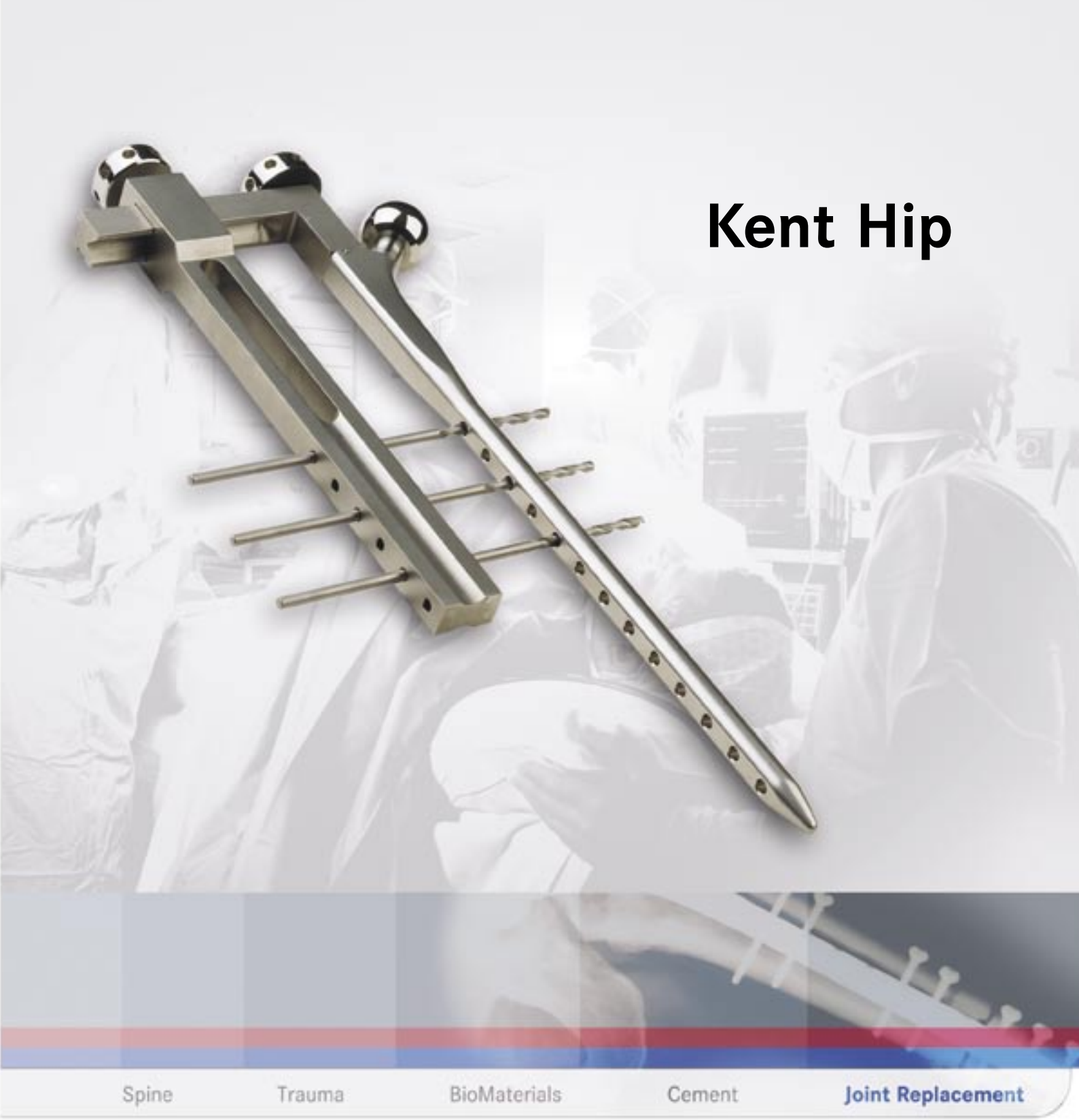

Kent Hip

Spine Trauma BioMaterials Cement **Joint Replacement**

operative technique

BIOMET Europe

The Kent® Hip Operative Technique

The Kent Hip was developed by Mr Cliff Stossel, FRCS in Maidstone, Kent, UK and first implanted in 1986. It was designed to deal with problems of hip stem loosening with lysis, fractures of the bone around femoral implants and pathological fractures of the proximal femur. It is also indicated in the treatment of proximal bone tumours in oncology cases and, where appropriate, can be used as a temporary implant.

Disclaimer

Biomet UK Ltd., as the manufacturer of this device, does not practice medicine and does not recommend any particular surgical technique for use on a specific patient. The surgeon who performs any implant procedure is responsible for determining and utilising the appropriate techniques for implanting the prosthesis in each individual patient. Biomet UK Ltd. is not responsible for selection of the appropriate surgical technique to be utilised on an individual patient.

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Pre-Operative Planning

X-ray templates are used to determine the most suitable size of the Kent Hip to be implanted. It is important to determine that the stem to be used passes beyond any fracture and/or area of lysis/bone deficiency and that an adequate number of 4.5 mm fixation screws can be placed in good bone.

The implant is suitable for use with either a standard modular femoral head or a Hemi-arthroplasty head when acetabular replacement is unnecessary.

Positioning of the Patient

The Kent Hip and its instrumentation are designed to be suitable for use with any of the standard surgical approaches used in hip replacement surgery. Whichever approach is used it must allow easy positioning of the components.

The most common approach used with the Kent Hip is the posterolateral. However, other incisions such as the full lateral or anterolateral can be used. An extensive incision must be made to allow lateral access to the screws.

step 1

Femoral Preparation

It is important that the femoral canal be cleared of any blockages. These may include cement or bone plugs when removing an existing stem, or may comprise a non-union in a fractured stem where bone has grown over the fracture site. To break through these blockages a pseudarthrosis-pin (distal rasp) is available. This is inserted down to he blockage. It is rotated so that the tip enters the restriction.

Alignment is important to avoid the instrument coming out of the side of the femur. It should be aimed at the centre of the knee. Should hand pressure be insufficient then gentle tapping with a hammer, alternating with gentle rotation, should penetrate the blockage. Where the cement is very thick a transverse osteotomy may be necessary.

step 2

Femoral Preparation

Once the femoral canal has been opened an olive tipped guide wire is inserted down to the distal end. Where a stem fracture exists the ends of the broken femur are brought into apposition to ensure the guide wire goes down into the distal part of the canal. It should be inserted until it hits bone in the distal end of the femur to be sure it has not gone out through the femoral shaft into the soft tissues.

Once the guide wire is in position the femur can be prepared using flexible reamers. Reaming is carried out over the guide wire distally to between 2 mm and 1.5 mm over the diameter of the stem used, i.e. if a 14 mm stem is used ream to 16 mm, if a 12.5 mm stem is used ream to 14 mm.

step 3

Femoral Preparation

The proximal trochanteric area must be reamed up to 18 mm to accommodate the larger proximal diameter of the Kent Hip stem. A proximal rasp is designed with a forward cutting edge to remove any hard bone or residual cement. This provides the correct size of cavity for insertion of the proximal part of the implant.

For cases where the proximal bone is severely compromised the trochanter can be removed, implant fixation and stability being achieved via the fixation screws.

step 4

Femoral Preparation

Because the Kent Hip is a straight stem design it may press against the anterior cortex due to the anterior curve of the femur and risk penetrating the distal femur, particularly in very osteoporotic bone. When a femoral fracture does not already exist a transverse osteotomy of the femur is recommended to allow insertion of the implant.

When an osteotomy is performed or a fracture of the femur already exists, the length of the stem chosen must allow for the insertion of the necessary number of fixation screws in good bone. If possible transverse osteotomies should be performed in the weakened areas to leave the optimal amount of good bone for screw fixation.

step 5

Femoral Insertion

The appropriate length Kent Hip stem is mounted on the introducer as shown in the diagram. The drill guide section should be positioned on the sliding bar so that it just clears the greater trochanter. C-spanners are available to tighten the locking screws. Correct alignment can be confirmed by passing drills through the guide and stem.

Once firmly attached to the introducer the stem is inserted into the prepared femur. Use of a hammer should not be necessary for stem insertion. If the stem does not seat easily, then further reaming must be done to achieve insertion.

The Kent Hip is available in the following lengths:

Stem Length	**No of Screw Holes**
190 mm	6
230 mm	9
295 mm	13
340 mm	16

Lateral off-sets of 30 mm and 40 mm are produced. In the 30 mm off-set stems diameters of 14 mm and 12.5 mm are available. The 40 mm off-set version is available only in a 14 mm stem diameter.

Wherever possible, the 14 mm stems should be used. The 12.5 mm diameters are recommended only for smaller, light-weight patients.

Locking mechanism

step 6

Femoral Insertion

When using a long stem Kent Hip the free drill guide is used to place the screws distally. A drill is passed through the last hole of the main guide and one positioned in a hole above this (the further these drills are apart the more accurate the alignment).

The free jig is then slid over these drills. This allows a further series of holes to be drilled distally. This process can be repeated to drill all the holes in the longest stems.

step 7

Screw Insertion

With the stem in position the first drill is passed through the guide, the cortices and the stem. This can be done in any hole. The hip is then reduced to confirm length, rotation and stability. If these are correct the other holes can be drilled.

As many screws as can be put into good bone should be inserted. In the area proximal to the osteotomy/ fracture a **minimum of 3 screws** must be used. If insufficient bone is available for this to be achieved no screws should be placed proximally. Over the whole length of the prosthesis a minimum of 6 screws must be used.

step 8

Screw Insertion

Having drilled the holes the screw gauge is used to measure the length of screw required. The sliding guide can be removed to facilitate this but at least two drills must be left in position to maintain the alignment of the stem and drill/screw holes. The screw gauge measures the actual screw length needed excluding the depth of the head. Experience has shown that loading of cortical bone by screws produces cortical thickening. Having measured the screw, therefore, 2–4 mm must be added to the reading. This allows them to function properly when thickening occurs.

step 9

Screw Insertion

The holes are tapped and the screws inserted. With all the screws in place the introducer is removed.

step 10

Trial Reduction

A trial reduction can be performed with a trial head prior to the definitive head being placed on the stem and final reduction being carried out.

If an acetabular cup is already in place, care should be taken to select the correct diameter modular head. If the Kent Hip is being implanted as a Hemi-arthroplasty, then the diameter of the Hemi-arthroplasty head should be determined from measuring either the resected femoral head or the Hemi-arthroplasty implant that was removed.

step 11

Post-Operative Care

Full weight bearing should be possible within two to three days of the operation. However, depending on the patients' pre-operative condition their recovery may be slower and they may need more assistance from rehabilitation specialists.

implants

Kent Hip Co Cr Mo Femoral Stems

part number	description	
Narrow (12.5 mm) Stem 30 mm offset		
650-0006	Kent Hip femoral stem narrow 30 mm offset x 6 hole	190 mm
650-0009	Kent Hip femoral stem narrow 30 mm offset x 9 hole	235 mm
650-0013	Kent Hip femoral stem narrow 30 mm offset x 13 hole	295 mm
650-0016	Kent Hip femoral stem narrow 30 mm offset x 16 hole	340 mm
Standard (14 mm) Stem 30 mm offset		
650-0026	Kent Hip femoral stem standard 30 mm offset x 6 hole	190 mm
650-0029	Kent Hip femoral stem standard 30 mm offset x 9 hole	235 mm
650-0033	Kent Hip femoral stem standard 30 mm offset x 13 hole	295 mm
650-0036	Kent Hip femoral stem standard 30 mm offset x 16 hole	340 mm
Standard (14 mm) Stem 40 mm offset		
650-0046	Kent Hip femoral stem standard 40 mm offset x 6 hole	190 mm
650-0049	Kent Hip femoral stem standard 40 mm offset x 9 hole	235 mm
650-0053	Kent Hip femoral stem standard 40 mm offset x 13 hole	295 mm
650-0056	Kent Hip femoral stem standard 40 mm offset x 16 hole	340 mm

Transverse Co Cr Locking Screws

part number	description	
650-0226	Transverse Co Cr locking screw 4.5 mm x 26 mm	pack of 5
650-0228	Transverse Co Cr locking screw 4.5 mm x 28 mm	pack of 5
650-0230	Transverse Co Cr locking screw 4.5 mm x 30 mm	pack of 5
650-0232	Transverse Co Cr locking screw 4.5 mm x 32 mm	pack of 5
650-0234	Transverse Co Cr locking screw 4.5 mm x 34 mm	pack of 5
650-0236	Transverse Co Cr locking screw 4.5 mm x 36 mm	pack of 5
650-0238	Transverse Co Cr locking screw 4.5 mm x 38 mm	pack of 5
650-0240	Transverse Co Cr locking screw 4.5 mm x 40 mm	pack of 5
650-0242	Transverse Co Cr locking screw 4.5 mm x 42 mm	pack of 5
650-0244	Transverse Co Cr locking screw 4.5 mm x 44 mm	pack of 5
650-0246	Transverse Co Cr locking screw 4.5 mm x 46 mm	pack of 5
650-0248	Transverse Co Cr locking screw 4.5 mm x 48 mm	pack of 5
650-0250	Transverse Co Cr locking screw 4.5 mm x 50 mm	pack of 5
650-0255	Transverse Co Cr locking screw 4.5 mm x 55 mm	pack of 5

The Kent Hip utilises Biomet Merck Ltd's Type One Taper and can be used in conjunction with any of their corresponding CoCr, ceramic modular or Hemi heads with the Type One Taper.

instrumentation

Kent Hip Instrumentation

part number	description
31-410040	**Instrument tray complete with instruments**
31-410039	Instrument tray
31-410037	Adjustable drill guide
31-401476	'C' wrench
31-401475	Free drill guide
31-401478	Twist drill 4 mm x 150 mm
31-401479	Twist drill 4 mm x 180 mm
31-473547	Modular trial head 32 mm +12 mm
31-473545	Modular trial head 32 mm +9 mm
31-473536	Modular trial head 32 mm +6 mm
31-473535	Modular trial head 32 mm +3 mm
31-473534	Modular trial head 32 mm standard
31-473533	Modular trial head 32 mm -3 mm
31-473532	Modular trial head 32 mm -6 mm
31-473531	Modular trial head 28 mm +12 mm
31-473529	Modular trial head 28 mm +9 mm
31-473530	Modular trial head 28 mm +6 mm
31-473527	Modular trial head 28 mm +3 mm
31-473528	Modular trial head 28 mm standard
31-473525	Modular trial head 28 mm -3 mm
31-473526	Modular trial head 28 mm 6 mm
31-400521	Modular trial head 22.2 mm standard
31-400520	Modular trial head 22.2 mm -5 mm
31-401480	Depth gauge
470012	Hex screwdriver 3.5 mm
31-401483	Stem inserter/extractor
31-401481	4.5 mm cortical bone tap
31-410038	Proximal reamer
31-401473	Distal rasp

Kent Hip Femoral X-Ray Overlays

part number	description	magnification
31-401485	Kent Hip femoral stem X-ray overlay	10%
31-401486	Kent Hip femoral stem X-ray overlay	15%
31-401487	Kent Hip femoral stem X-ray overlay	20%

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