MENISCAL SCAFFOLDS: Regenerating the shock absorbers in the knee

The Meniscal Scaffold implant is a new device designed to rebuild the meniscus or ‘footballer’s cartilage’ after part of it has been removed following injury. This procedure of partial meniscectomy is very common and is usually successful in relieving pain. However a small proportion of patients will develop persistent pain felt in the side of the knee due to the lack of the normal thickness of the meniscus.

The menisci of the knee make the sockets for the thigh bone to rotate in and they provide the shock absorber for impact loads. If a substantial amount is removed after injury then this can result in early wearing of the joint surfaces. Complete loss of the meniscus usually results in early arthritis developing within 10 – 15 years.

Meniscal Scaffolds

There are now two types of implants designed to regenerate the meniscus when part of it has been removed: The Menaflex supplied by Hospital Innovations and the Actifit supplied by Orteq. Both act as scaffolds for new tissue to grow into and regenerate the healthy cushion. They are made of slightly different materials and both procedures have been reported to be successful in relieving pain after meniscectomy. However the long term benefit of reducing the severity of later arthritis in the knee is not yet fully clear as the technology has not been around long enough.

If the whole meniscus has been removed then the scaffold synthetic substitute will not suffice and a meniscal transplantation using a donor graft is indicated.

The first of the new synthetic implants was the Collagen Meniscal Implant which is now called the MENAFLEX. It was developed in the USA by several surgeons including Dr Richard Steadman, from Vail. It is made from highly purified collagen and gets absorbed by the body by 12 – 18 months after implantation, after the bodies own cells have taken over and formed new strong tissue. This became available in UK in early 2008. Information from the manufacturer details that more than 2000 Menaflex implants have been surgically implanted worldwide. Studies show that patients regain over 70% of their original meniscus tissue volume.

Actifit was developed in Belgium and is made from a polyurethane polymer and has a very similar appearance to the Menaflex. Laboratory studies indicate the scaffold may still be present 5 years after implantation giving the body longer time to form a new natural regenerated meniscus. Early clinical studies have shown good short time results for improved function and reduction in pain.

There has been no direct comparison between the two implants to know which is better and both are probably equally effective.

Operation and Rehabilitation

The implants are inserted at key-hole arthroscopic surgery which is usually a day case procedure. The incision to get the implant into the joint is about 2 – 3 cm long.

Rehabilitation after surgery naturally has to be slow as the body has to grow tissue into the scaffold and this is a slow process. Full weight on the leg is allowed at 8 – 10 weeks and the specific rehabilitation program is tailored to each patient depending on the state of the knee surfaces and the amount of new meniscus inserted.

Biopsy studies looking at the new tissue under the microscope have shown that the new tissue is fairly strong by 12 months. Impact sport is therefore not allowed for the first 12 months.

For more detailed information see www.menaflex.co.uk and www.orteq.co.uk