Aesculap® Targon® FN
Head Preserving Solution for Medial Femoral Neck Fractures
Indications for Targon FN

Undisplaced intracapsular fractures:
- AO 31B1.1, 31B1.2 and 31B1.3
- Garden classification grades 1 and 2

Undisplaced Intracapsular Fractures

All undisplaced (impacted) intracapsular fractures should be considered for internal fixation with the Targon FN. Conservative treatment of these fractures carries a high risk of fracture displacement and is generally not recommended.

Replacement arthroplasty is a more extensive procedure with a higher risk of complications than that of fixation and is therefore inappropriate for this fracture.
Displaced intracapsular fractures:
- AO 31B2.2, 31B2.3
- AO 31B3.1, 31B3.2, 31B3.3
- Garden classification grades 3 and 4
- Pauwels classification type 1-3

Displaced Intracapsular Fractures

Any displaced intracapsular fracture in which preservation of the femoral head is felt desirable should be considered for internal fixation with the Targon FN. This includes younger patients in which preservation of the femoral head is advantageous and those patients in which the more extensive procedure of arthroplasty needs to be avoided. Individual surgeons may also prefer to use the Targon FN for displaced intracapsular fractures in the elderly as an acceptable alternative to replacement arthroplasty.
Patient Positioning

Avoid sudden or excessive movements when positioning the patient because this might cause a disruption of the blood supply of the femoral head.

Fig. 2: Radiograph AP view
Fig. 3: Radiograph axial view
Fracture Reduction

Undisplaced fractures and those fractures which are impacted on the AP radiograph and undisplaced on the lateral radiograph (Garden grade 1) require no reduction (Fig. 1).

Displaced fractures (Fig. 2) are first reduced by applying gently longitudinally traction with the fracture table, whilst screening on the anterior-posterior (AP) radiograph to reduce the fracture. The aim should be to reduce the fracture to either an anatomical position or a slight valgus position as determined by the alignment of the trabeculae of the femoral head with the shaft of the femur. (Fig. 3 reduced)

Then the fracture is reduced on the axial (lateral) view by internal rotation of the limb (full internal rotation may be necessary for fully displaced fractures). (Fig. 4 before reduction, Fig. 5 reduced)

Targon FN X-ray Template – KT218

The X-ray template shows the implant in the real size and takes into consideration a magnification of 10%. The X-rays should have the same magnification to match the templates.

Please verify all measurements determined by this template intraoperatively to ensure a correct choice of your implant. If needed, this X-ray template can also be supplied in digital form.
Targon® FN
Operating Technique

Approach

1 COBB Elevator – FK147R

C-arm view of the proximal femur in axial projection. The incision line (5–6 cm) is marked on the skin in the central femoral neck plane. The incision and separation of the fascia lata follow; approach to the lateral femur at the dorsal margin of the M. vastus lateralis, just below the tuberculum innominatum and immediately in front of the femoral base of the M. gluteus maximus at the gluteal tuberosity. The shape of the plate anatomically adapts to this area.

Optional:

With the COBB elevator, space can be created at the base of the gluteal muscle if necessary (Fig. 2).
Mounting the Aiming Jig

A – Fixing the Plate

- Targon FN plate – KO802T
- Targeting device – KT220P
- Holding screw – KT221R
- Screw driver SW3.5 – KT226R

The Targon FN plate is fastened to the targeting device by means of the plate holding screw.

The plate holding screw occupies the central hole of the targeting device.
B – Attaching the Handle

- Handle – KT219P
- Targeting device – KT220P
- Connection screw – KT228P

The connection screw is screwed into the handle (Fig. 1a). Attach the handle to the targeting device so that the connection screw engages (Fig. 1b).

Fasten the connection screw by a firm rotation (Fig. 1c). For adipose patients, the handle can be mounted on the opposite side of the targeting device (Fig. 2).

To dismantle the handle, slightly unscrew the connection screw and then pull it out (Fig. 3).
Implantation of the Targon FN Plate

3

Placing the Central Guide Wire

- Guide wire ø 2.5 x 310 mm – KT234S
- Drill aiming guide – KT232R

Use the alignment jig with the attached plate. Position a guide wire centrally in the lateral femoral cortex to pass up the middle of the femoral neck to lie centrally in the femoral head on both the AP and axial radiographs. (Fig. 1)

This guide wire should be in the central hole of the alignment jig.

Optional:
The drill aiming guide might be used instead of the alignment jig to place the central guidewire. (Fig. 3)

Attention:
Tilting of the targeting device is still possible.
Implantation of the Targon TeleScrews

A – Placing the Guide Wires

- Guide wire ø 2.5 x 310 mm – KT234S
- Drill sleeve – KT223R

The green drill sleeves are inserted into the alignment jig up to the stop and slightly tightened by a turn. A sharp guide wire is drilled into the cortex of the femoral head.

Wires for up to four TeleScrews are inserted through the guide sleeves. If three TeleScrews are used in an L-configuration, it is recommended to apply two screws in lower positions. The third TeleScrew could find best anchoring at the position closest to the center of the femoral head.

The position of these guide wires should be checked on the AP and axial views and adjusted so the guide wire tips are in the subchondral bone at the position where the tips of the TeleScrews are to be placed. This should be approximately 5 mm from the joint line.

The lower guide wires should lie just above the calcar on the AP X-ray.

Deviation of the guide wires is without consequence for the positioning of the TeleScrews, since they are independently inserted directly through the targeting device.
B – Measuring the Length and Drilling the Bone

- Screw scale – KT230R
- Stepped drill – KT224R
- Depth stop for drill KT224R – KT235P

Measure the length of the guide wires with the measuring scale by holding this against the drill sleeve. The total length is measured up to the tip of the guide wire. (Fig. 1)

Attach the depth stop to the drill by turning it clockwise and adjust it to the measured length (Fig. 2).

One of the guide wires as well as one of the drill sleeves are removed now. These can be loosened either by hand or with the help of screwdriver KT226R. With the stepped drill, the screw channel is bored open to the measured depth (Fig. 3).

Attention:

Take care to introduce the stepped drill with depth stop only until the stop reaches the aiming jig without any additional force. Choose the TeleScrew size that is the same as or just smaller than the distance measured on the scale. For example, if the screw measures 94 mm, choose a TeleScrew of 90 mm.
C – Inserting the TeleScrews

- Stepped screwdriver torque – KT225R (Fig. 1a) only to be used to insert and fasten the TeleScrews
- Screwdriver ø 3.5 mm – KT226R (Fig. 1b) to fine adjust the length of the TeleScrews

Push the socket of the support screw on the small hexagon of the screwdriver KT225R. Connect the support sleeve and the large hexagon. Insert the TeleScrew of the selected length using the green stepped screwdriver and tighten the screw to the correct torque as marked (8 Nm) (Fig. 3). Repeat this for the other TeleScrews to insert three or four TeleScrews.

A black ring on the stepped screwdriver marks the screwing distance in which the thread of the support sleeve connects to its counterpart on the plate.

Attention:
The stepped screwdriver KT225R is torque indicating, not limiting.
The TeleScrews may be extended by up to 10 mm using the ø 3.5 mm green screwdriver KT226R.

Guided by the AP and axial X-ray, adjust each TeleScrew length so the tip of the screw is lying in the subchondral bone about 5 mm for the joint line.

The scale on the screwdriver indicates how much the screw has been advanced.

**Attention:**

Do not extend the screw past a maximum extension of 10 mm as this may reduce the strength of the fixation.
Inserting the Distal Screws

- Yellow tissue protection sleeve – KT231R
- ø 4 mm yellow drill – KT229R
- Depth gauge – KH274R
- ø 4.5 mm yellow screw driver – KT236R

Insert the yellow tissue sleeve and drill the femur using the ø 4 mm yellow drill KT229R (Fig. 1).
Once the drill has just penetrated the second cortex of the femur, read the screw length off the scale on the drill or measure the required screw length using the depth gauge (Fig. 2+3).

Using the using ø 4.5 mm yellow screw driver, insert a ø 4.5 mm distal screw of the appropriate length to just penetrate the medial cortex of the femur. The screw is passed through the tissue sleeve and tightened into the plate (Fig. 4).

Repeat for the second distal screw.
The green screwdriver ø 3.5 mm is used to release the plate holding screw and with it the targeting device from the plate (Fig. 1).
Post-operative Care

Generally patients with an undisplaced intracapsular fracture should be allowed to mobilise without any restriction on weight bearing or hip movements.

For the displaced fracture that has been reduced and fixed, then some physicians may prefer a period of protected weight bearing to reduce the risk of fracture re-displacement.
Targon® FN
Operating Technique

Implant Removal

- ø 3.5 mm green screwdriver – KT226R
- ø 5 mm red screwdriver – KT227R
- ø 4.5 mm yellow screwdriver – KT236R

The red ø 5 mm extraction screwdriver and green ø 3.5 mm screwdriver are joint and inserted into the TeleScrew together to engage both the lag screw and the hexagon socket of the outer sleeve together.
Now both components of the TeleScrew are carefully released from bone and plate. This prevents applying additional torque to overcome the bony ingrowth between the TeleScrew components.

The yellow ø 4.5 mm screw driver is then used to extract the distal screws. Care should be taken to ensure there is complete insertion of the screwdriver into the hexagon socket before turning the screw back.

Attention:
The stepped screwdriver KT225R should not be used to remove the TeleScrews.