

North West Hip & Knee Clinic

Mr Aslam Mohammed
Consultant Hip and Knee Surgeon

Chondral Damage – Articular Cartilage Damage

North West England / London
www.nw-hip-knee-clinic.com

Chondral Damage – Articular Cartilage Damage

What is it?

Hyaline articular cartilage is the connective tissue/material that covers the ends of the bone in all moving joints, this is a white /creamy coloured shiny and a very slippery tissue. It is a highly resilient structure; it resists compression and shear forces throughout life whilst allowing movement of the knee joint in many directions.

It can deteriorate over time to give rise to wear and tear (osteoarthritis). However localised damage to this tissue can occur in young active adults as consequence of injury or at times no apparent cause and cause to a variety of symptoms. There are a number of well-recognised conditions with chondral damage Mr Aslam Mohammed treats these damaged areas in the hip and knee joint.

- Chondromalacia / Degenerative Chondrosis: Softening of the articular cartilage usually behind the kneecap, gives rise to a grating sensation.
- Osteochondritis Dissecans / Osteochondral Fracture: The cartilage breaks away with a piece of the bone and can float around the knee joint.
- Chondral Flaps: Cartilage separates from the bone and moves like a trap door with a hinge at one end.

Unfortunately articular cartilage tissue has very little or no capacity to heal, as has no blood supply. The localised damage may be amenable various techniques to repair and preserve the joint. It also is to improve and restore function to the knee joint. The healing tissue that replaces the damaged area is called fibrocartilage almost like a scar, is not as resilient as normal articular cartilage and it too can deteriorate over time and be damaged.

What are the symptoms?

Symptoms may start after an acute injury or activity and sometimes without any obvious cause or event.

Patients have pain, swelling of the knee joint with stiffness and limited movement, which are made worse with exercise and activity. They may have a sensation of catching, clicking, giving way and locking (getting stuck). Sometime may feel something floating around in the knee joint.

What investigations are needed?

An X-ray is the initial investigation with different views being taken.

An MRI scan will look at the soft tissues and the articular cartilage. It will also look at any abnormal reaction in the bone under the damaged articular cartilage.

How can it be managed?

Mr Aslam Mohammed has extensive experience in treating chondral injuries (articular cartilage). He aims to treat the focal defect with the most appropriate technique for the individual pathology and to return patients to near normal activity and lifestyle.

This decision is based on the patient's activity level, age, cause, size and depth of the defects, presence of combined defects and other injuries to the knee joint.

Available treatment options include conservative treatment and surgical treatment for relief of symptoms and to restore the integrity of the joint surface.

Conservative measures may help with symptoms only and do not restore the structural integrity of the articular cartilage.

The purpose of surgical treatment is to improve symptoms and prevent progression of the degenerative changes, by achieving structural and biomechanical restoration and stabilisation of the articular cartilage.

Surgical treatment methods can be divided into:

- Arthroscopic lavage and debridement. This involves knee *arthroscopy* and debridement of the damaged articular cartilage (Chondroplasty), it removes the unstable fragments at the margins of the damaged cartilage that may be causing the symptoms and further damage to the joint.
- Cell-based therapy with subchondral bone marrow stimulation using the technique of micro fracture. Knee *arthroscopy* is performed and pinholes are made into the exposed bone (micro fracture) 2-4 mm in depth and evenly spaced apart from each other. This causes bleeding from the subchondral bone into the defect releasing mesenchymal stem cells, which then form a clot. These stem cells have the potential to change into fibrocartilage cells and chondrocytes and induce fibrocartilage or hyaline-like cartilage formation, so filling in the defect to help protect the joint and alleviate symptoms.
- Autologous chondrocyte implantation (ACI) is a two-stage procedure in which articular cartilage containing specialised cells (chondrocytes) is harvested from a non-weight bearing portion of the knee joint during keyhole surgery. These cells are then cultured (grown/ multiplied) in the laboratory. These cells then are implanted into the defect at a second operation requiring an open procedure.
- Tissue-based therapy osteochondral auto graft transplantation or osteochondral allograft transplantation. The advantages of these procedures are treating defects in one stage, promoting a more rapid return to daily living activities and sports with use of biomechanically healthy tissue and maintaining good results for a long-term due to the hyaline cartilage repair.

The advantages/disadvantages of each method are dependent on a number of factors which include: the size, site/location, depth of the lesion, and the patient's age and activity level, compliance to post-operative rehabilitation and smoking status will all need to be taken into consideration.

What does the surgery involve?

Mr Aslam Mohammed will discuss the details of what the surgical plan with you before you make a decision. This firstly involves a knee **arthroscopy** and assessment of the knee and damaged articular surface. Dependent on the findings and discussions with you at the time of your consultation he will then proceed to perform the surgery.

What are the risks?

The risks of this type of surgery are relatively low but they always need to be taken into serious consideration before deciding to undergo surgery. Mr Aslam Mohammed will discuss these with in detail before you make decision to go ahead with surgery.

The following are potential risks:

- Thrombosis Blood Clots in the leg - DVT /Clots on the lung – PE
- Infection, Bleeding / Bruising, Swelling
- Wound pain and sensitivity, Nerve and vessel damage
- Graft harvest site pain and scarring
- Joint stiffness, On-going pain and discomfort
- Severe pain and stiffness and loss of use of your knee (complex regional pain syndrome), the cause is not known.
- Loss of confidence to play contact sport and do impact exercise
- Limited or no improvement in symptoms
- Graft cannot take or heal and deteriorate over time. It can also be damaged again during sport or after a fall.
- Over growth of the healing tissue (fibrocartilage) ACL Tear

What are the outcomes?

Arthroscopic debridement can be helpful for preventing the progress of delamination of articular cartilage, but there is uncertainty over its effect on the long-term outcome (Chondroplasty).

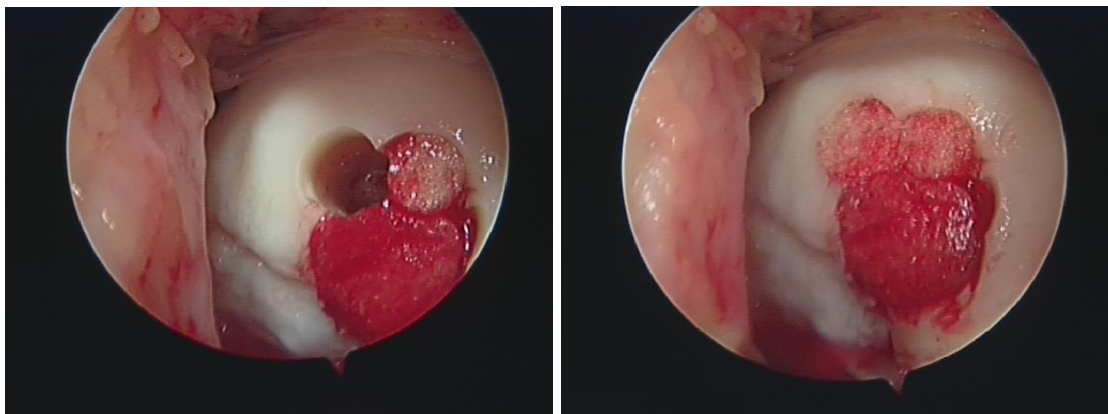
A number of studies have shown that micro fracture can be helpful in improving overall symptoms of chondral defects, but the symptoms can progress over time. Poor clinical outcome are usually attributed to advanced age, large lesion size, and high activity level. This is supported by Mr Aslam Mohammed's experience over the last 25 years.

ACI shows good clinical outcomes for a longer period time in cases of focal cartilage defects, but the disadvantages include that it requires two separate procedures for chondrocyte collection and implantation.

Mr Aslam Mohammed has extensive experience in this technique and has participated in the **ACTIVE** multicentre study comparing various techniques with ACI.

The studies of the OATS (Osteochondral auto graft transplantation surgery also called mosaicplasty) show a positive outcome, many studies have shown that the technique was effective in 76-93% of the patients in achieving clinical improvement.

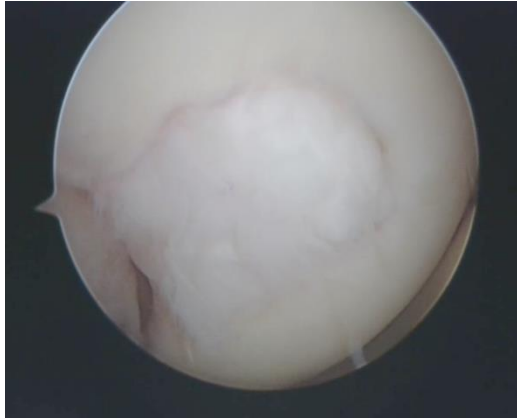
Overall despite all these treatment methods deterioration in function and symptoms is expected over time of the articular cartilage and the onset of arthritis.



Defect in medial femoral condyle treated with OATS (Mosaicplasty) treated by Mr. Aslam Mohammed.



Micro fracture of the defect good bleeding seen into the defect which will form a fibrin clot then go onto form fibrocartilage, treated by Mr Aslam Mohammed.



Defect treated with micro fracture seen at six month showing fibrocartilage has filled in the defect. treated by Mr. Aslam Mohammed.
ACI



Mr. Aslam Mohammed performed this second stage of the ACI procedure on 19 years Netball player who had injured her left knee sustain a full thickness defect in the medial femoral condyle.

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Clinics in London & the North West

Mr Aslam Mohammed

MB, BCh, FRCS (Eng), FRCS (Tr & Orth) Consultant Hip and Knee Surgeon



Areas of expertise:

- Keyhole (minimally invasive) hip and knee surgery
- Hip and Knee Joint Replacement Primary and Revision
- Hip and Knee Sports Injury
- Hip Arthroscopy, FAI and labral surgery
- Knee Arthroscopy and ACL / PCL and Multi Ligament Reconstruction
- Orthobiologics – PRP, Stem cell and cartilage regeneration techniques

Mr Aslam Mohammed is highly experienced and well-respected hip and knee surgeon, practicing in the North West and Central London. He treats high-level athletes, those playing recreational sport and patients with degenerative conditions (arthritis) of the hip and knee.



Wrightington hospital world reknown hospital for joint disease

He has a NHS Consultant post at the world-renowned Wrightington Hospital for Joint Disease, which is a specialist orthopaedic centre; it is where Sir John Charnley developed hip replacement surgery in the 1960's. Mr Aslam Mohammed was appointed in 1995 and in his practice he has been able to achieve one of the lowest infection and revision rates for joint replacement surgery in his practice, as recorded by the National Joint Registry (NJR).

G K Rose Prize for Biomechanics and the Professors Gold Medal

Mr Aslam Mohammed qualified in 1984 from the Welsh National School of Medicine in Cardiff. He did his basic surgical training in London, working at Kings College Hospital, The Maudsley Hospital Neurosurgical Unit and at Queen Marys' Children's Hospital. He undertook his specialist training in Orthopaedic and Trauma Surgery on one of the most prestigious training programmes in the UK at The Robert Jones Orthopaedic Hospital in Oswestry and at The North Staffordshire Hospital in Stoke on Trent. On completion of his training he was awarded the intercollegiate FRCS (Tr & Orth).

During his training he was awarded G K Rose Prize for Biomechanics and the Professors Gold Medal for his research into bone cell culture techniques related to fracture healing.

To maintain his position at the forefront of innovation and knowledge he has spent a considerable amount of time visiting key centres both in Europe and the USA to discuss and exchange ideas on the latest techniques in Orthopaedic Surgery.

Following his Consultant appointment he has successfully established two new units at Wrightington Hospital to provide specialist services in soft tissue and sports injury of the hip and knee and a service for young adult hip problems. He has been able to develop these into thriving units where he now leads two teams now with four surgeons in each speciality.

In 1996 he developed instruments for hip arthroscopy to allow minimally invasive access to the hip joint. He has a vast experience and expertise in hip arthroscopy to treat hip pathology, particularly femoro-acetabular impingement (FAI) and labral surgery.

Research and Development

Mr Aslam Mohammed maintains a keen interest in research and development, his current research interests include fixation of ligament grafts in cruciate ligament reconstruction, minimal invasive hip surgery and the application of computers to assist in specific minimally invasive surgical procedures in the hip and knee. During his training in Oswestry working with the late Professor James Richardson he was able to perform some of the first ACI (Autologous Chondrocyte Implantation) procedures undertaken in the UK in the early 1990's

Cutting Edge Knowledge and Expertise

Mr Aslam Mohammed will give each patient a highly personalised management plan related to his or her specific problem. He will discuss all possible options of treatment and management available, throughout this he will ensure that his patients remain at the centre of the decision-making process and they are kept well informed.

Mr Aslam Mohammed utilises the latest proven techniques, minimally invasive tissue sparing approaches to reduce the surgical trauma to enhance healing and recovery.

All the implants and prostheses he uses have a strong proven long-term track record and are well documented on the NJR (National Joint Registry).

Mr Aslam Mohammed maintains cutting edge knowledge and expertise by attending regular meeting related to hip and knee surgery.

He teaches on national and international courses on subjects related to hip and knee pathology and surgical techniques.

He also holds one to one Master Classes on hip arthroscopy.

Future Orthopaedic Surgeons - a privilege

He is a highly experienced and well-respected trainer of future orthopaedic surgeons and he considers this to be a highly privileged position.

He has trainee registrars from the regional training programmes and international fellows working with him. He has a key interest in preparing trainees for their speciality fellowship exams and is involved with the viva courses at Wrightington Hospital, which are run at regular intervals.



The Princess Grace Hospital



The Villar Bajwa Practice

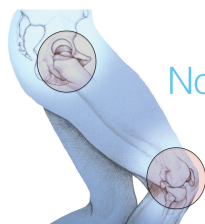


Euxton Hall Hospital

Mr Aslam Mohammed was asked to join the Villar Bajwa Practice in London in 2018 and he is available at Princess Grace Hospital, Marylebone London.

Outside work he enjoys family life with his four children. He is keen gardener, growing vegetable and fruits. He enjoys cooking.

He plays golf, tennis and shoots clays. He has dog, a working Cocker Spaniel called Charlie.



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