Surgical approaches to the hip joint

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Abstract

Several surgical approaches to the hip joint have been described over the years. Each approach offers certain advantages as well as has its own unique limitations. Access is the key for success; it is essential for the surgeons to be aware of the different surgical approaches in order to deal with variable complex clinical situations. A good surgical approach dissects the anatomical planes to achieve adequate access, with least possible soft tissue damage.

Damage to the soft tissues may lead to compromised function; this is particularly relevant in elective orthopaedics where the majority of surgical procedures are performed to improve function.

Keywords hip joint; surgical approach; surgical technique

Introduction

Surgical approaches are dissections through tissue planes that use anatomical knowledge to limit the amount of dissection required and minimising risk to neurovascular structures. An ideal surgical approach to the hip joint should follow inter-nervous and inter-muscular soft tissue intervals to limit soft tissue damage, in order to allow adequate access to both the femoral head and the acetabulum. The ideal surgical approach should also allow for proximal and distal extensile approaches if indicated. The relatively small size of the hip joint with its deep anatomical location coupled with the close proximity to important neurovascular structures, conspire to render surgical approach a matter of some difficulty. This difficulty is well illustrated by the great number of different surgical approaches adopted by different operators. Each surgical approach has both positive and negative attributes and will be discussed further.

Classification

Surgical approaches to the hip joint fall into two main groups.

1) Approaches which access the hip joint in front of or behind, the intact gluteus medius.
2) Approaches which access the joint by division of the gluteus medius tendon insertion through the tendon or through the trochanter.

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Surgical approaches to hip with the intact gluteus medius tendon

These approaches can be further classified based on the anatomical direction to access the joint:

Medial approach

Access the hip joint through the adductor region between adductor longus and the gracilis.

Anterior approach

Exploits interval between the sartorius and the tensor fasciae latae (TFL).

Anterolateral approach

Utilizes interval between the gluteus medius and the TFL.

Posterior approach

Access to the hip joint is gained by splitting the gluteus maximus and taking down the short external rotators.

Lateral approach

The lateral approach accesses the hip joint from lateral direction through the abductor mechanism. These approaches can be further classified based on the technique used for division of the abductor mechanism:

Through the greater trochanter:

- Trans-trochanteric
- Trochanteric flip osteotomy- Bernese approach for surgical dislocation of the hip joint

Through the gluteus medius tendon

- Direct lateral approach

The medial approach

History

This approach was developed by Ludloff[1] in 1908 for surgery of congenital hip dislocation in early childhood. The superficial muscular interval for the Ludloff approach is believed to be between the sartorius and the adductor longus with the deeper interval being between the iliopsoas and pectineus, although Ludloff did not precisely define the interval in his original German articles. A review by Mallon and Fitch[2] clarifies the anatomical intervals for the various medial approaches.

Ferguson's modification[3] in 1973 popularized this approach. In Ferguson's technique (Figure 1), the superficial muscle interval is between the gracilis and the adductor longus and the deep interval between the adductor brevis and the adductor magnus.

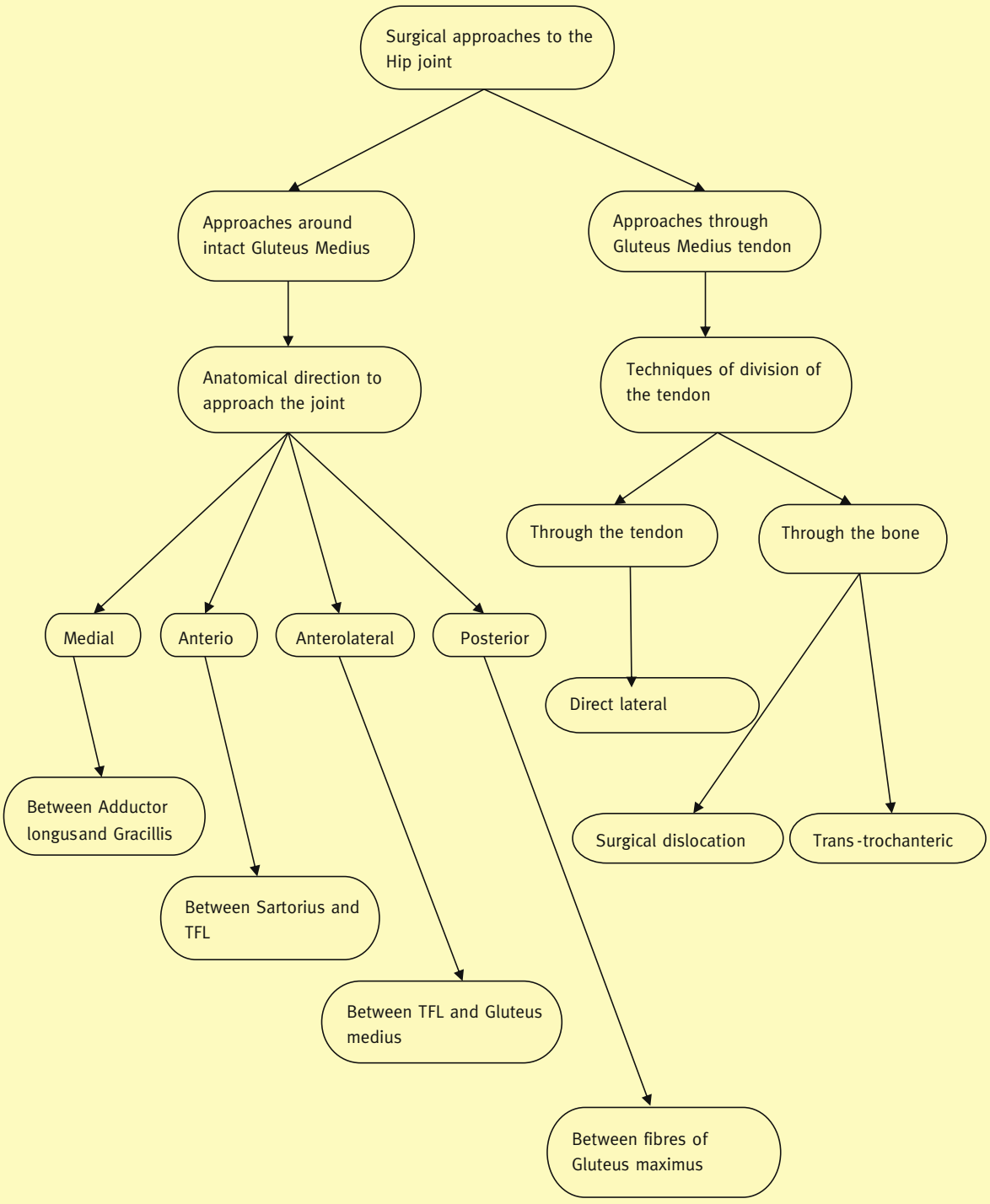
Position

Supine position with hip flexed, abducted and externally rotated.

Skin incision

A longitudinal skin incision, 3 cm distal to public tubercle is made in line with adductor longus. Transverse skin incision along the groin crease gives a better scar than longitudinal incision.

Flow chart for classification of surgical approaches to hip joint



Superficial dissection

Superficial plane is between the adductor longus and the gracilis.

Deep dissection

The deep dissection is in the interval between the adductor brevis and the adductor magnus. Identify the anterior branch of the obturator nerve lying on the anterior surface of the adductor brevis and the posterior branch of the obturator nerve is visible on the belly of the adductor magnus.

Retract the adductor longus and brevis anterior and the gracilis and adductor magnus posterior in order to expose the lesser trochanter and the capsule of the hip joint at the floor of the wound.