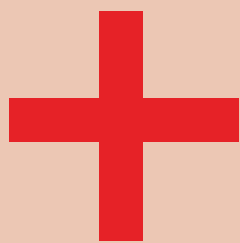


MARUTHUVA VIVEKAM

Doctors Advice - For a Healthier Life



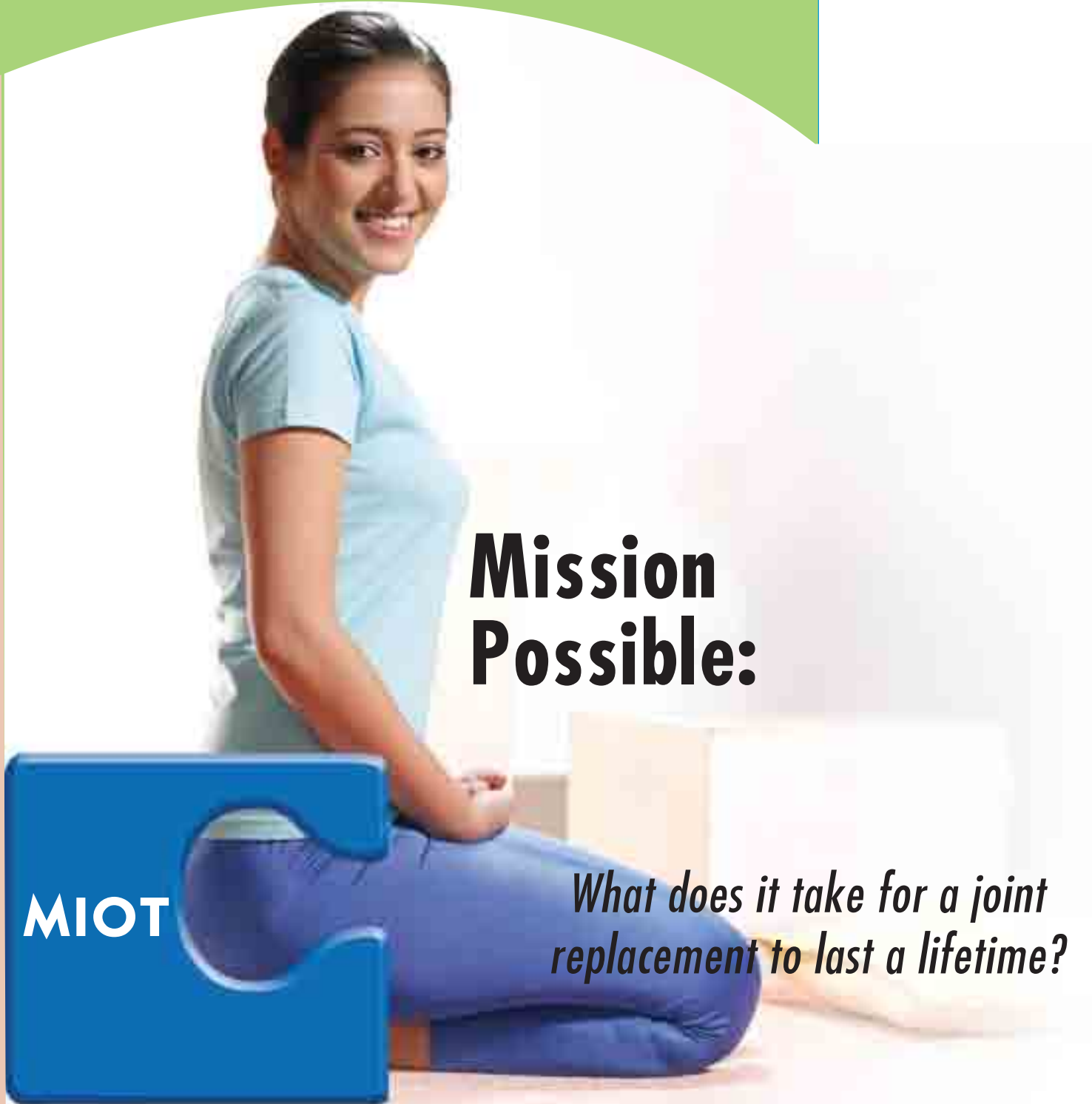
*Everything you
wanted to know
about knee
replacement*

*The Quest for the
Ideal Hip*

Articles by:

Dr. C. Lenin & Dr.Prithvi Mohandas

March 2008 Vol:10



Mission Possible:

*What does it take for a joint
replacement to last a lifetime?*

From the Chairman's Desk



Dear Friends,

These days we all want to lead active lives. People in the 60+ age group want to exercise, travel, take courses...enjoy their retirement. To live life to the fullest we need to be mobile. This desire has led to a tremendous increase worldwide in Knee and Hip Replacement Surgeries.

A key element in a replacement surgery is the artificial joint that is used. The choice of joint and its precise placement will go a long way in determining your mobility and the longevity of the joint.

At MIOT we have made great strides in this field, thanks to our expertise (having performed 21,000 replacement surgeries.) So are we closer to

the Holy Grail of replacement surgery - the "fit it and forget it" joint that lasts a lifetime? Read on.

This issue is dedicated to the breakthroughs in the field that could lead to a healthier more active future for all of us. Do mail me feedback at enq@miot hospitals.com

Good luck and Good health!

Mrs. Mallika Mohandas
Chairman, MIOT Hospitals

Laughter is the Best Medicine



"I'm a mother, a wife, a business woman, a teacher, a nurse, a cook and a housekeeper... that's just 23 pounds per woman!"

"I'll have to do some x-rays to be sure, but I'm guessing you dislocated your shoulder."

Front Piece



Why a Global Centre for Ideal Joints?

In the world today there are more than 500 different types of joints available for joint replacement.

Every Orthopaedic Surgeon the world over is designing his own joint and hence there are as many different types of joints as the number of Orthopaedic Surgeons.

The major multi-nationals who market their joints in India, decide what joints the Indian Surgeon should use and market them here.

Often, most of the designs that are available in India are either outdated in the West or are not very popular there. These joints are sold cheaply in this country. They are not the top end products.

The Surgeons are well aware that you cannot use the same design for every indication (different types of disease of the joints require different types of artificial joints).

Young people will require joints which are made of material which will last long. Old people may not require such a joint. Young people stress their joints by running, jogging and playing. The joints of young people will require more mobility. Even economics decides the types of joints the Surgeon has to use.

In view of this it is the Surgeon who should decide on the type of joint that has to be used for replacement

and not the manufacturer.

MIOT has established the Global Centre for Ideal Joints and will invite leaders in the field from time to time, so that we can interact with them and learn about the latest innovations. This will lead to quicker technology and upgradation transfer.

The ultimate beneficiaries are the patients in India who will reach new levels of mobility and comfort after their replacement surgery. A "Joint for Life" is our mission.

Prof. Dr. P.V.A. Mohandas

MIOT HOSPITALS
PUTTING PATIENTS FIRST

We put 21,000 people back on their feet

MIOT's GLOBAL CENTRE FOR IDEAL JOINTS

Unmatched experience: 15,000 Hip Replacements | 6000 Knee Replacement Surgeries

Chairman's Desk

Mission Possible: Joint for Life

A policeman's job that involves jumping in and out of jeeps; a cinematographer who climbs ladders to get his shots; a housewife who's had spondylitis from college days. A bike accident at age 18. A fracture in school...

Who you are; what you do; your genetic history; the quality of your

implants in the market in all shapes, sizes and materials. But only one of them is perfect for you.

At MIOT we use our thirty two years' of experience in replacement surgery to evaluate your joint and find that match. Then, we use our state-of-the-art equipment and renowned surgical skills to fit it with

So where can you find a Joint for Life?

At a Centre which offers the widest range of implants from over the world to enable a perfect match. At a Centre with wide ranging experience, where replacements have been performed successfully.

The MIOT Global Centre for Ideal Joints

is such a centre. After performing 21000 joint replacement surgeries, this is the only centre in India working on developing an ideal joint for Indian anatomies and lifestyles.

So replace pain. Replace restrictions. Replace uncertainty - with hope, confidence and a new zest for life. **Walk tall.**



Hip and Knee Replacement Surgeries



bone; the cause and severity of your illness ... all of this shapes your joint. As a result your hip or knee joint is as individual as your fingerprint.

Therefore the key to a successful replacement surgery is matching the perfect implant to replace your joint. There are a wide range of

zero-error precision.

The right implant fits smoothly and leaves you comfortable, active and fit for life

The wrong implant leads to discomfort, wear and tear and possibly, another surgery in a few years.

The Resurfacing Revolution: Is it For You?

Resurfacing? What's that? Can it replace hip replacement surgery?

Hip Resurfacing is a hot topic today. It seems to be on everyone's lips as the operation of choice when your hip wears out.



Shaping of femur completed with Champfer Reamer

Resurfacing involves shaving the ball or head of the femur, cementing a metal head onto it and making this ball move within a hemispherical, metal socket. In this procedure, therefore, the neck of the thigh bone and part of the head are preserved.

It is ideal for a patient with strong bone in the femoral head where only the cartilage is worn out and can be resurfaced.

Causes for concern

Worldwide, the risk of fracture of the femoral head in the first year following resurfacing, is over 2 per 100 patients undergoing the surgery. Also, 3 out of every 100 patients undergoing a resurfacing will

need it redone to a total hip replacement in the first 5 years following surgery.

A recent concern about resurfacing is the rejection of the metal on metal implant by the patient. The cause for this is unknown and there is no test before the operation that can detect those at risk. The Australian Hip Registry puts this risk of implant rejection as being higher in women. Approximately 2 in every 100 women will reject their prosthesis in the first year and a half following resurfacing surgery.



Femoral Head Fracture

Who can opt for resurfacing?

The American Food and Drug Administration (FDA) has therefore brought out the following guidelines to be followed by all surgeons for resurfacing:

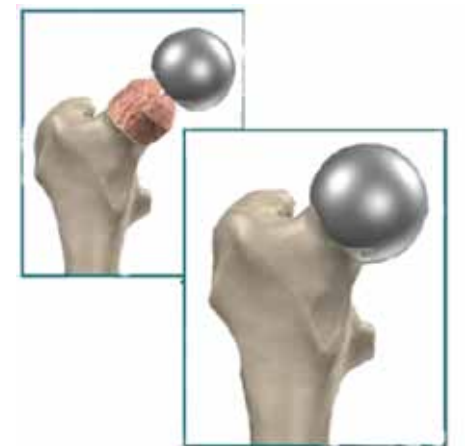
It should not be offered in the following cases:

- Elderly patients with soft

bone or osteoporosis

- Patients with a family history of osteoporosis
- Those who have not completed their growth (less than 18 years of age)
- Patients who have kidney problems
- Patients who are overweight
- Patients who are on steroids
- Patients with known or suspected metal allergy
- Patients with weak musculature or neurological disorders

Using the FDA criteria, less than 10% of the total number of patients below the age of 65 years in the world, needing a hip operation, would be suitable for hip resurfacing. Please check with your doctor before you take your decision.



Femoral Component Inserted





Everything You wanted to know about Knee Replacement

Is your knee causing you pain and restricted movement? These latest advances in Knee Replacement Surgery can change your life.



Mani (38) a father of two and a photographer was leading a reasonably contented life when all of a sudden he began experiencing shooting pains in his knee. An ex-hockey player he put it down to an old sports injury, treated it with painkillers. Two years later the pain in his legs were so bad that he could barely stand.

What was the problem?

The knee joint is a hinge joint. The surface of the bones are covered with cartilage which enables smooth movement of the knee. When this cartilage gets damaged due to various reasons it exposes the underlying bone leading to pain, swelling, stiffness and deformity in the knee. This is arthritis and this is what Mani was suffering from.

What causes arthritis?

There are more than 200 causes for arthritis. But the most commonly seen are:

- Degenerative osteoarthritis due to the wear and tear of aging
- Rheumatoid arthritis
- Gouty arthritis
- Post traumatic arthritis – Any neglected or poorly treated fractures or problems can result in arthritis at a later date.



Healthy Knee

Knee with osteoarthritis

Who can get this problem?

Anybody can suffer from arthritis. Degenerative arthritis and Gouty arthritis are usually seen after the age of 40-50 yrs. But Rheumatoid arthritis affects even children and some of them become crippled even at age 15 or 20.

How did they find a solution?

The concept of improving joint function by modifying the articular surfaces received attention since the 19th century. Pig's bladder,

nylon, cellophane etc., were tried in between the worn out surfaces of the bones. But the results were disappointing. Then the worn out surfaces were resected (sliced off) This provided good motion but lacked necessary stability. Then one side of the joint was changed in the 1950's but the results were not satisfactory. Finally in the 1970's the first tri compartmental knee replacement was performed. Ever since, the technology has improved tremendously. The implant design, material used, the surgical technique, everything has been fine tuned.

Today a standard total knee replacement will provide a painfree, stable, well aligned, mobile (0-120 degree) joint.

What's the challenge today?

As the life span of people increased and more and more young people were suffering from this problem, the challenge the surgeons began facing is the longevity of the joints.

A review of thousands of knee replacements all over the world revealed that accurate placement of the components, proper restoration of the mechanical axis of the lower limb and a good soft tissue balancing were the important deciding factors for the long term survival of the implant

Article



Knee Implant

So, in a total knee replacement the surgeons required technical assistance to achieve uniform results. This was made possible with computer navigation system. The computer navigation helps to place the artificial joints with zero degree error, restores proper alignment and good soft tissue balancing is achieved. With this the total knee replacement now-a-days can survive easily more than 20 years.

How does computer navigation work in knee replacements?

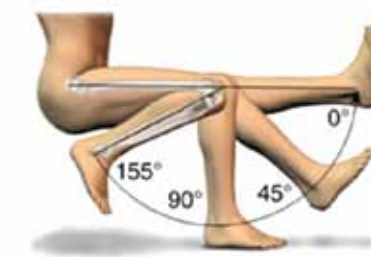
Reflective marker spheres, attached to the patients bone and to the cutting instruments, emit infrared rays which are captured by a camera near the operating field. This is converted into digital output on a monitor. During the procedure a real time working bone model is generated on a computer screen with an accuracy of < 0.1 mm. So, whatever we are planning to do on the bone is reflected on the computer which helps to avoid the mistakes.

Also, after a bone cut is performed, it helps to check the accuracy of the bone cut.

If required we can correct it then and there.

High flex knee:

Imagine if the affected person was a priest who has to sit cross legged everyday, or a policeman who has to jump in and out of a jeep.... A certain set of patients undergoing total knee replacement require high flexion in their knees for daily activities which may include kneeling, squatting or sitting cross legged. They are not satisfied with a



standard total knee arthroplasty which can provided movements up to 120 degrees. This led to the birth of hi - flexion knees with which the patient can bend the knees up to 150 degrees.

Minimally Invasive Surgery:

The two major concerns for the patients undergoing TKR was post operative pain and the length of the recovery period. This led to the evolution of minimally invasive total knee replacement. The redesign of the classic tools, new surgical techniques and computer navigation have made this new technology a possibility. If you think minimally invasive surgery is only about a cosmetically appealing surgical incision, you are mistaken. It offers broader benefits including minimal dissection of the tissues and muscles - resulting in less pain, less blood loss, quicker recovery and shorter stay in the hospital. In a month's time the patients are able to get on with their day to day activities.

A Happy Ending

After extensive medical consultations Mani too, underwent a Total Knee Replacement. Within two weeks he was back on his feet, and within a month he was climbing on stools to get the best vantage position for a shot. Soon the pain was a distant memory.

Revision Surgery for the Knee

Revision Surgery involves redoing the original replacement surgery. After the primary surgery is performed sometimes there is loosening of the implant, then revision surgery is done. Revision surgery involves removing the original implant and replacing the prosthesis.

The procedure for Revision surgery is significantly different. We have to use special instruments to extract the primary implant. Usually the bone is significantly damaged after the first replacement so the implants itself are designed differently. It calls for different sets of skills in redoing the surgery so there are very few centers for revision replacement surgery in India.

The prime reason for Aseptic loosening is malpositioning of the implant – improper alignment of the limb. If the balancing of the ligaments is not done well there will be wear and tear and debris will wear out the implant quickly. All of this can be avoided through computer navigation. Computer navigation helps in the perfect positioning of the implant. That combined with the use of the latest implant materials like the cross linked polyethylene spacers brings us closer to a Joint for Life.



Behind a Successful Hip Replacement

When you choose your daily attire, what factors govern your decision? Perhaps you perspire a lot and require a breathable outfit or maybe you are planning to spend the day cooking and require a material that is unlikely to catch fire. If you were faced with a situation where you could only pick only one garment to wear everyday for the rest of your life, what would it be?



That's the kind of choice you make when you choose an implant for a hip replacement. But let's backtrack a bit.

The need for Joint Replacement

The hip joint is a ball and socket joint. The ball is called the "femoral head" and the socket is called the "acetabulum". The ball glides smoothly in the socket and is capable of movement in all directions due to a covering of cartilage. The hip joint can be affected in a variety of ways producing pain, stiffness and lack of mobility. The femoral head itself can lose its blood supply leading to

softening and collapse of the ball, the cartilage could wear out resulting in direct contact of the bony surfaces or there could be a fracture of the neck of femur and acetabular fracture. These are some of the disorders that result in a need for replacement of the ball and socket joint.

Giving patients their life back

In the past, joint replacement was principally carried out to relieve pain. Now, we perform surgery on increasingly younger people. The aim today is to give patients their life back and at the same time ensure that the prosthesis stands up to the test of time. Our modern patients

would like a hip as good as their own, to enjoy absolutely all the activities they previously could and to get back to their usual work, recreation and sports.

Which brings us to the point where we started. The choice of an artificial joint.

Choosing an artificial joint

There are so many varieties of artificial joints on the market that it would not be wrong to say that there are as many prostheses as there are orthopaedic surgeons. There are also various materials that these joints are made from. The companies that make these joints all claim that their product or material is the best. Is it



Artificial Joint

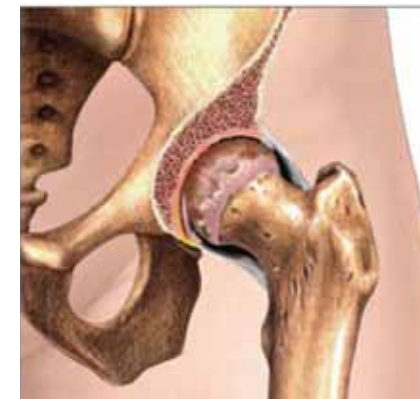
better to have metal on metal or ceramic on ceramic or metal on polyethylene? Is it better to go fully uncemented or fully cemented? A lot of the time these decisions are taken based on availability, cost and a personal surgical preference. What is the science? Is one better than the other?

Factors a surgeon should consider:

The main factors that govern a surgeon's decision are therefore:

- The quality of bone and the reason the joint wore out in the first place
- The age of the patient
- Co-existing factors – weak musculature, obesity, neurological disorders, etc
- Changes occurring to the bone
- Occupation/Activity

If, in a **young patient**, the ball was weak due to a reduction in blood supply, an uncemented ceramic on ceramic total hip replacement could be carried out. Ceramic on ceramic bearing surfaces have the least coefficient of friction. They produce the least amount of debris. Debris is produced in all joint replacements owing to movement between the ball and the socket. These particles affect the bond between the implant and



Diseased Hip Joint

the bone and produce loosening. This greatly reduces the longevity of artificial joints.

In an **older person**, suffering from Parkinsonism or obesity or a fractured neck of femur requiring total hip replacement, (conditions where there is a high chance of dislocation) it is ideal to use a big head (36mm or higher) to reduce the risk of dislocation.

In the **elderly**, where one encounters weak bone, it may be necessary to use bone cement to ensure proper stability and fit. As they may also have weak musculature, a cemented component could be combined with a big head to reduce the chance of dislocation.



Beware the badly placed implant

It is logical therefore that one has to choose carefully from an array of products to ensure each patient gets the best suited hip. But there is more. The angles in which the prostheses are placed affect their longevity and function. A badly

placed prosthesis could result in a huge restriction in mobility, prove to be unstable and dislocate easily or even wear out quickly. Careful pre-operative planning using radiographic images ensures that leg length inequality is corrected and post operatively the limbs are the same length. This results in a normal gait pattern being quickly established.

And finally... a Joint for Life

The surgical approach plays an important role too. Minimally invasive surgery involves virtually no muscle cutting. The need for blood transfusion is nil and faster mobility and early discharge reduce the chance of deep vein thrombosis and shorten hospital stay. All this translates to a great saving in cost for the patient. Less muscle damage also reduces the risk of dislocation.

The ideal hip inserted via an ideal approach results in the ideal result: A joint for life.

This is the MIOT promise.



The Quest For The Ideal Hip

In materials used, design and technology, hip implants have evolved over the years. Dr.Prithvi Mohandas takes us through the choices involved.

Artificial hip replacement implants are being constantly refined. The two main areas of research are the bonding of the implant to human bone and the smoothness of the surfaces (ball and socket) moving against each other. If the implant fully integrates with the patient's own bone and the moving surfaces do not wear out, then the prosthesis should logically last for a lifetime.

Charnley shows the way



No article about hip replacement can be complete without a mention of the contribution to its development by Sir John Charnley. He possessed a zeal to cure patients that led him to the first hip replacement that actually worked. He experimented with plastics by implanting them in his own body to see the effect they had on human tissue. The most durable with least harm to the human body was high density polyethylene. This provided



Total Hip Replacement

the artificial socket. The ball was a stem made of stainless steel ending in a 22mm diameter head. The two implants were held firmly by cementing them to the bone. This 'cement' had been used in dentistry and was a mixture of liquid and powder that 'set' within the bone.

Charnley was meticulous in his follow up and his patients continued to be studied even after he died. Over the years it became clear that the main reason for

implant loosening in the 10-15 years after surgery was the wearing out of polyethylene. Another factor that was picked up in centres offering the procedure for young patients was the breakdown in the bonding of the cement interface, especially in active patients.

So the two entities that were studied were durability and bonding. Some surgeons started using metal sockets with metal heads while others experimented with ceramics. The initial results with metal on metal were very encouraging. However there were problems with the debris produced when one metal moved on another. Also the early metal backed sockets did not bond well with the natural bone behind them. Further, patients with metal allergy (e.g. nickel sensitivity) produced a



Delta Ceramic



Cross-Linked Polyethylene



High Density Polyethylene



Ceramic on ceramic



Metal On Metal

Cutting Edge



Trabecular Stem with bone graft



Roughened Titanium Surface



Hydroxy Apatite Coated stem



Early Stainless Steel Stem



Hydroxy Apatite coated Socket

reaction to their implants, necessitating revision.

With respect to ceramic, the surfaces were extremely smooth and produced no wear. However, the first few batches were brittle and prone to fracture upon high impact. This made some surgeons sceptical when it came to their widespread use. The new generation 'delta' ceramics, however, are much stronger with proven durability during laboratory testing. A big step has been in the discovery of cross-linked and highly-cross linked polyethylene. This special polyethylene shows remarkable resistance to wear and studies carried out on retrieved samples five years after implantation show virtually no breakdown whatsoever.

Improvements in Bonding

Bonding and fixation of the

implants became increasingly important. Cement was thought to be the culprit. Hollow stems were produced and some were even filled with bone taken from the patient's pelvis. Titanium was found to have high affinity for bone and these stems were implanted with some degree of success. Hydroxy-apatite (from coral,) was thought to stimulate bone to grip the implant and was sprayed onto the prostheses. A roughened or rippled surface was thought to encourage bony ingrowth and this was incorporated into the stem and

socket designs.

The 15 year follow up of these uncemented stems shows no evidence of them losing the bone-prosthesis interface.

New Find

Tantalum, an element in the periodic table, is very much in the news. It is a material with the greatest affinity for bone, known to man. It is being used in the revision setting for loose sockets with bone defects and is starting to find its way into stem design.

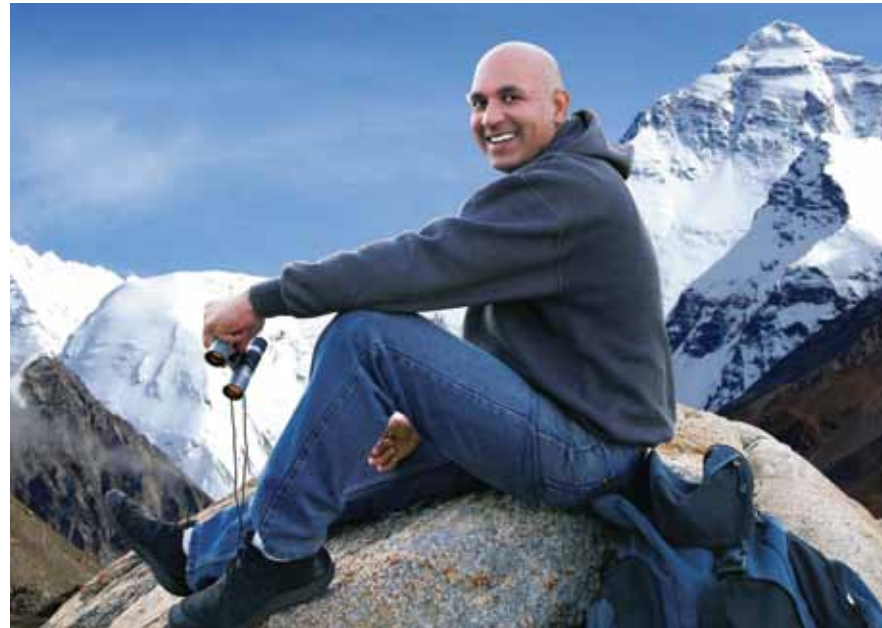
And the quest goes on....



Tantalum Socket with Augment

Cutting Edge

“My children can’t wait to see me stand on my own two feet again!”



On the fateful evening of June 9, 2005, in faraway Fiji, Mr. Sadasivam Reddy had no idea what was around the next corner on his drive home.

An oncoming vehicle collided with his, leaving him unconscious and bleeding. He was rushed to hospital where investigations revealed that his left thigh had broken into 2 distinct pieces and his right foot was crushed. Doctors who operated on him told him that his right thigh required complicated and expensive surgery which they were not equipped to perform. They suggested he try elsewhere. An acquaintance recommended MIOT Hospitals in Chennai, India.

Was there light at the end of the tunnel?

Xrays and reports were mailed to MIOT shortly thereafter. Soon they were flying down to Chennai, the

hometown of his grandmother almost 80 years ago

“Putting Patients First”

Mr. Reddy was put through a thorough evaluation to determine his exact condition. This was critical in deciding the surgical process and in choosing the prosthesis which would work best for him. November 21st 2007 was fixed for the surgery. Even as the expert surgical team went in, they saw the massive damage that had been caused by the impact of the accident. The joint had been totally crushed.

Step by step....towards walking one day

It was obvious to the expert team that they would not only have to recreate the entire joint but also rebuild the shelf on which it would rest once again. First the damaged parts of the bone were removed

using miniature instruments. A total bone graft was then performed using bone from the pelvis wall itself. Again using miniature instruments the prosthesis was inserted. The entire surgery, which had to be meticulously performed took long hours. But it was worth it. As the last stitch was put in, an intense sense of satisfaction swept through the entire team for having put an entire system back in place.

The road to complete healing

The bone had to grow back again, and the prosthesis had to bond with the natural bone for the surgery to be declared an absolute success. However- while Mr Reddy held his breath - subsequent X rays showed that all was fine. The newly created system was holding up and everything stayed in place. Reddy was advised complete rest initially, though soon he could move his legs – at last, without pain. A simple pleasure after years of suffering.

Whole again; home again.

As he prepared for his long flight back home Mr Reddy recalled his children’s parting words – “We want to see you standing on your own feet again, Daddy.” As his flight soared into the skies far above the land of his forefathers, he sent a silent thank you to them for watching over him at his time of need.

“From Bike to Bed.. and Back”

Painful arthritic knees kept Mr. Palaniappan away from the small joys of his life. Could we restore it? Dr. Lenin recounts the difference a knee replacement can make.

As a busy orthopaedic surgeon I come across hundreds of cases every year. Few cases make a mark and remain in my memory – either because of the complexity of the case or the character of the patient. In the case of Mr. Palaniappan it was both of these.

Mr. Palaniappan was a 75 year old gentleman from Pollachi. After a life spent in Government service, he was enjoying his retirement. The highlight of his day was getting onto his M80 scooter and driving up to a nearby teashop, where he would gather with his friends.

With age, came pain in both his knees, but as long as it wasn’t unbearable he ignored it and continued to go about without any treatment. Even when the pain was bad Mr. Palaniappan didn’t want to miss his outing. He would get someone to start his scooter and help him on it and then drive to the tea shop.

Two wheeler to wheelchair

Slowly but steadily the arthritis in his knees progressed till the deformity became very severe and he became bedridden. He was brought to MIOT hospitals. The first time I saw him – he was in a wheelchair with agony written on his face. He had been in bed for almost 6 months without taking a single step. Of course the days of tea-shop visiting were far behind him. In fact his pain was so severe

he could not sleep at night even with pain killers.

I examined him and realised that the only way to improve his quality of life was to offer him a total knee replacement. Not an easy task – the deformity in his knee was severe and he had not walked for 6 months.

Didn’t want to be a burden

Mr. Palaniappan had been advised to undergo replacements some years ago but felt then that it was unnecessary at his age. But now that he was crippled he realized that he was a burden on the other members of the family. This time he readily accepted the advice. He underwent Total Knee Replacement using hi-flex knees, one after another. His deformity was completely corrected.

After the surgery he was made to stand and walk with help. Initially he could do neither. His relatives began wondering whether the surgery was a success. Seeing his faltering steps they doubted if he would ever walk again.

Would he ever walk again?

Determined to return to mobility, Mr Palaniappan gave it his all and improved everyday till he was able to stand and walk with help, at the time of discharge.

I saw him again 2 months after surgery. He was improving, he said and was able to walk within the house, without support. I could see in him the desire to reclaim his life.



A year went past and one busy day when I was in the OPD seeing patients, I saw a familiar face. It was Mr. Palaniappan heading towards me, with his relatives. Most importantly he was walking completely normally.

Road to Recovery

Everyone in his family were delighted at his progress. Those who had seen him crippled and in the early days after surgery could not believe the outcome. He told me he was completely relieved of pain, his legs were straight and he was able to bend his knees upto 150 degrees.

He had celebrated his recovery by buying a new scooty and had been enthusiastically welcomed back by his friends at the tea shop. This was one of the most quietly satisfying moments in my life.



The Challenges of Revision Surgery

What happens when a knee or hip replacement surgery needs to be redone? How can you make sure that you get a “joint for life” this time around?

Why Revision Surgery

Revision surgery is replacement surgery that needs redoing. The earliest implants were done in India in the 1970's. Many of these are now coming up for revisions. There may be several reasons why revision surgery for the hip is necessary.

- **Old technology** – the early implants were made with materials not designed to last in a young active person.
- **Wear and tear** – The implants were worn out due to activity.
- **Implants are loosening** – This happens when the bond (cement) deteriorates.
- **Weak bone** - Sometimes the bone is soft and the implant starts eroding into the bone – This can cause severe pain.
- **Infection** - If implant is infected than it would need to be removed. There is also a theory that massive infection anywhere in the body (like an abscess in the mouth) may lead to the implant becoming affected.
- **Accident or Fall** - If there is an accident or fall the bone gets broken and the implant may be dislodged, requiring revision surgery.



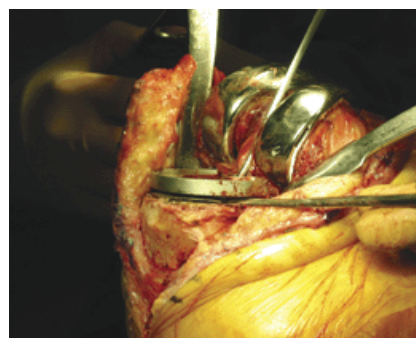
Loose acetabular implant

If there are no unusual situations like this an implant is expected to last for over 15 years.

When do you need revision?

If your joint is pain free and gives you full mobility then the implant is said to be functioning successfully. If you begin to experience symptoms like frequent pain when you use the joint or loss of function – you find that you can't do many of the things you were used to doing, then it is a clear indication that you may need a revision surgery.

Neglecting to address the problem might result in one leg becoming



Infected Implants

shorter than the other.

The Challenge in Revision Surgery

Revision surgery involves taking out the defective implant and replacing it with one which will relieve symptoms and give longevity. It is more challenging than just replacement surgery. For a start, while inserting the original implant into the bone, a significant portion of the bone would have already been used.

The challenge then is to use the bone beyond that area or find an implant that will grip the existing bone differently. An implant will not “take” on dead bone or non-viable bone.

If the bone is not viable we may need to reconstruct the bone using a graft from another part of the body. Sometimes if the revision surgery is delayed then the surrounding nerves and muscles may have suffered trauma or changed position. All this has to be

taken into account for a successful revision.

The Process of Revision

The first step is studying the damage. We need to plan how to remove the implants with minimum damage to the bone. The viability of the bone will be studied - in case reconstruction may be required. Finally the right implant must be chosen - one that will work in the setting without causing trauma to the patient, and will absorb the stress of the body till the bone grows strong.

The implants used for revision surgery are different from the implants used for replacement surgery. The surgical instruments



Surgical Instruments

too are different – some of the instruments like re extractors are designed specifically to extract the damaged implants and some are designed to deal with fragile bone. Research is ongoing in the area and new developments are encouraging. Devices like the Xplant – an extractor device that removes the socket without taking out the bone, have entered the field. Implants may soon be made out of Tantalum, a new element on the periodic table that has shown a huge affinity for bone.

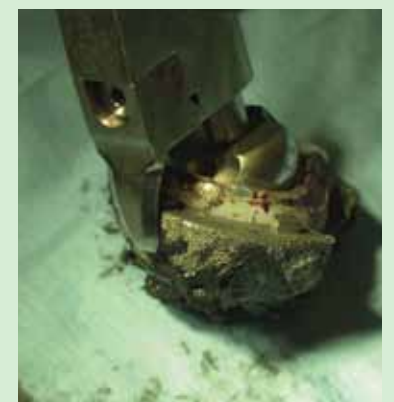


One of few Centres

There are only a few centers for Revision Surgery in India. MIOT is a very experienced center - 30% of the orthopaedic surgeries performed here are Revision surgeries.

The surgery takes 3 hours to

perform and the patient is ready to be discharged in two - three weeks. You can return to work and resume normal activities after a month.



X-Plant



We make the dreams
of little heart patients
come true



CHILDREN'S
HEART INTERNATIONALE MIOT

A charitable fund to help children with congenital heart disorders www.chimemiot.com