Patient positioning and preparation:
Place the patient in lateral recumbency with the affected limb up. Clip the limb from the tarsus to the dorsal and ventral midline. Aseptically prepare all clipped skin. Wrap the unclipped distal limb with a water-proof material (drape, foil, etc.) and then cover it with vetwrap. Drape the entire limb in the sterile field to allow for manipulation during the procedure.

Surgical approach:
Standard craniolateral approach to the hip:
- Make an incision through the skin and subcutaneous tissues from just cranial to the mid-femur to the greater trochanter, then that same distance from the greater trochanter dorsally.
- Incise the superficial leaf of fascia lata at cranial border of the biceps femoris muscle.
- Incise the deep leaf of the fascia lata distally and between the tensor fascia lata muscle and superficial gluteal muscle proximally.
- Use blunt dissection to expose the joint capsule, middle and deep gluteal muscles, and vastus lateralis muscle.
- Use blunt dissection to separate the deep gluteal muscle from joint capsule.
- Perform a partial tenotomy of the deep gluteal muscle.
- Transect the vastus lateralis at its origin on the femoral neck.
- Make a T-shaped incision in the joint capsule along craniodorsal acetabulum and femoral neck. Clear the joint capsule from the femoral neck.

Surgical technique:
- Transect the ligament of the head of the femur with curved scissors or a Hatt spoon.
- Externally rotate the femur such that the patella is facing straight up and stifle joint line is parallel with the table.
- Place retractors deep to the femoral neck to protect the underlying soft tissues.
- Excise the femoral head and neck. The osteotomy line should run from the medial aspect of the greater trochanter (caudal aspect of the intertrochanteric fossa) to the lesser trochanter.
  - **Oscillating saw** – Hold the saw perpendicular to the table, then angle slightly caudomedial and perform one smooth cut.
  - **Osteotome** – Predrill holes along the planned osteotomy line (same orientation as for the saw) with a small drill bit or Kirshner wire. Hold the osteotome in same plane as the predrilled holes and complete the osteotomy with a mallet.
  - **Gigli wire** – Use ronguers, a drill, or an osteotome to create notches at the proximal and distal edges of the planned osteotomy, then score the planned cut with an osteotome. Protect the surrounding musculature with retractors. Complete the osteotomy with gigli wire from notch to notch along the planned line.
- Remove the femoral head and neck by transecting any remaining joint capsule.
- Put the hip through a range of motion to evaluate for crepitation. Palpate the osteotomy on the femur. There should be a smooth surface from the greater trochanter to the lesser trochanter (you can feel the attachment of iliopsoas muscle). The most common error is residual caudal femoral neck.
- Remove any remaining femoral neck with a rongeur and smooth the bone with a bone rasp.

Surgical closure:
- Close the joint capsule over the acetabulum with mattress sutures.
- Re-appose the deep gluteal tendon with mattress sutures.
- Close the vastus lateralis to the middle or deep gluteal muscle.
- Close the tensor fascia lata muscle/fascia lata to the biceps femoris muscle.
- Close the subcutaneous tissues and skin routinely.
Potential complications:
- Incomplete excision
- Persistent lameness
- Muscular atrophy
- Poor functional outcome
- Infection
- Limb length disparity
- Patellar luxation

Specific aftercare:
- Aggressive analgesia
- Start controlled activity early in the post-operative period.
- Early aggressive physical therapy

Modifications of the technique:
Femoral Head and Neck Ostectomy Through a Ventral Approach to the Hip:
- Place the patient in dorsal recumbency with the medial thigh clipped and aseptically prepared.
- Make an incision through skin and subcutaneous tissues from the acetabulum to the proximal 1/3 of the femur along the pectineus muscle.
- Bluntly free the pectineus from the underlying tissues. Take note of the femoral artery and vein just cranial to the pectineus muscle.
- Transect the pectineus at its origin and retract it distally.
- Retract the medial circumflex femoral artery and vein proximally if needed.
- Retract the iliopsoas muscle cranially.
- Incise the joint capsule and clear it from the femoral neck.
- Perform a femoral head and neck ostectomy from the lesser trochanter to base of greater trochanter, both of which are visible from this approach.
- Assess the osteotomy site as with the craniolateral approach.

Closure:
- Close the pectineus muscle to the prepubic tendon with mattress sutures (may not be necessary).
- Close the fascia, subcutaneous tissues, and skin routinely.

Benefits:
- Avoid dissection through hip musculature.
- Better visualization of osteotomy line.

Specific Complications:
- Major hemorrhage
- Damage to saphenous nerve

References