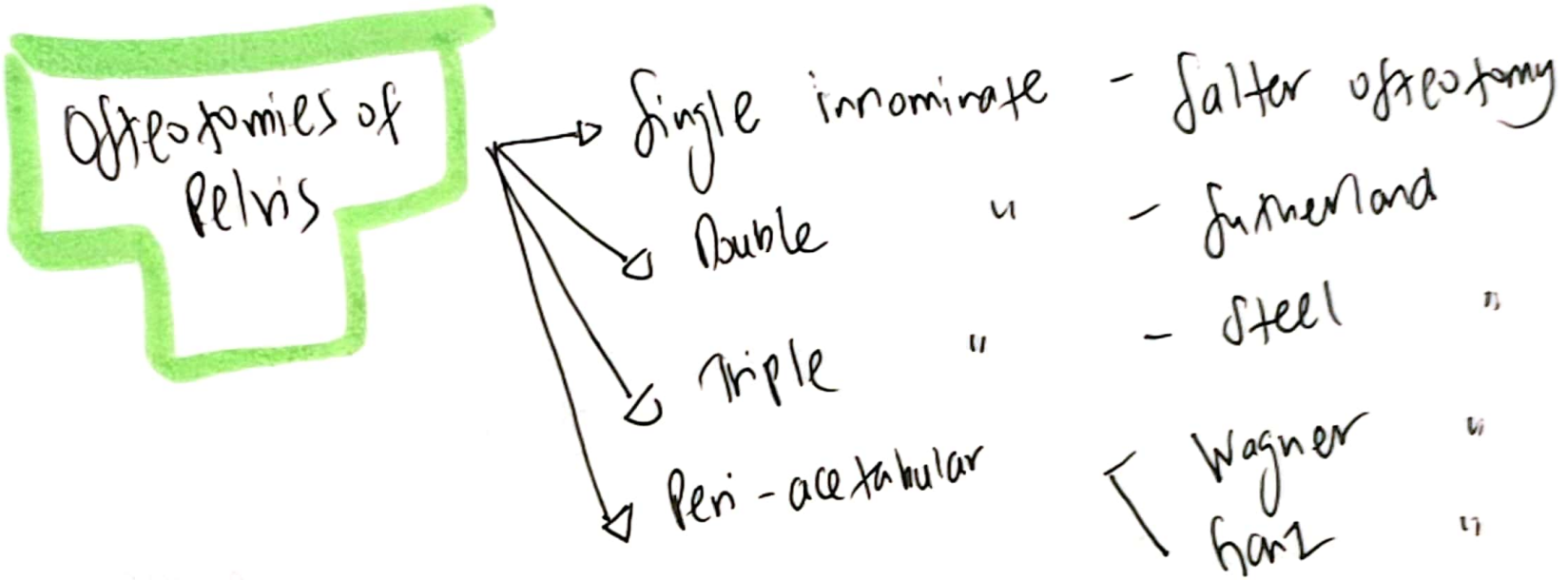

Osteotomies of Pelvis
Single innominate - Salter osteotomy
Duble " - Sutherland
Triple " - Steel "
Peri-acetabular - Wagner "
Ganz "

The clinical evaluation of a patient who is being considered for an osteotomy of the hip must include the usual evaluation of stance, gait, limb lengths, strength, and range of motion. The range of motion in all planes, with particular attention to which arcs are painful and which are not, is extremely important in the evaluation of an osteoarthrotic hip. Any limitation of the range of motion of the hip has important implications for realignment osteotomies, which may further alter the arc of motion (minimum prerequisite= 90° flexion, 15° abduction/adduction)

- Leg lengths (effect of FFD)

Varus osteotomies may shorten the limb.

Planning

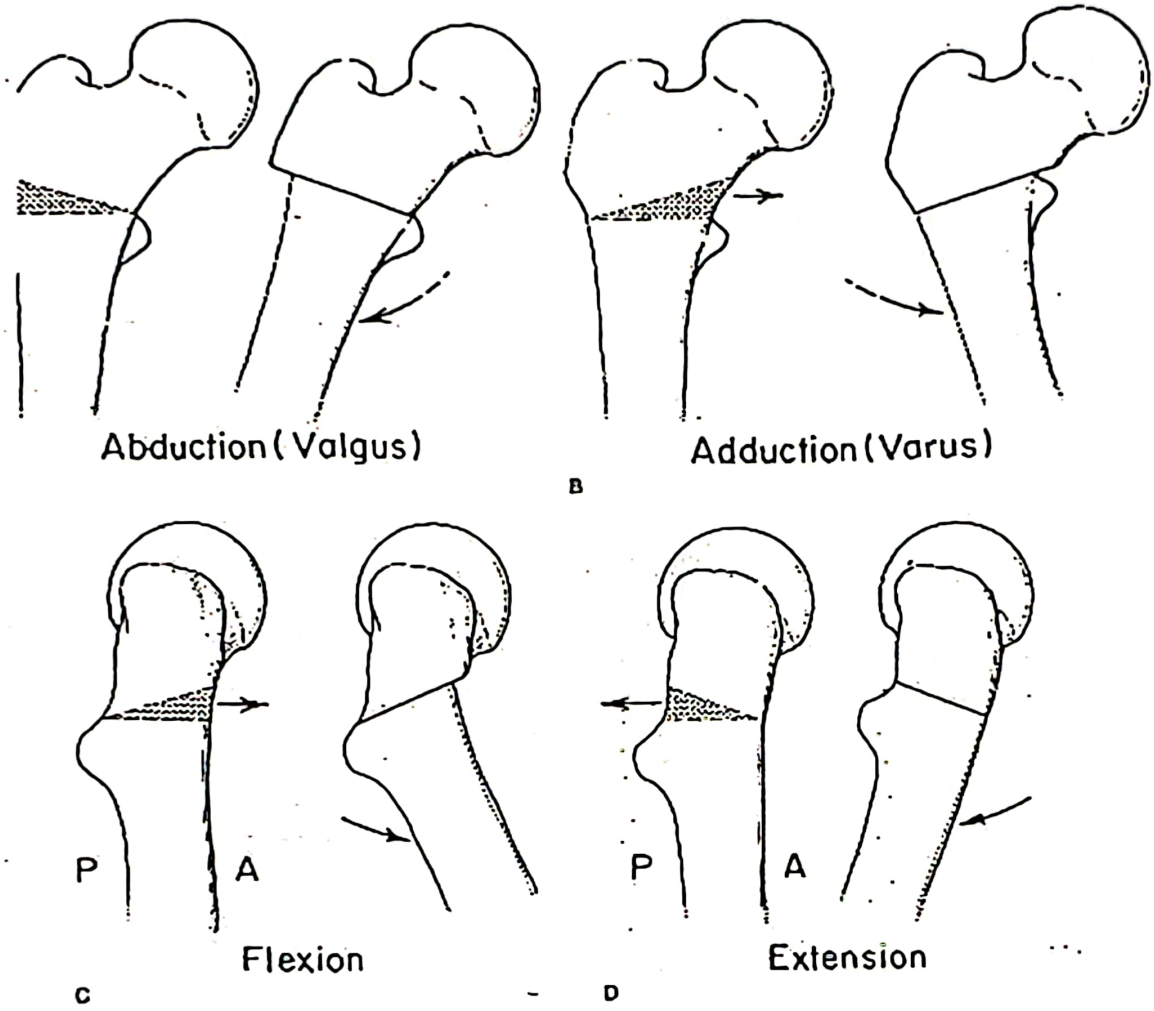
- Careful pre-operative planning required to find the position in which there is least pain and the joint is congruent
- For varus osteotomy must have >15deg. abduction preop.
- For Valgus osteotomy must have >15deg. adduction preop.
- AP and lateral X-rays are taken in adduction/abduction
- Berne or Faux profile view (WBing 25deg. profile) - shows anterior uncovering.
- CT or MR can give additional information
- Best results are in young, non obese patients with a good range of motion (minimum 90° flexion, 15° abduction/adduction)
- Femoral osteotomy may distort the anatomy which may jeopardise a future THR
- Need to determine:
  1. The amount & direction of correction
  2. choice of implant

Varus Osteotomy

- generally indicated where lateral subluxation is associated with coxa valga.
- Require good range of abduction prior to surgery.
- Relaxes adductors, abductors & flexors.
- Disadv- shortens leg.
- must have >15deg. abduction preop

Valgus Osteotomy

- Indic:
    1. uncovered head made worse by abducting hip
    2. deformed head with lateral osteophyte (post Perthes)
    3. fixed adduction deformity
- can add lateral displacement of greater trochanter to reduce hip joint reaction forces
- must have >15deg. adduction preop.



Discuss the role of osteotomy in the management of OA in hip & knee.

Hip osteotomies in OA hips

Most osteoarthrosis of the hip results from chronic abnormal hip mechanics,often associated with instability,impingement,or combinations of instability and impingement. The aim of an osteotomy is to realign the weight bearing surfaces of the joint to allow normal areas to articulate and thus moving the abnormal area away from the weight bearing axis.

↑ Surgical corrective procedure to obtain a correct biomechanical alignment of extremity to achieve equivocal load transmission performed c/ bone removal of portion of bone

OSTEOTOMY = Reduce point loading & improve congruity

to restore proper biomechanics

This can be achieved by either performing a proximal femoral osteotomy, pelvic osteotomy or both.

↑ osteotomy of hip jt

The goal of the osteotomy is to relieve pain and improve function while preserving bone stock, because the osteotomy may be the first in a series of operations that the patient will need during his or her lifetime.

In well selected patients, a technically well executed salvage osteotomy offers an excellent chance of satisfactory long-term results.For early disease results of 80-90% pain relief.

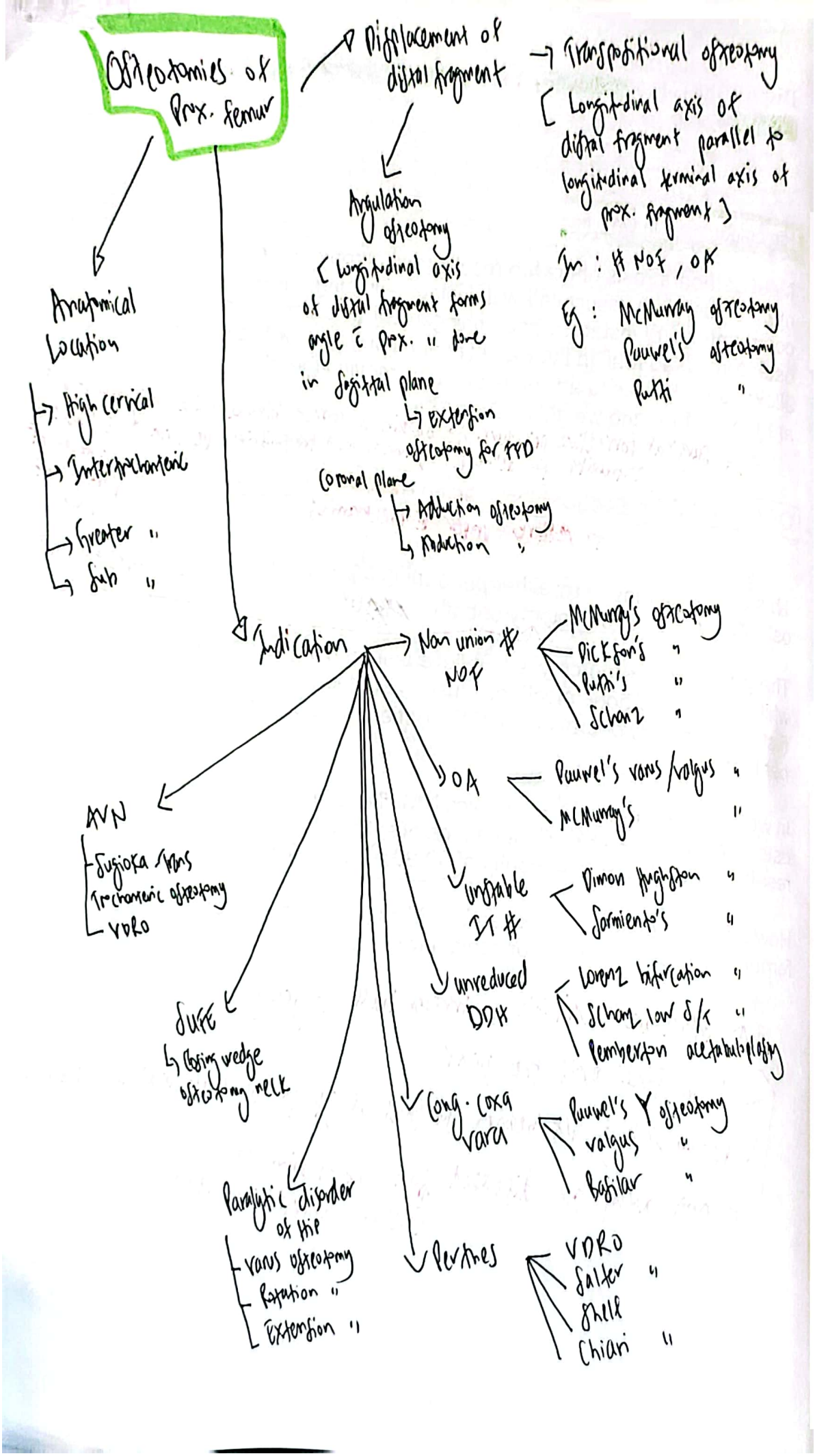
However conversion to THR can be difficult due to alignment of femur and presence of orthopaedic hardware.

↑ surface area available to transfer loads / congruency

↓ (N) forces across the joint

Reorienting wt bearing surfaces of jt to allow (N) areas to articulate

moving abnormal area away from wt-bearing axis (Restore biomechanical adv.)


Osteotomies of Prox. femur
Displacement of distal fragment
Transpositional osteotomy
[Longitudinal axis of distal fragment parallel to longitudinal terminal axis of prox. fragment]
In : # NOF, OA
Eg : McMurray osteotomy
Pauwel's osteotomy
Putti "
Angulation osteotomy
[Longitudinal axis of distal fragment forms angle c prox. " done in
Sagittal plane
extension osteotomy for PFD
Coronal plane
Abduction osteotomy
Adduction "
Anatomical Location
High cervical
Intertrochanteric
Greater "
Sub "
Indication
Non union # NOF
McMurray's osteotomy
Dickson's "
Putti's "
Schanz "
OA
Pauwel's varus/valgus "
McMurray's "
AVN
Sugioka "
Trochanteric osteotomy
VDRO
Unstable IT #
Dimon Hughston "
Sarmiento's "
Unreduced DDH
Lorenz bifurcation "
Schanz low d/t "
Pemberton acetabuloplasty
Coxa vara
Pauwel's Y osteotomy
valgus "
Basilar "
Perthes
VDRO
Salter "
Shelf
Chiari "
Paralytic disorder of hip
varus osteotomy
Rotation "
Extension "
Sliding wedge osteotomy neck

Indications:-

1) Younger, active patients with unilateral disease who are considered to be poor candidates for a total hip arthroplasty
2) AVN – Flexion osteotomy
3) SUFE - Flexion osteotomy
4) Perthe's – Valgus extension osteotomy ← Idiopathic protrusio
5) Dysplasia – Varus osteotomy (DDH)
6) Idiopathic protrusio -Valgus extension osteotomy
7) Non-union femoral neck # , Malunion trochanteric #

(Rapid Perthes hinged abduction disease)

Contraindications:

1. Stiff
2. Obese
3. Gross narrowing with sclerosis & no normal joint surface
4. Atrophic inflammatory features
5. (Neuropathic & inflammatory) Arthropathy
6. Active infections
6 Severe osteopenia
7 Advanced arthritis / Ankylosis
8. Advanced age
9. Smoking, obese

Clinical

The patient's chronological age, physiological age, occupation, level of activity, body habitus, and functional goals, as well as the lengths of the limbs and the status of the ipsilateral knee and of the spine, are all important secondary factors in the decision to perform an osteotomy.

- Pain in certain hip positions only (e.g. adduction WBing)

  The pain should be characterized as to its location, time of occurrence, association with positions of the limb or activity, and whether it is relieved by certain positions. Classic mechanical osteoarthrotic pain occurs with weight-bearing, characteristically with the first few steps after a period of immobilization, and it rarely awakens the patient from sleep.

- Arc of Movement - which part of the arc is painful which part of the arc

CamScanner