

Instruments ortho

TONY KRISHNAKUMAR 2010 MBBS

Pins and nails

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Circular in cross section

Steinmann pin **n**o threads

- Skeletal traction
- Compression arthrodesis



Denham pin middle thread

- Skeletal traction in osteoporotic bone to prevent slipping

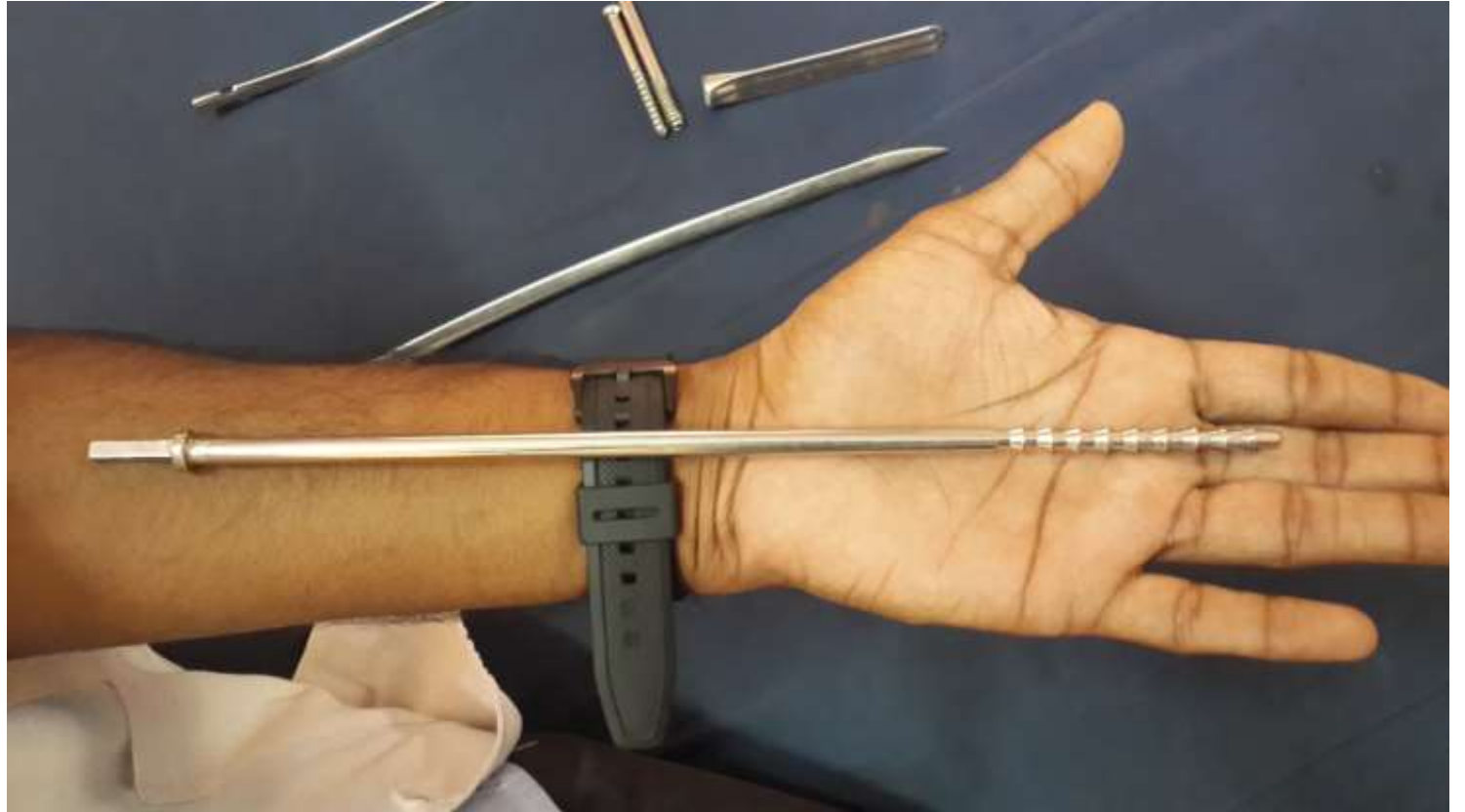


Schanz pin thread at ends

- External fixator



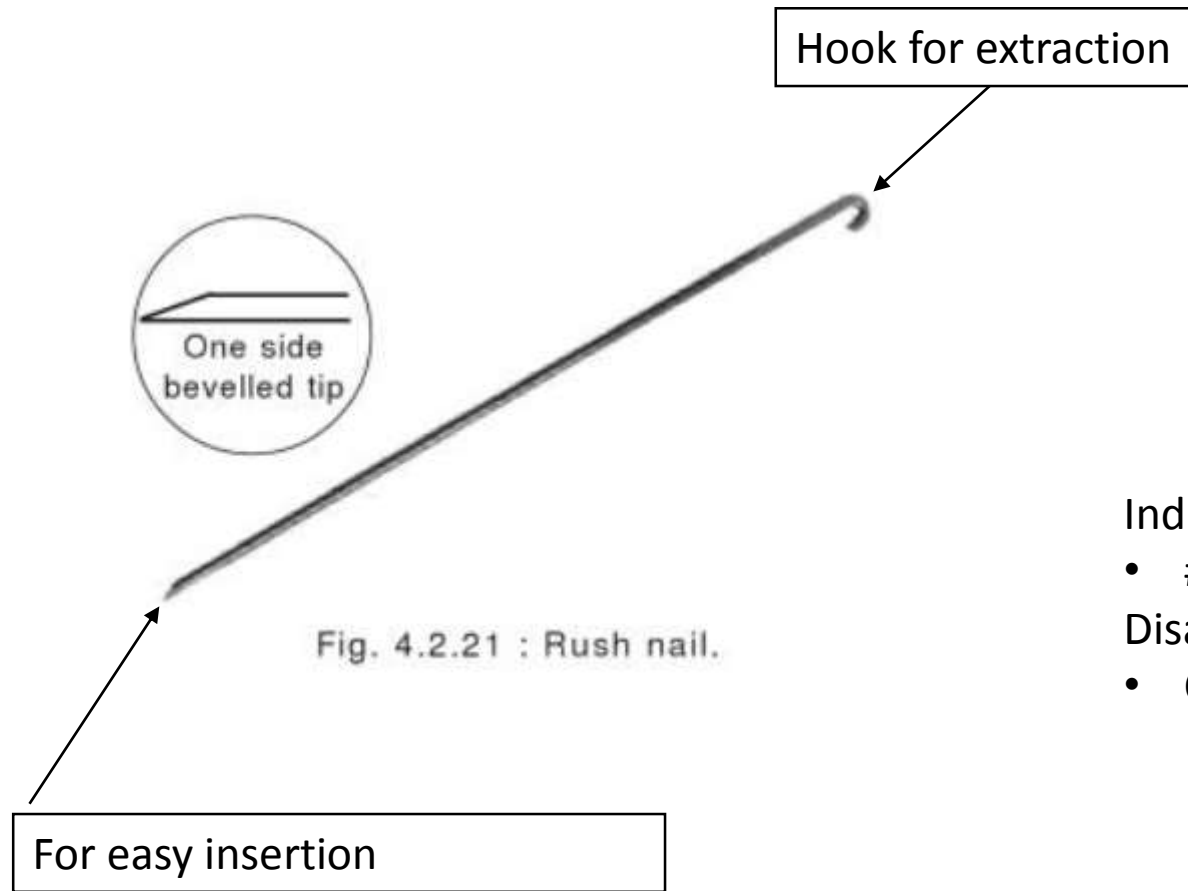
Harrington rod



Blunt with threads at one end but each is far apart

- Spine #
- Scoliosis
-

Rush nail



Indication

- # humerus fibula

Disadvantage

- Chance of rotation due to circular cross section

Square cross section

Intramedullary nail for forearm bones

Ulnar square intramedullary nail



Radius square nail



R SHAPED



RADIUS square nail



Kuntscher cloverleaf intramedullary nail /k nail****

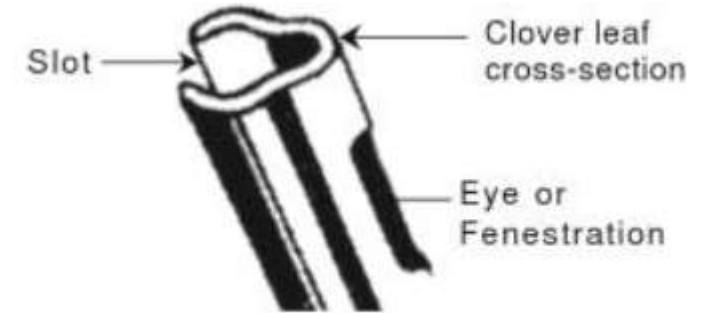
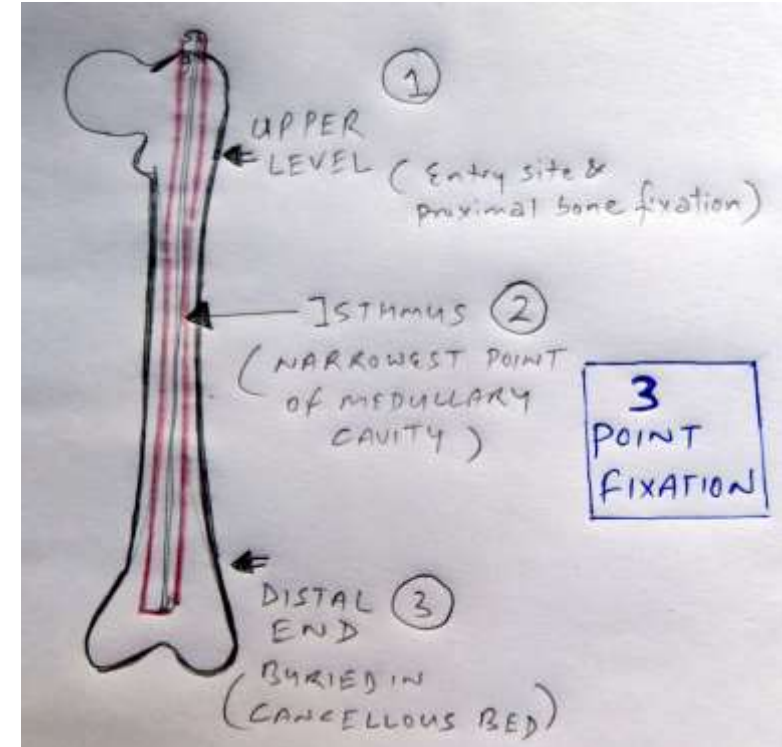


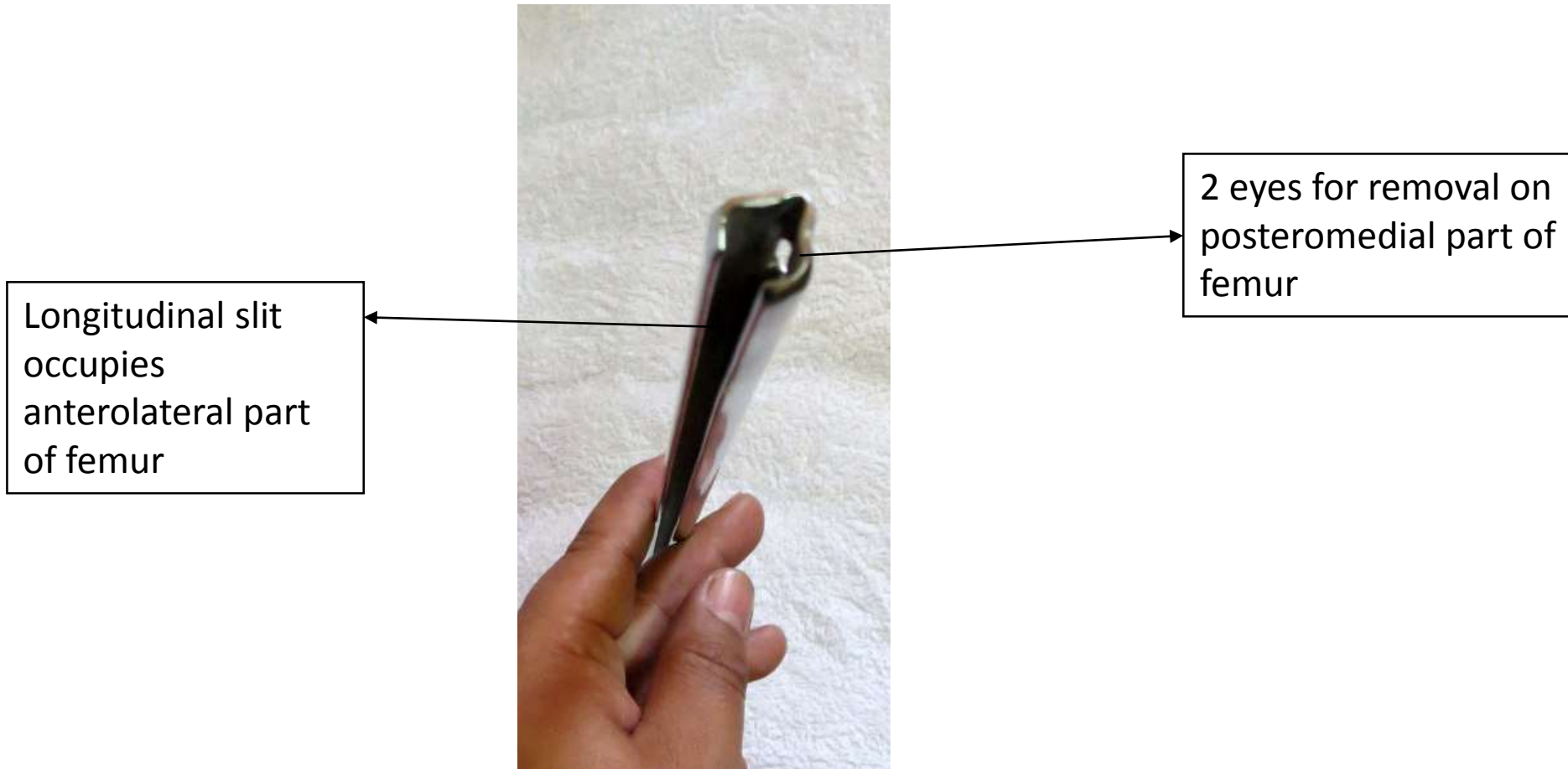
Fig. 4.2.18 : Blunt hollow end with clover leaf cross-section and eye.



Kuntscher cloverleaf intramedullary nail /k nail

- Indication
 - # shaft of femur, humerus tibia
- Ideally
 - In a young patient with
 - # at junction of upper & middle 1/3rd (narrowest portion)
 - no comminution
 - Transverse /short oblique #





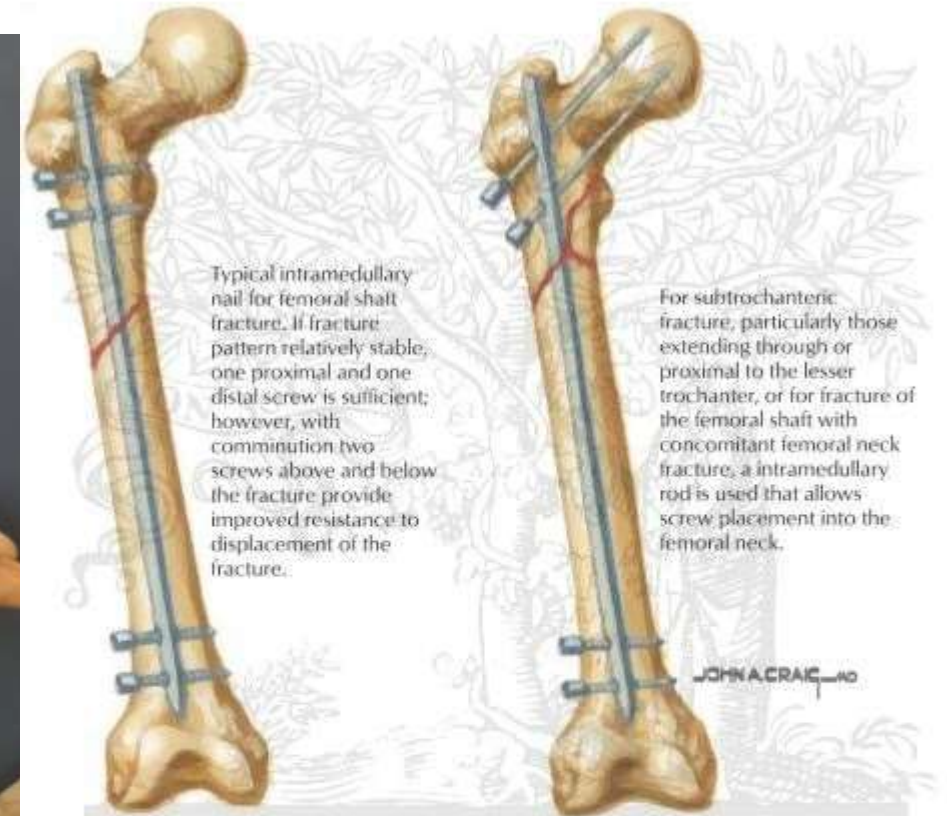
K nail can be introduced by

- Open (retrograde) method
 - Open # site with a gluteal incision
 - 100% redn but no hematoma formation
- Closed (anterograde)method
 - # site is not opened only gluteal incision
 - Hematoma formn + bur not perfect reduction

Interlocking intramedullary nail



Comminuted # humerus tibia

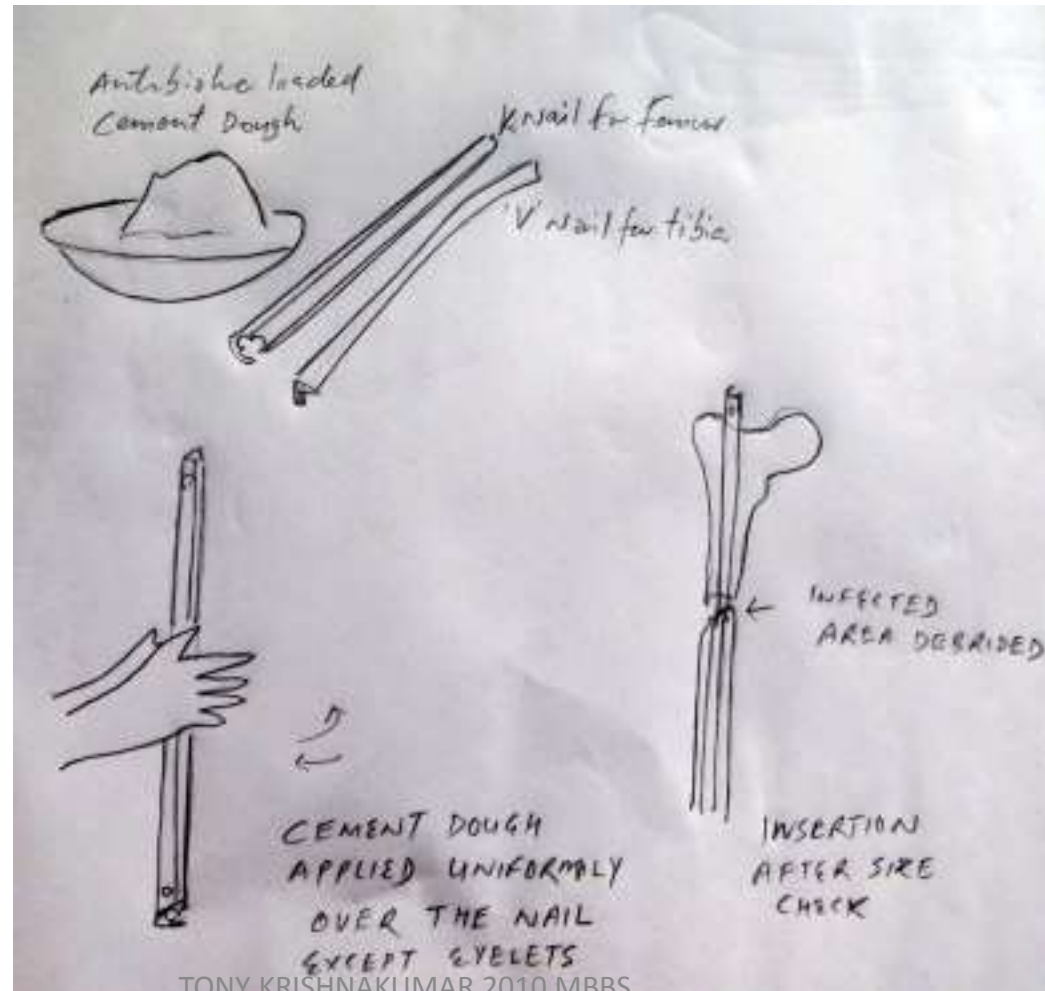


ELSEVIER

V nail

- Used for # tibia





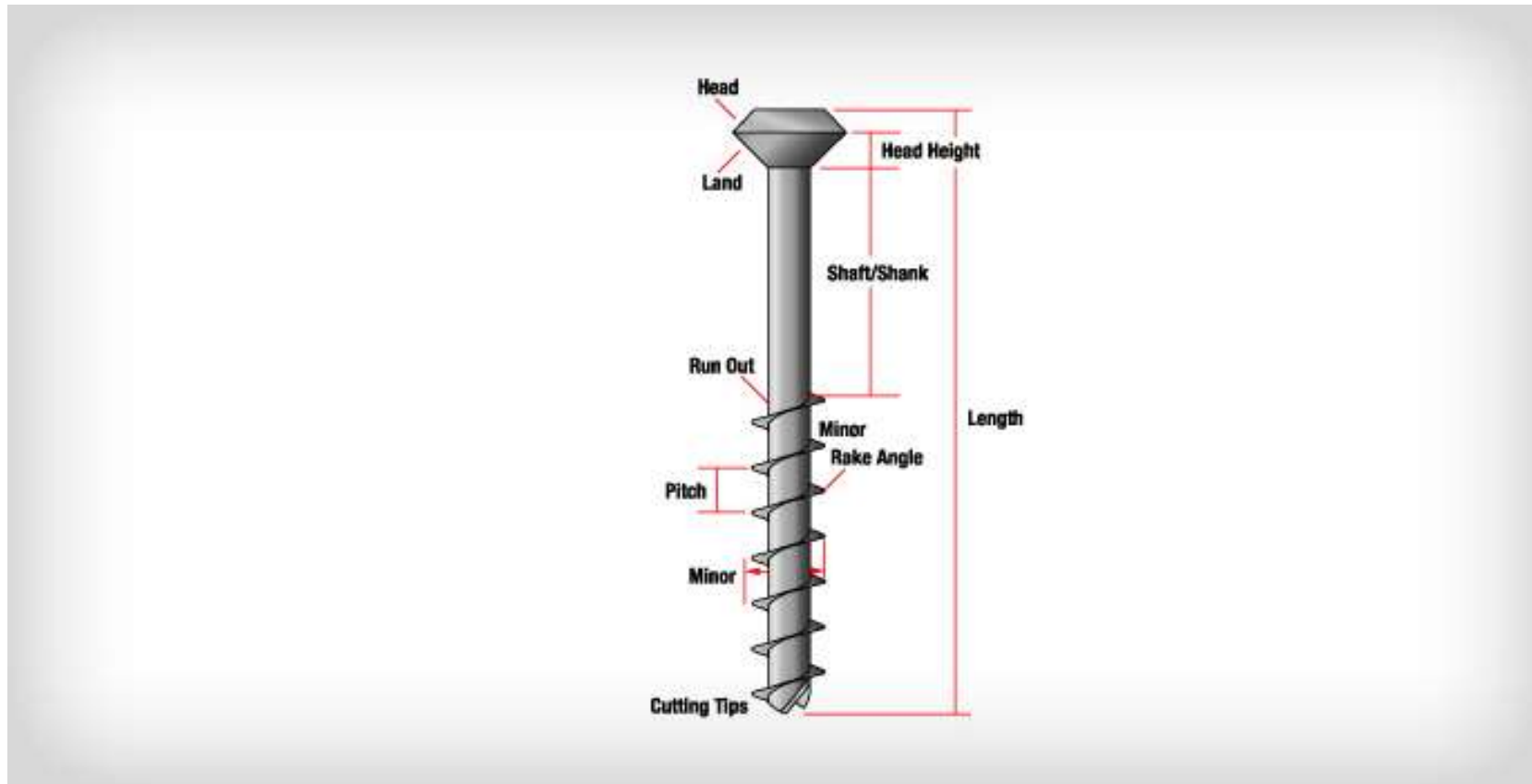
Moore's pin

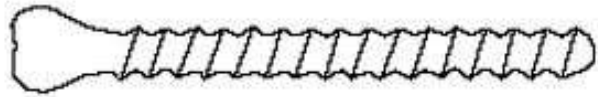


neck of femur in children
other screws may cause disruption
of growth plate

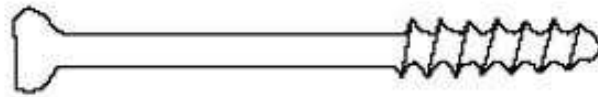
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Screws





Cortical screw



Cancellous screw

- Cortical screws
 - More threads
 - Pitch and lead is less
- Cancellous
 - Less number of threads
 - Pitch and lead is more

SCREWS

CORTICAL

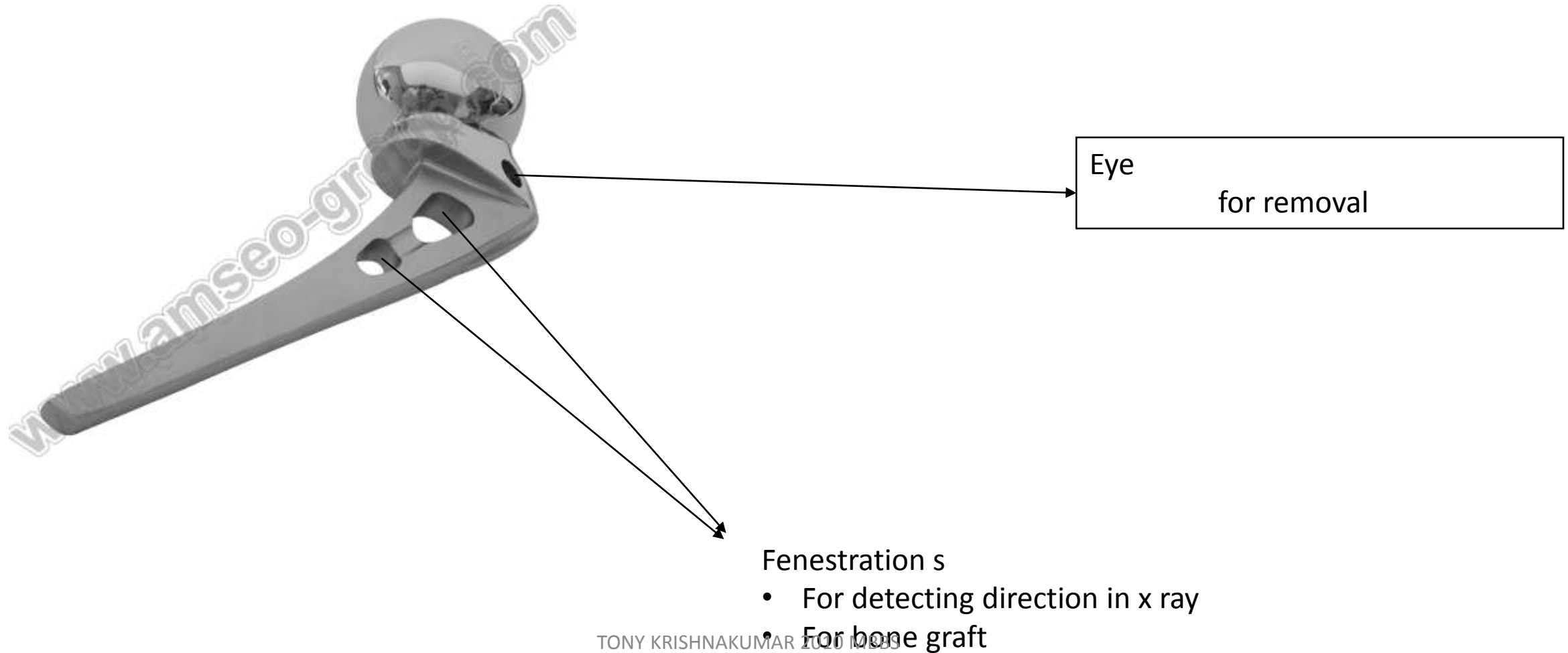
- Fully threaded
- Used for diaphyseal #
- 3.5 mm
 - Radius ulna fibula
- 4.5mm
 - Humerus tibia femur

CANCELLOUS

- Partially threaded
- Used for metaphyseal & diaphyseal #
- 4mm
 - Medial & lateral malleoli
- 6.5mm
 - Condyles (tibial femoral)
 - # neck of femur

Prosthesis

Austin moore prosthesis ****



- Indication

- Intracapsular # neck of femur(transcervical & subcapital #)
 - With little bit of intact neck

Austin moore prosthesis

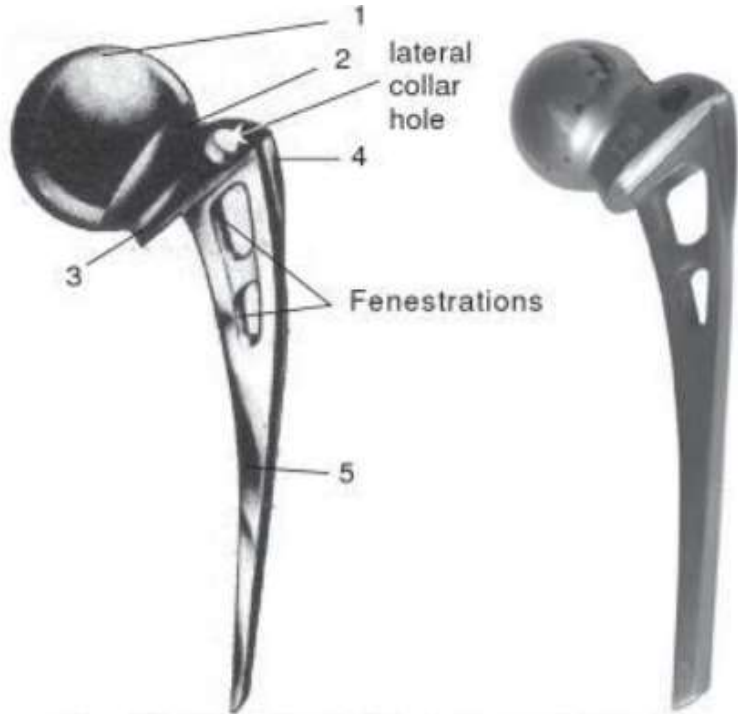


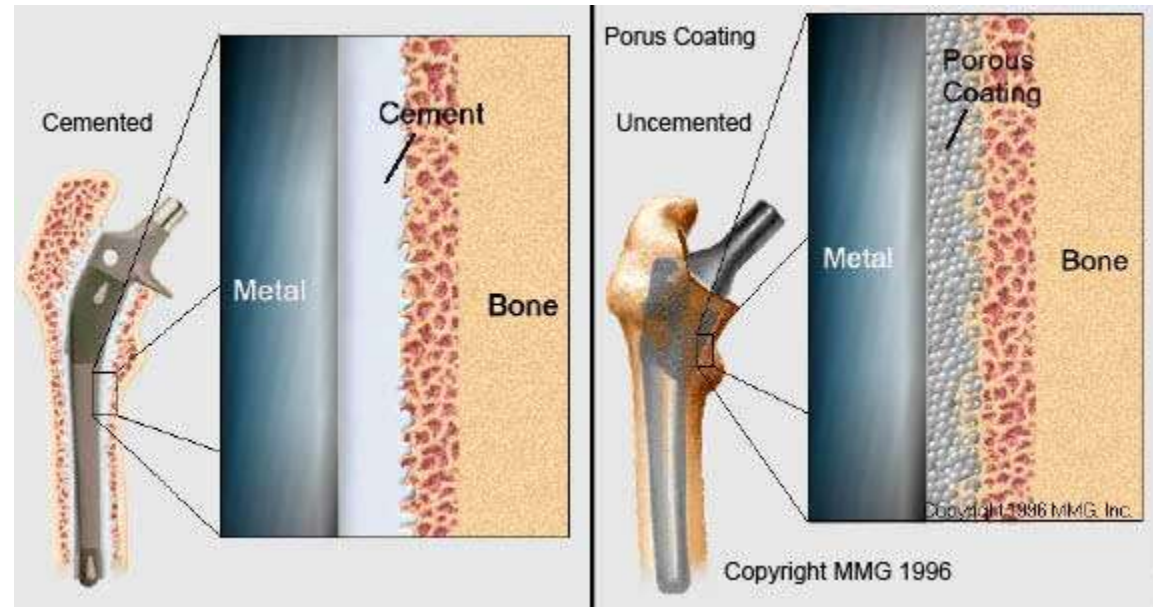
Fig. 4.2.15 : Austin Moore's prosthesis.

Thompsons

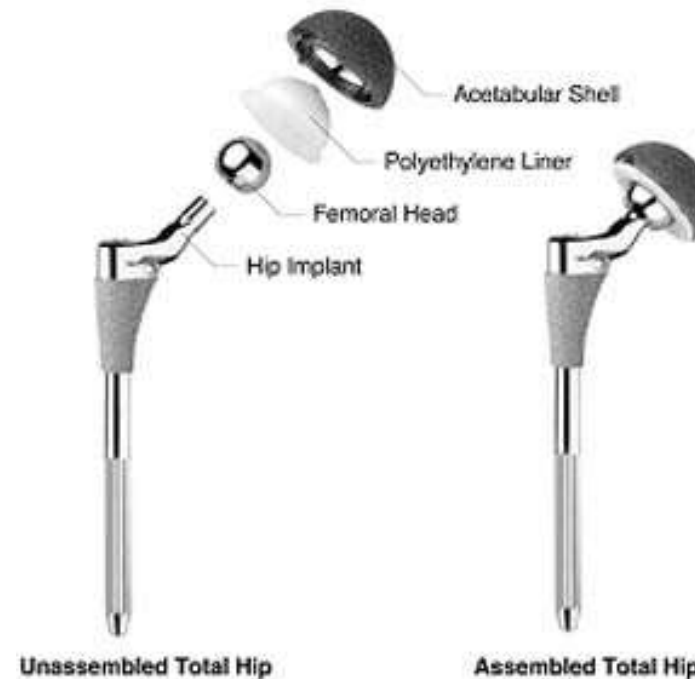
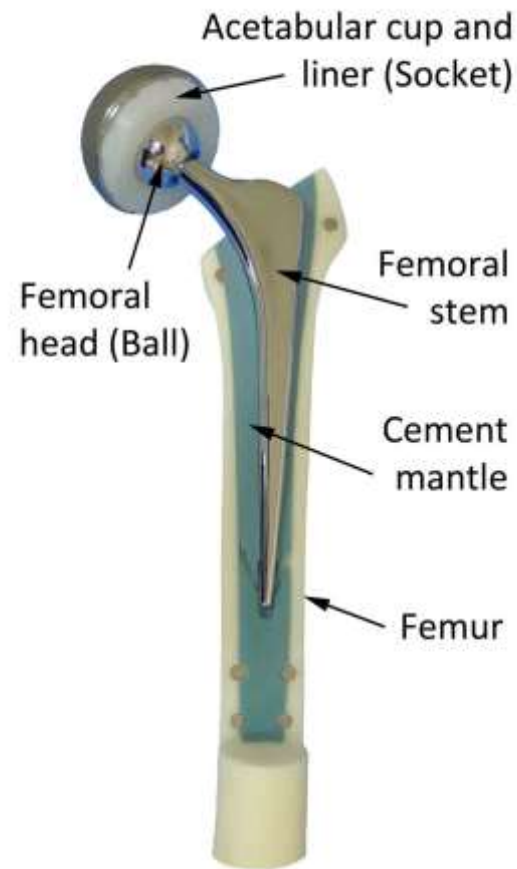


Fig. 4.2.16 : Thompson's prosthesis.

Basal # neck of femur with no neck



Bipolar prosthesis (2 heads)



Used in young individuals to reduce wear & tear

Bipolar prosthesis (2 heads)



Indication

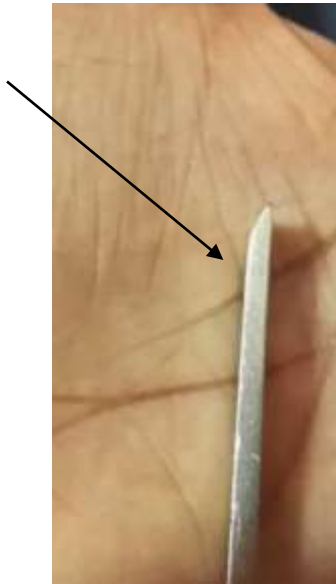
same as AM prosthesis

- Complications
 - Sciatic n injury
 - Loosening
 - Infection

Chisel & osteotome

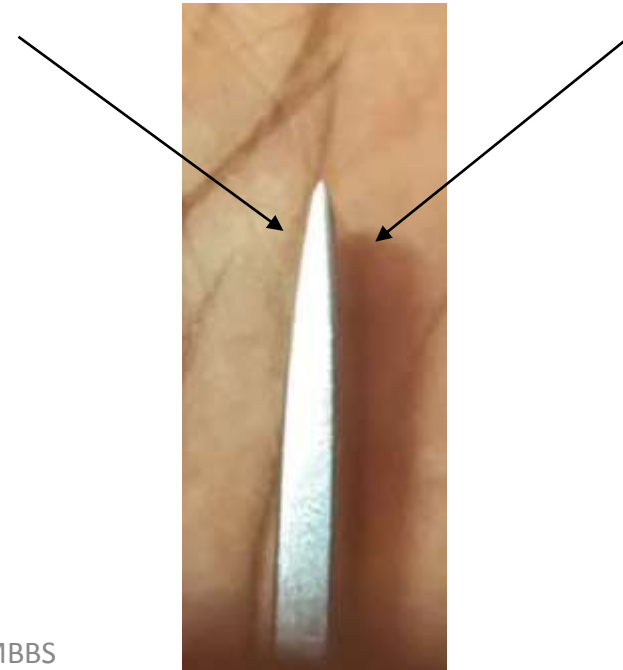
Chisel

- one edge beveled
- used to chip the bone.

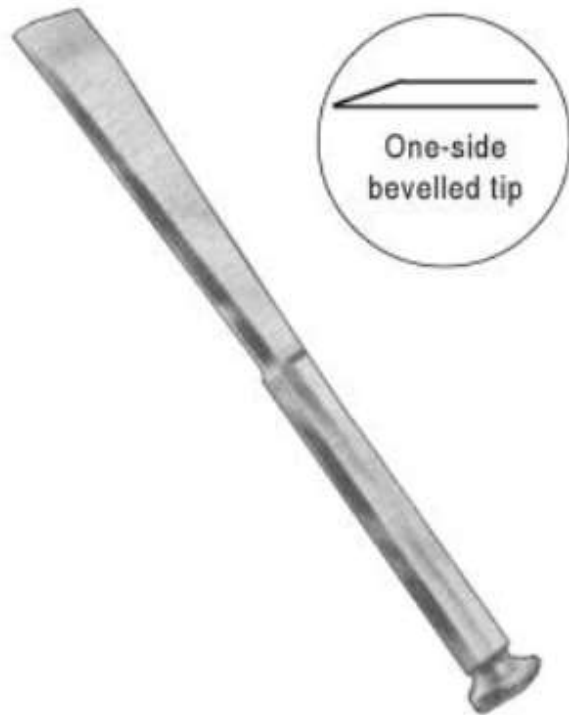


Osteotome

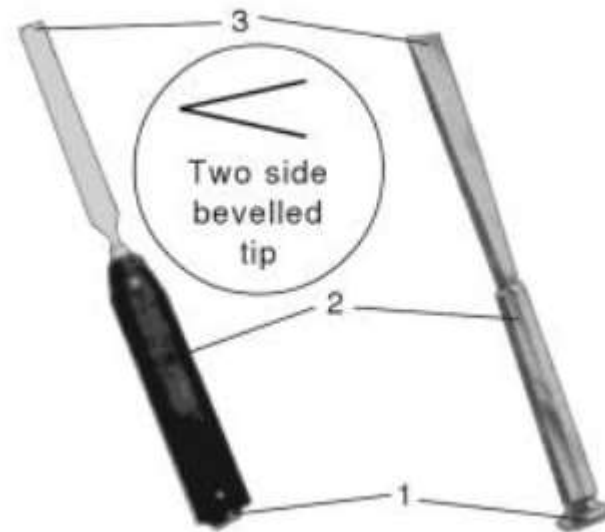
- both the edges beveled.
- used to cut /divide the bone.



Chisel



Osteotome



Chisel & osteotome



Periosteal elevator



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Bohler stirrup***

- Used for skeletal traction

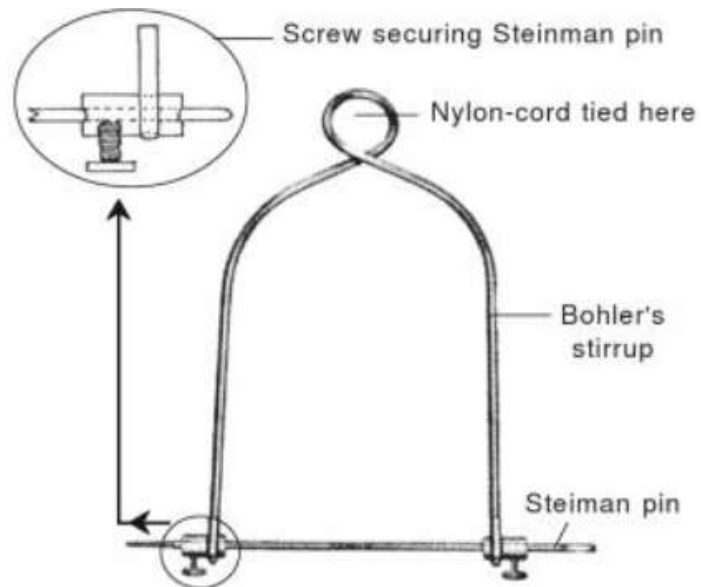
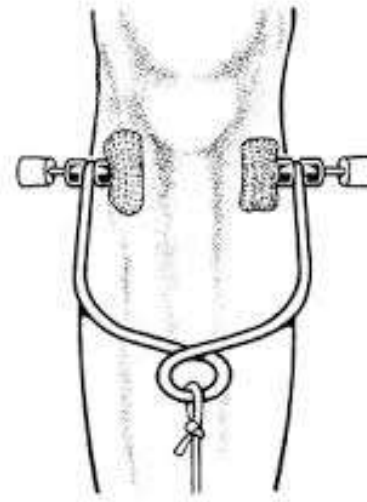
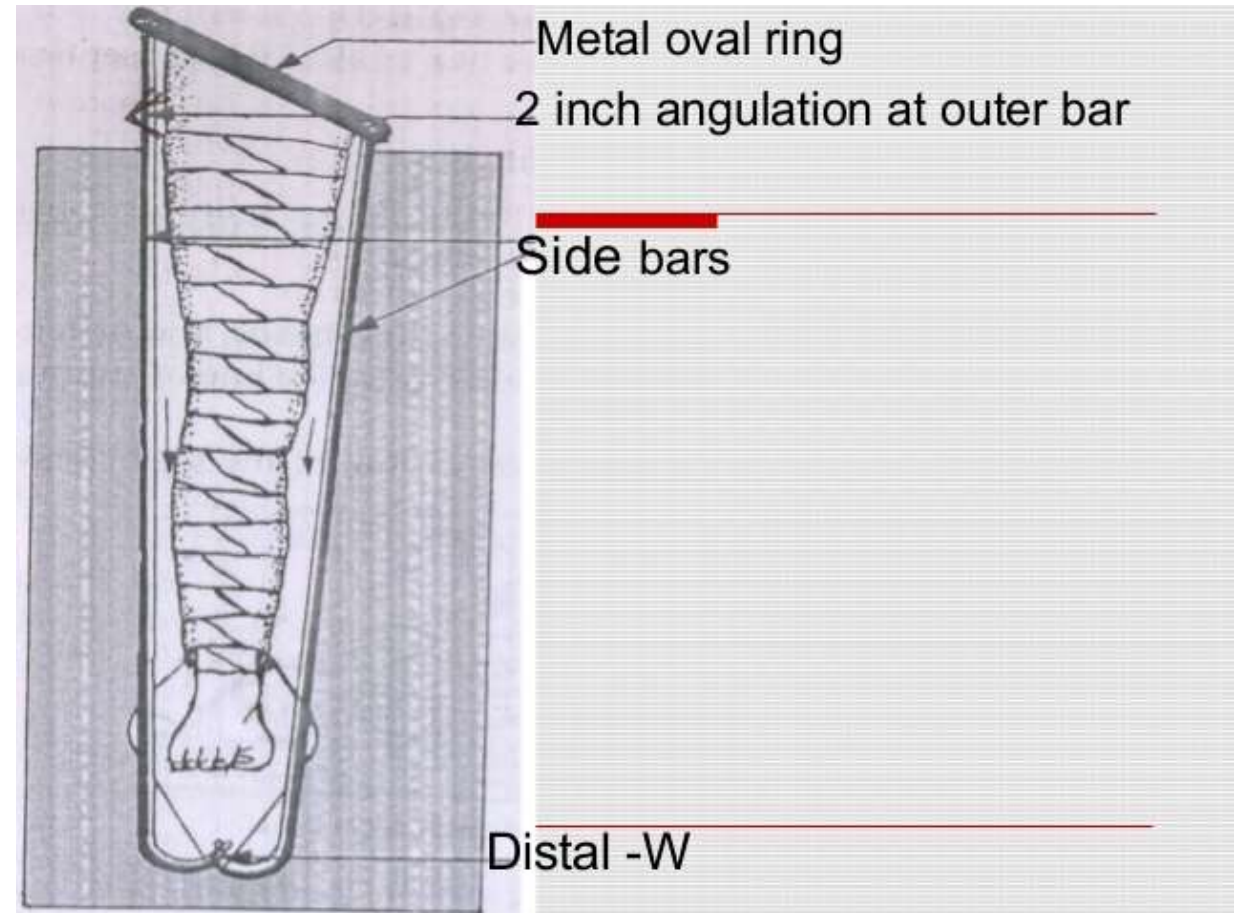


Fig. 4.1.3 : Bohler's stirrup with Steinman-pin in-situ, securely fixed by screws.



Thomas splint

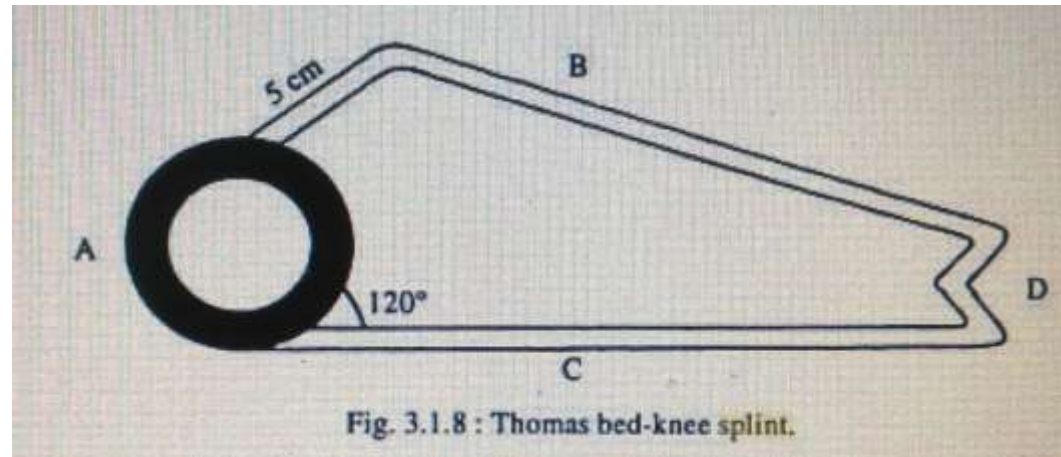


THOMAS KNEE-BED SPLINT

- Thomas splint.
- Devised by Hugh. Owen Thomas.
- Initially used for immobilisation for tuberculosis of the knee.

PARTS OF THOMAS SPLINT

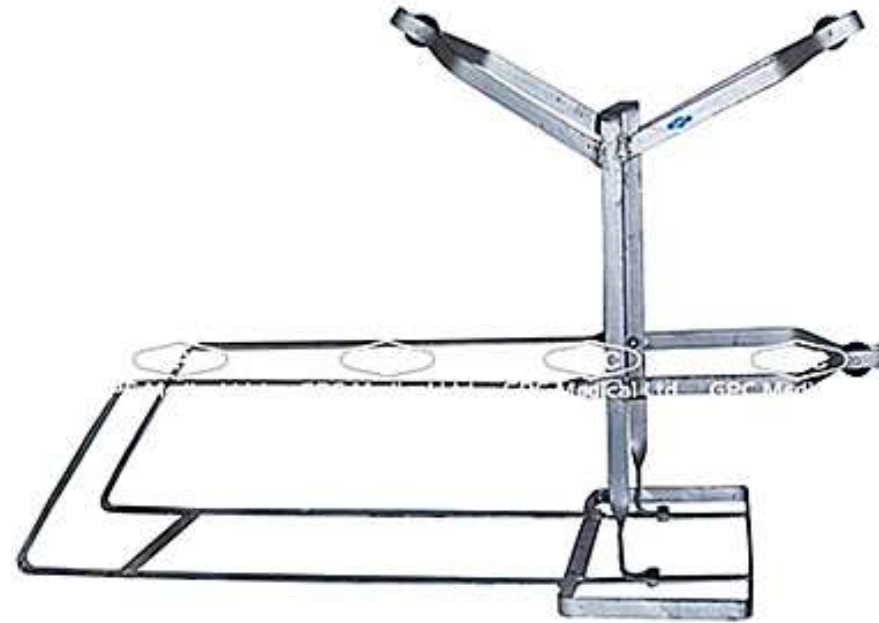
- Consist of:
 - Ring
 - Medial bar
 - Lateral bar



USE

- Immobilisation of lower limb

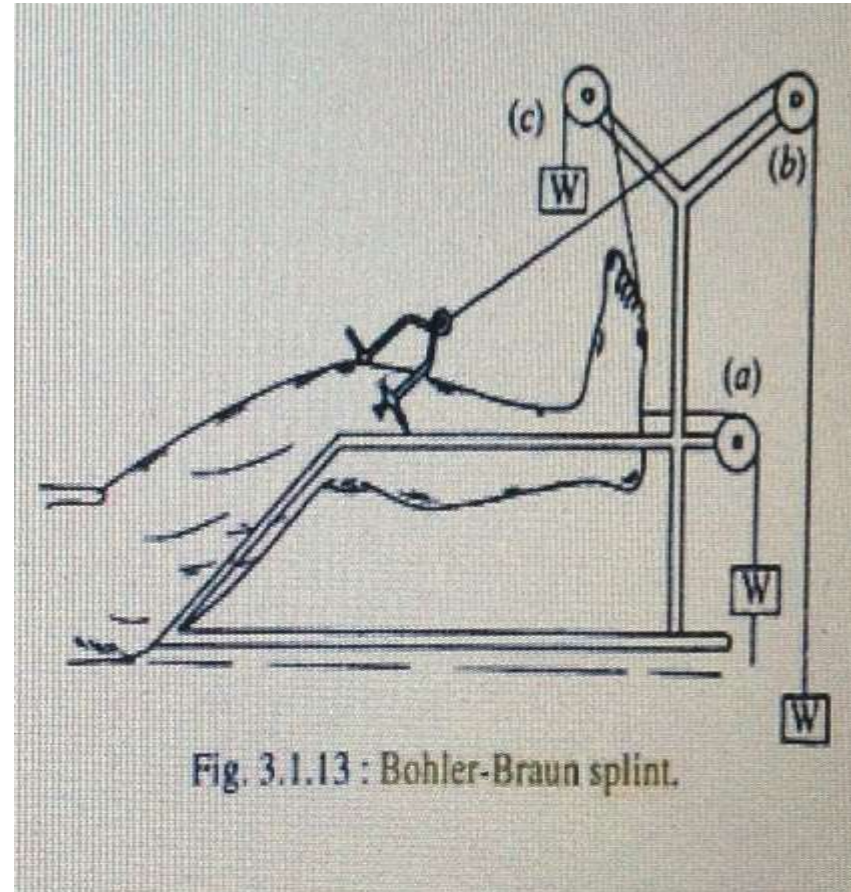
BOHLER BRAUN SPLINT



- Bohler's modification of braun splint.
- Consisted of only 1 pulley.



- Pulley a- calcaneal/distal tibial traction.
- Pulley b-distal femoral/proximal tibial traction
- Pulley c-change angle of traction



ADVANTAGES

- Angle of traction can be changed without changing traction arrangements.
- Simultaneous tractions possible.

DISADVANTAGE

- Not suitable for transportation.

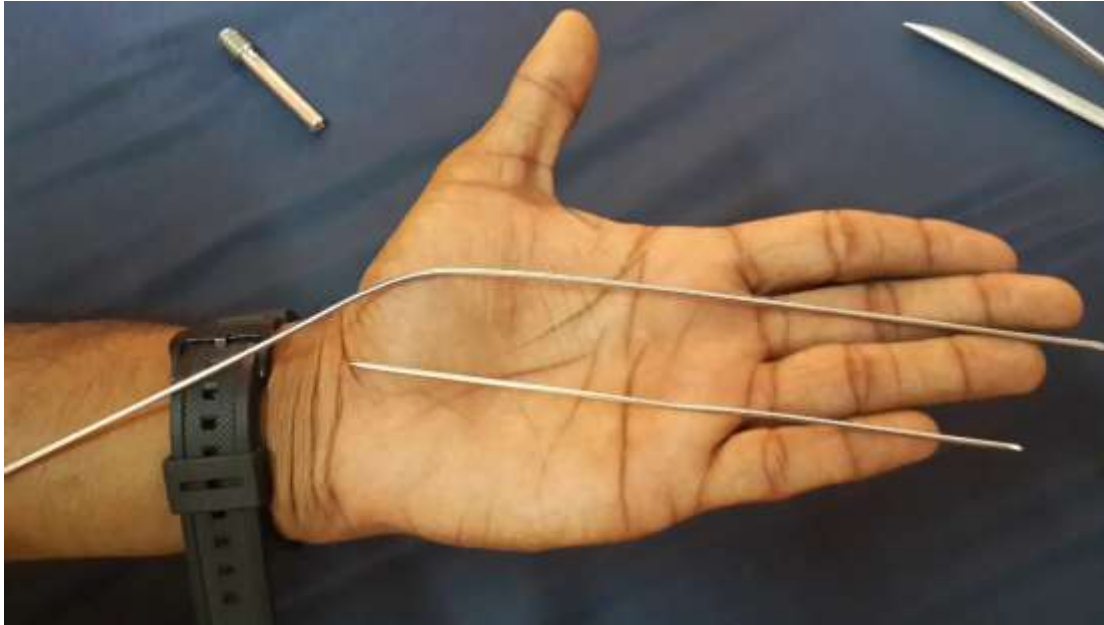
External fixator clamp



Steinmann pin

rod

K wire / kirschner wire



Small fragment fixation
Metacarpal # fixation
JESS
CTEV

Stapler



To Arrest growth of epiphysis on one side

- Correct genu valgum /varum

Arthrodesis

In OA (closed wedge osteotomy)

Bone nibbler



- Used for –
 1. Smoothing the cut bone-end of amputation stump, or after removal of exostosis.
 2. Sometimes used to cut calcar of femoral neck to desired length, before inserting prosthesis in hemiarthroplasty operation of hip.
 3. Removing adherent soft-tissues from bone graft pieces, before placing them.

Joshi's external stabilization system (JESS) retractor



Screw for adjusting distance

Slot for k wire

Comminuted distal radius #
CTEV
distal tibial#

Charnleys compression device



Arthrodesis by compression

One slot for Steinmann
pin

Smith Petersen nail for trochanteric

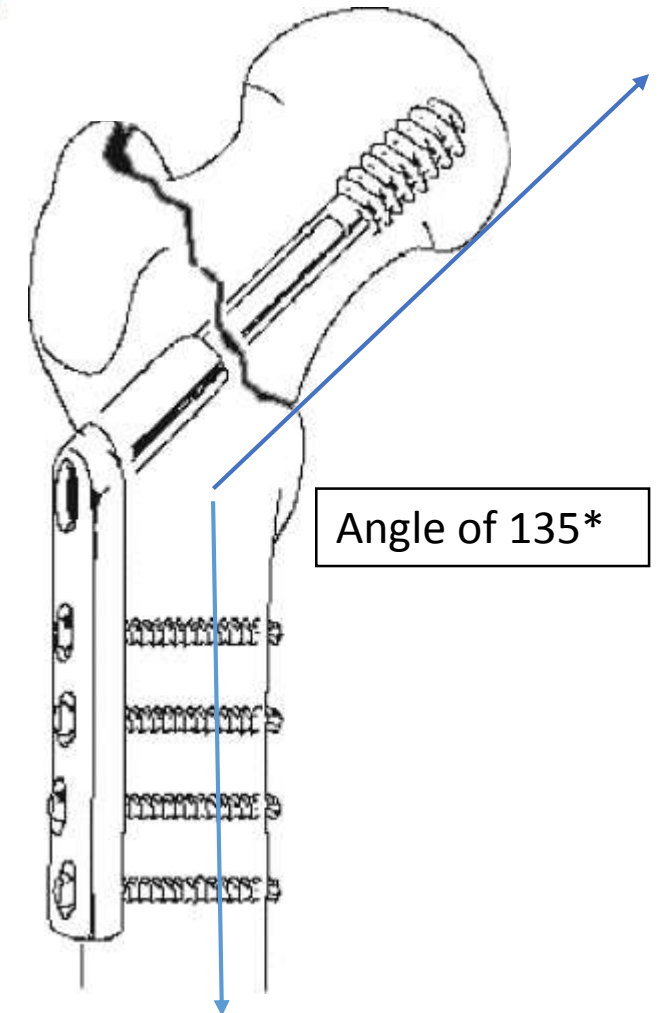


Jewett nail plate for trochanteric



Mclaughlin plate

Dynamic hip screw

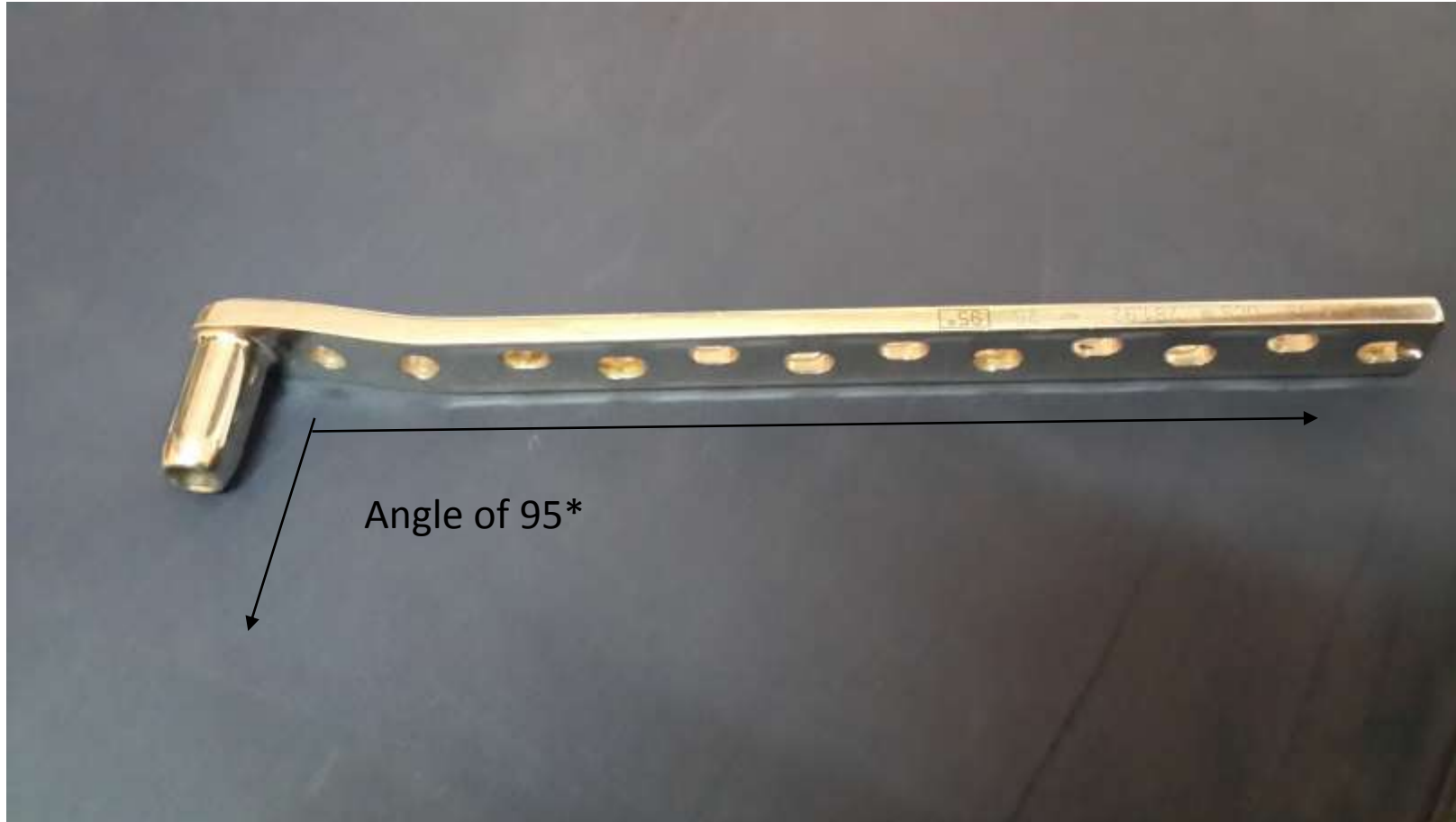


Dynamic compression plate ***



Oval shaped

Dynamic condylar plate



Sherman plate



one third tubular plate

- Thin
- Mouldable
- distal ulna lower tibia
-



1/3 Tubular Plate

Thanks to

- Our teachers
- Rahul Das
- Vignesh A
- Jogin George
- Jomin George