The HemiCap and UniCap 'partial resurfacing' procedures for articular cartilage damage in the knee

Information and case story

Hemicap resurfacing is a relatively new option for treatment of small areas of surface damage or early osteoarthritis in the knee. For suitable patients, it can be a good option for treating knee pain and can delay the need for a total knee replacement. The HemiCap involves limited resurfacing of the femur whereas the UniCap is a slightly larger component and involves resurfacing both the femur and the tibia. Information on this is given at the bottom of this information sheet.

About the procedure

What it is: A hemicap is a small metal implant that is fitted onto the femur to replace the damaged surface. The device only resurfaces the affected area of the joint, leaving the healthy surface intact. This is different to a standard knee replacement where all the joint surface is relined with metal and plastic. Instead, the Hemicap is a 'partial' resurfacing procedure and is usually indicated for the 40-60 year old.

How it works: The company that makes hemicap implants describes them as similar to a filling in a tooth. Like a tooth may develop a cavity, the cartilage in the knee may develop a small hole. The hemicap implant is used to fill this hole, which makes the surface smooth again and alleviates pain. Just as a filling is only appropriate for a small hole in a tooth, a hemicap implant is only suitable for patients with a small amount of damage to their cartilage (bearing surface). This therefore means that it is most suitable for the earlier stages of the worn knee – often in the younger patient. Another analogy is filling a pothole in the driveway!

The operation: Surgery takes place under general anaesthetic and takes less than an hour. Patients need to stay in hospital for one to two nights but can start to walk as soon as they feel comfortable to do so, using crutches for a maximum of 6 weeks. Patients report very good pain relief and a quick recovery from the operation.

Afterwards: As the operation is insertion of an implant, getting back to running and jumping is not encouraged for fear of loosening the component. Cycling, walking, skiing and gym activities are all good and it should be able to start these at 4-6 months following surgery.

The future: Hopefully the new repaired surface will last but the remainder of the knee may cause trouble such that additional resurfacing procedures may become indicated.

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**A patient’s story**

Tania, a primary school teacher aged 52, has been very pleased with the results of her hemicap operation. She originally developed aching and weakness in her knees in 2008. She underwent an MRI scan and an arthroscopy which is where a small camera is put inside the knee joint. This showed her pain was coming from an area of damage to the articular cartilage (bearing surface) of the knee. Initial treatment consisted of the microfracture procedure where small holes are made in the worn surface to encourage the growth of a new healthy surface.

Unfortunately, Tania’s symptoms did not improve, despite a long period of not taking weight on the knee, and pain gradually increased making it difficult to walk any distance, or do any activity. She was used to being outdoors, walking or mountain biking, but found that now she struggled with normal daily activities and would need to go to bed in the early evening. She felt frustrated that she couldn’t do as much with her family as she wanted to and couldn’t commit to any activities due to her unpredictable knee pain. Despite taking painkillers and using a knee brace, her pain persisted.

In 2011 Tania underwent hemicap resurfacing of her left knee. Although she was a little apprehensive about undergoing a new procedure, she has been very pleased with the results. She only had to stay in hospital for one night and was easily able to walk with crutches on the first day after surgery. Initially, after the operation, her knee felt tight and uncomfortable, but the pain was much less than she had expected, and was eased with rest, ice and simple painkillers. She had a 7cm scar on her knee, which though quite sensitive, improved with massage treatment. Six weeks after the operation, she reported that her knee pain had completely gone and could drive without pain.

At 6 months post surgery she was building her strength back to normal with the help of physiotherapists, and had been back at work since the 10 week point. She felt much more positive and was pleased to have her independence back.

**The UniCap Procedure**

An extension to the HemiCap procedure is the UniCap procedure where the component on the femur (thigh bone) is larger and there is an additional plastic implant on the top of the tibial (shinbone) surface. This is indicated where there is specific wear on both the femur and the tibial surfaces.

For further information see the information on ‘coping with the worn knee’

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