't one who takes to resting easily. But when his left shoulder pain got to the point where he couldn't train and exercise with ease, swim or get a full night's sleep, he knew something more had to be done.

"Over the years, I hurt my left shoulder many times. The pain began gradually about a few months ago when I accidentally knocked my shoulder, but escalated to such a degree that I had problem lifting my arm above shoulder height and would have sleepless nights through persistent pain. I had seen different doctors, tried physical therapy and received steroid injections to my shoulder each time when the pain came." A good friend, Olga who lives in Singapore for 14 years recommended him to see orthopaedic specialists, Dr Eddie Chang and Dr Chang Haw Chong at Gleneagles Hospital.

During his recent holiday trip to Singapore in mid April 2010 with his girlfriend Yadviga, Ivan met with the uncle and nephew team of Dr Eddie Chang (the uncle) and Dr Chang Haw Chong (the nephew) for an examination of his left shoulder and underwent a Magnetic Resonance Imaging scan. Dr Chang Haw Chong determined that Ivan had torn a tendon of his rotator cuff. "A rotator cuff tear is an injury where the