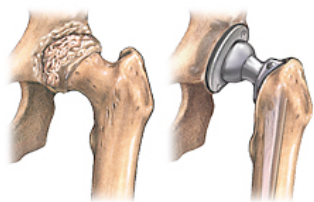


## Hip Replacement Surgery – A Guide to Prevention and Recovery for Acupuncture Practitioners



ADAM Fig.1

### Hip Replacement Surgery – Defined:

Also called *Total Hip Arthroplasty*, the surgical procedure involves removing a damaged or diseased hip joint and replacing it with an artificial joint, called a prosthesis (Fig.1). Hip prostheses consist of a ball component, made of metal or ceramic, and a socket, which has an insert or liner made of plastic, ceramic, or metal. The implants used in hip replacement are biocompatible — meaning they're designed to be accepted by the body — and they're made to resist corrosion, degradation, and wear. The goal of hip replacement surgery is to relieve pain and increase the mobility and function of a damaged hip joint.



Fig.2 Fig.3

### Hip Replacement Procedure Details:

During a traditional hip replacement, which lasts from 1 to 2 hours, the surgeon makes a 6- to 8-inch incision over the front or side of the hip (Fig.2) through the layers of tissue, including the muscles. Diseased and damaged bone tissue and cartilage are removed from the hip joint, leaving the healthy parts of the joint intact. Then the surgeon implants the prosthetic socket into the acetabulum and replaces the round top of the femur with the prosthetic ball, which is attached to a stem that fits into the femur (Fig.3). The new hip is made of materials that allow a natural gliding motion of the joint.

In recent years, some surgeons have begun performing minimally invasive replacements, which require smaller incisions and a shorter recovery time than traditional hip replacements. Candidates for this type of surgery are usually age 50 or younger, of normal weight based on body mass index, and healthier than candidates for traditional surgery. Joint resurfacing is another surgical technique being used.

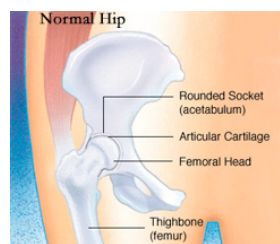


Fig.4

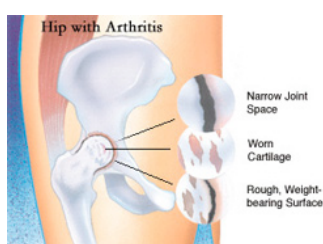


Fig.5

### Normal Hip Anatomy:

The hip is one of the body's largest weight-bearing joints. It consists of two main parts: the femoral head at the top of the femur that fits into the acetabulum in the pelvis (Fig.4). Ligaments connect the femoral head to the acetabulum, forming the hip joint capsule and providing stability to the joint.

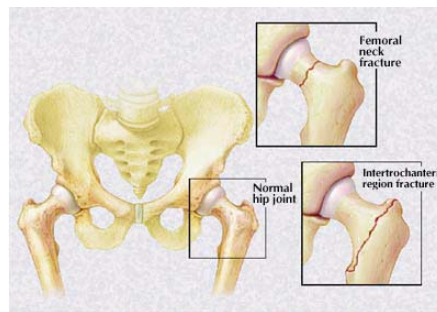
The bone surfaces of the femoral head and acetabulum have a smooth durable cover of articular cartilage that cushions the ends of the bones and enables them to move easily. A synovial membrane covers all remaining surfaces of the hip joint. In a healthy hip, this membrane creates a small amount of synovial fluid that lubricates the joint, eliminating friction from normal joint motions.

### Indications for Hip Replacement Surgery:

Indications for hip replacement surgery are conditions causing chronic hip pain, stiffness, and disability, with forms of arthritis being the most common causes (Fig.5):

- **Osteoarthritis** – usually occurs in people 50 years of age and older and often individuals with a family history of arthritis. It may be caused or accelerated by subtle irregularities in how the hip developed. In this form of the disease, the articular cartilage cushioning the bones of the hip wears away.

- **Rheumatoid arthritis** – an autoimmune disease in which the synovial membrane becomes inflamed, produces too much synovial fluid, and damages the articular cartilage.
- **Traumatic arthritis** – involves damage to the articular cartilage following a serious hip injury or fracture.



© Mayo Foundation for Medical Education and Research. All rights reserved. Fig.6

- **Hip fracture** – is a femoral fracture that occurs in the proximal end of the femur near the hip (Fig.6). Hip fractures are often fragility fractures due to a fall or minor trauma in someone with weakened osteoporotic bone. Risk factors include:
  - Elderly women
  - Previous hip injury or family history
  - Abnormal hip structure/Geometry
  - Smokers, alcohol and corticosteroid users
  - Skinny or frail individuals
  - Individuals with a reoccurring fear of falling
  - Sedentary lifestyle
  - Lack of calcium and vitamin D
  - Endocrine/Intestinal disorders
  - Some long-term medication use
- **Osteonecrosis** – occurs when there is inadequate blood supply to the ball portion of the hip joint. This is a common complication of a hip fracture.
- **Bone tumor** - is a lump or mass of tissue that forms when cells divide uncontrollably. A growing tumor may replace healthy tissue with abnormal tissue. It may weaken the bone, causing it to fracture.

### Signs and Symptoms for Patient Referral to an MD/Patient Consideration for an Elective Hip Replacement:

- Persistent hip pain, despite pain medication
- Pain exacerbated by walking, even with a cane or walker
- Poor sleep due to pain
- Difficulty going up or down stairs
- Trouble rising from a seated position
- Inability to participate in formerly enjoyable activities because of pain

### Complications After Hip Replacement Surgery:

- Infection
- Blood clots
- Joint dislocation, Loosening, Wear
- Osteolysis
- Metal sensitivity/Toxicity
- Blood vessel and Nerve damage i.e. Nerve Palsy
- Leg length discrepancy
- Chronic pain

### Hip Replacement Surgery: Assessment and Treatment

#### A Note on Assessment:

An Alarming Fact: 50% of patients over age fifty die within a year of complications of fracture vs. 1% from elective surgery.

Elective hip replacement surgery is based on a patient-MD decision to have a hip replacement prior to the outcome of a hip fracture (indication for emergency surgery). Patients who demonstrate risk factors of a hip fracture or who have conditions causing chronic hip pain and disability can be candidates for elective hip replacement surgery.

As a practitioner, it is important to be able to recognize the risk factors of a hip fracture as well as refer a patient to an MD for further evaluation when they exhibit signs and symptoms of chronic and debilitating hip pain.

#### Assessment and Treatment Guidelines:

We as acupuncturists can help with:

- 1 - Prevention
- 2 - Ease pain while on elective surgery waitlist

- 3 - Improve quality of life or offer alternatives for those who do not wish to have surgery
- 4 - Assist with rehabilitation and recovery

### Hip Physical Assessment:

A number of physical assessment techniques can be used in order to recognize warning signs of hip pathologies prior to severe injury, to find or rule out current hip pathologies, and to monitor treatment progress as a preventative measure or during post-surgery recovery.

Routine Hip Assessment is done in both standing and supine positions with proper lighting and draping and includes:

- **Inspection:** gait, masses, scars, lesions, signs of trauma such as swelling/redness/increased skin temperature, signs of previous surgery, bony alignment (i.e. abnormal rotation of legs), muscle bulk and symmetry at the hip and knee
- **Measurements:** True Leg Length is measured from the ASIS to the medial malleolus when the pelvis is squared; In Hip Fractures, the affected leg is often shortened and externally rotated
- **Palpation:** of the greater trochanter for pain, tenderness, swelling, and/or temperature discrepancies

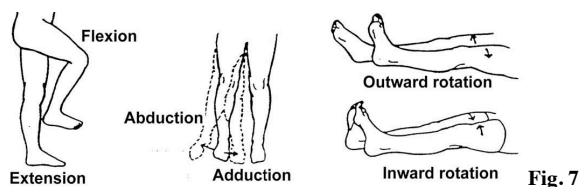


Fig. 7

- **Movement:** assess hip ranges of motion and use as a tool to monitor treatment progression (Fig.7). Normal hip ranges of motion:
  - Internal rotation - 35°; External rotation - 45°; Flexion - 135°; Extension - 15°; Abduction - 45°; Adduction - 25°
- **Special Maneuvers:** Hip Sway Sign, Trendelenburg's Test, Patrick's/FABER Test, Anvil Test, Ober's Test, Thomas Test
- **Other Tests:** A series of knee tests should be undertaken in the ipsilateral knee to rule out knee pathologies involving the joint and/or muscles

### Diagnostic Imaging:

It is common for diagnostic imaging procedures such as X-Rays to fail in detecting hip fractures. If a patient with a suspected hip fracture has yet to have imaging performed or has, but with continued negative results, suggest the patient see an MD to order appropriate imaging. It is better to clearly rule out pathologies than to leave them undetected. Furthermore, any patient demonstrating severe hip pain and debilitation should have imaging performed.

### Treatment Methods for Prevention and Post-Surgery Recovery

#### Acupuncture Motor Points:

Focus on releasing or strengthening hip muscles to reduce pain and improve hip ROM. A basic ROM Assessment as well as Muscle Palpation can determine the muscles that need to be worked on.

- Piriformis MP, Gluteus Medius MP, Gluteus Minimus MP, Gluteus Maximus MP, Tensor Fasciae Latae -TFL MP, IT Band Ashi Points, Jian Kua Extra MP, Obturator Externus MP (Note: this muscle insertion is sometimes cut during hip replacement surgery), Obturator Internus MP, Quadratus Femoris MP, Psoas Major MP - Iliacus MP, Consider: Adductor Group MPs (Add. Magnus, Add. Longus, Add. Brevis, Pectineus, Gracilis)

#### Local TCM Acupuncture Points:

- Hip: GB25, GB29, GB30, Huang Zhong, ST31, Yao Yan

Other common places affected with hip pathologies and recovery:

- Knee: He Ding, ST35, Xi Yan, SP9, GB34
- Ankle: ST41, SP5, GB40, UB60, KD3
- Low Back & Spine: Du26 (acute), Du3, DU12, UB52, UB54

#### Distal TCM Acupuncture Points & Herbal Formulas

Preventative measures for patients with chronic hip pathologies:

- Phlegm Accumulation: ST36 & ST40
- Blood Stasis: REN17, SP10, UB17, UB40
- Qi & Blood Deficiency: ST36, SP6, REN4, REN6, DI20, UB20
- Influential pt of Marrow: GB39
- Internal Herbal Formula: Du Huo Ji Sheng Tang

For Post-Surgery Recovery:

- Tonify Spleen to Strengthen Muscles: REN6, SP3, SP6, UB20, UB21
- Tonify Kidney to Strengthen Bones: REN4, DU4, KD3, KD6, UB23
- Nourish Liver to Nourish Tendons: LV3, LV8, SP6, UB18
- Move Qi and Blood: REN17, UB17, UB40, SP10, LV3 & LI4
- Calm the Spirit: DU20, Si Shen Cong, Yin Tang, HT7
- Open the Dai Mai: SJ5 & GB41
- Influential Pt of Bones: UB11
- Influential Pt of Marrow: GB39
- Influential Pt of Tendons: GB34
- Pain: PC6, ST36, GB40, GB41, LI4
- Topical Herbal Formula: Zheng Gu Shui
- Internal Herbal Formulas - Should be suited to individual constitution and pattern, along with Qi and Blood moving herbs

#### Auricular Acupuncture Point Suggestions:

- Hip Joint point; Pelvic Cavity point; Buttocks point; Knee, Ankle, Lumbo-Sacral Vertebrae, Shoulder points, Liver, Spleen, Kidney points; Neurasthenia point - to relieve pain; Ear Shenmen point - to relieve pain, tension, and stress; Autonomic point - to improve blood circulation

#### Other TCM Treatment Protocols:

- Huatuotui Paravertebral points - Hip joint and surgical incision innervations are from L1-S2

- UB22-UB28, UB31, UB32 - These points also innervate the spinal nerves of L1-S2. A study presented intradermal needling along the posterior inner Urinary Bladder line to induce successful postoperative analgesia

- Shiqizhuixia "Below the Seventeenth Vertebra" - An extra point on the midline of the lower back, in the depression below the spinous process of L5

- Local intradermal needling and moxa during acute postoperative recovery phase - As surgical incision and deeper tissues are still healing, one should avoid deep needle insertion that could damage tissues still in repair. Focus on local UB and GB channel points. Even superficial stimulation using intradermal needles can increase flow of Qi along these channels and therefore contribute to the initial recovery process. Acupressure can also achieve this function. In addition, consider moxa for the acute recovery phase to warm the channels and stimulate Yang Qi flow.

- Later in the recovery phase, when the patient's incision has fully healed and significant ROM has been restored, other TCM treatment techniques may be implemented. These include cupping, especially along the IT Band, Gua Sha, and Tui Na. Gentle passive range of motion exercises of the hip would also be beneficial.

#### An Important Note on Patient Treatment:

Acupuncture is an adjunct therapy to patient recovery from hip replacement surgery. Some gentle and considerate techniques may be implemented for acute postoperative recovery, while many other more aggressive techniques may be used once a patient has undergone significant tissue repair. Acupuncturists will work with other medical professionals to contribute to a patient's full recovery. Physiotherapists and other orthopedic rehabilitation specialists, as well as MDs, chiropractors, and massage therapists may all be involved. Throughout a patient's recovery process, it is important to receive communication about a patient's recovery/rehab process. Such communication may include surgical procedure outlines and recovery recommendations, imaging such as X-Rays or CTs, and routine rehab reports. It is also important for patient's to notify their other practitioners that they're receiving acupuncture and other TCM therapies.

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