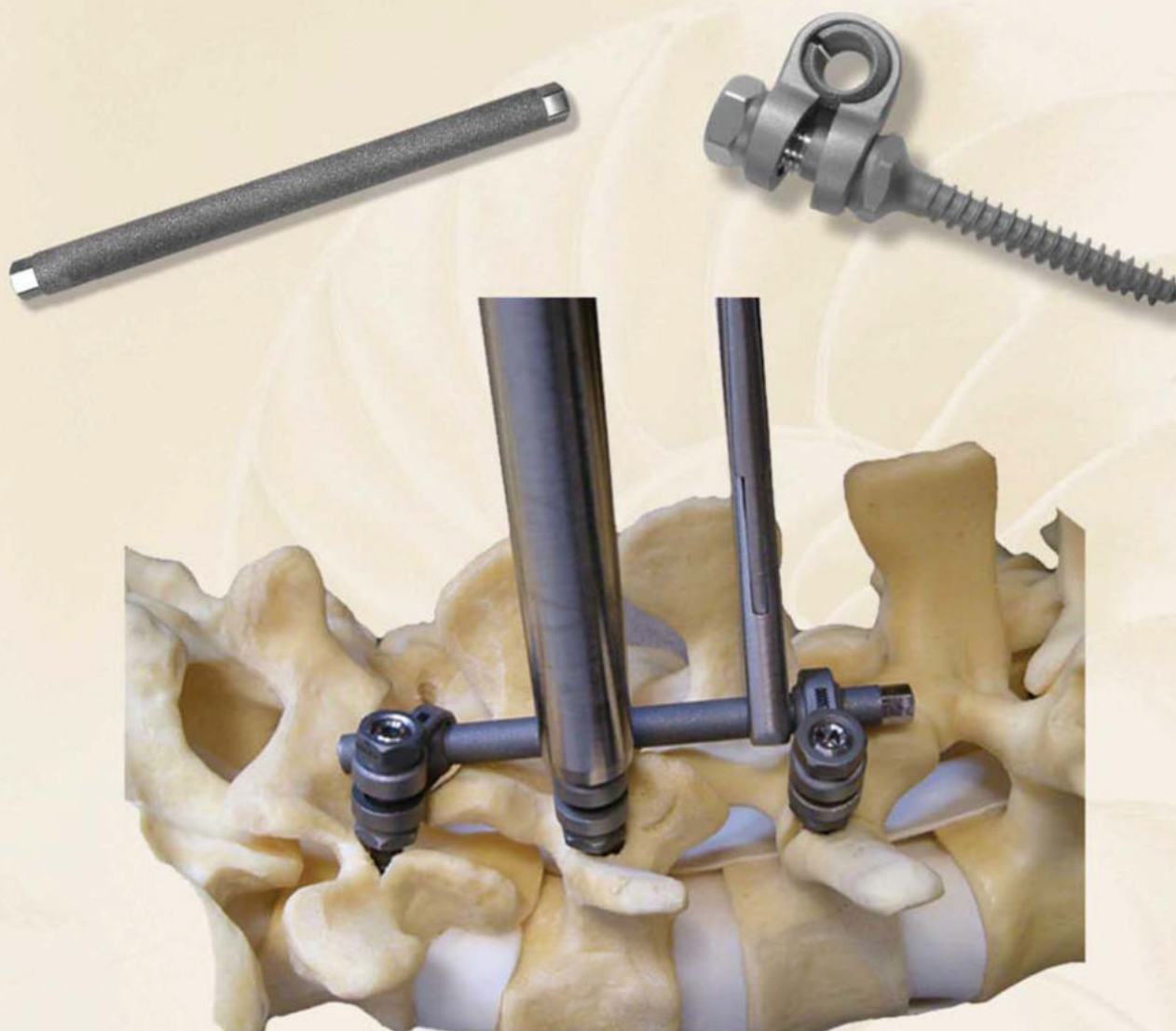


DLC - Dorso-Lumbar Coupling System

Surgical Technique



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BIOTECH Dorso-Lumbo-Coupling (DLC) Posterior Fusion System is pedicle screw based stabilization system of the dorso-lumbar or lumbo-sacral spine in spine surgery.

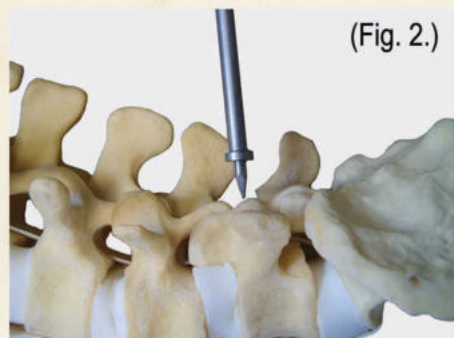
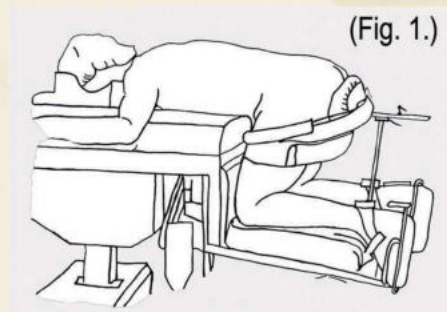
The use of DLC System is indicated in posterior spine surgery of the dorso-lumbar-sacral region, where stability and solid bony fusion is to be achieved after surgery for spondylolisthesis, fractures with or without dislocations, disc herniation, canal stenosis, metastatic bone tumours, primary bone tumors, vertebral instability. Long-term postoperative complications like graft instability or pseudoarthrosis can be reduced significantly with the application of the system. The screws and rod gives the mechanical support and the stability to the dorso-lumbar and lumbo-sacral spine. Treating the dorso-lumbar and lumbo-sacral diseases requiring stabilization with the help of the posterior instrumentation this device has the optimal features we need.

DLC System is made of titanium alloy (Titanium-6Aluminium-4Vanadium alloy), with very high biocompatibility and advantageous biomechanical properties for spinal surgery, and it is based on transpedicular screw fixation. It offers titanium self-tapping transpedicular screws in different diameter sizes, with self-tapping screw for spondylolisthesis. The system inherits its necessary stability with adequate flexibility with the use of titanium made couplings, locking nuts, rods, transverse rods and transverse rod connectors. The design of the system enables the rods to fit perfectly over the posterior surface of the vertebral body.

DLC-System is easy to handle and with many new advantages, can be used in osteoporotic vertebrae, and also in re-operations as a rescuing system.

It dose not require any levering, in the anterior vertebral cortex.

The versitility of the system, through its different available types of screws and connectors, makes it applicable for various situations and indications.



Surgical Techniques:

Patient is made to lay for a posterior approach. (Fig. 1.)
Care should be taken not to compress the anterior face of abdomen.
Maintain physiological lodrosis.

Extend incision to avoid interference of seperators with the screwing of pedicles.

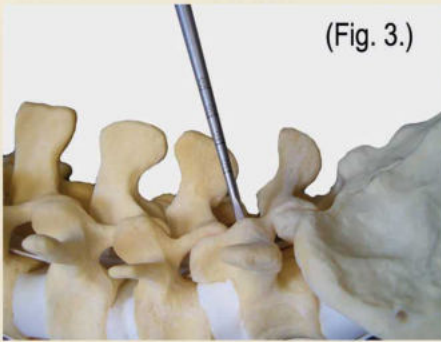
Posterior Arch is exposed, bilaterally extended to the transverse processes.

Prepare the bonegrafting area.

With help of bone references, identify the topographic position of the pedicle.

Perforate the posterior cortex at the point of pedicle contact, with the help of the punch. (Fig. 2.) (if necessary, remove a part of the superior articular process with help of a gouge)

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(Fig. 3.)

Insert pedicle probe through the cancellous trabeculae, by rotating around its axis until it reaches the vertebral body. (Fig. 3.)

Probe insertion is done to check whether the prepared path is surrounded by the bone all the way. (Fig. 4.)

Repeat above steps, for each pedicle.

Use anteroposterior and lateral projection fluoroscopy, to check the path locations in the pedicles.

Self-tapping screws are inserted. (Fig. 5.)

Choose the appropriate rods to join the screws laterally.

Attach connectors to the rods.

If more than three screws are to be joined, then screw lengtheners may be applied.

Rods are mostly positioned in the inner side of the screws, unless outer positioning is more suitable for the grafting.

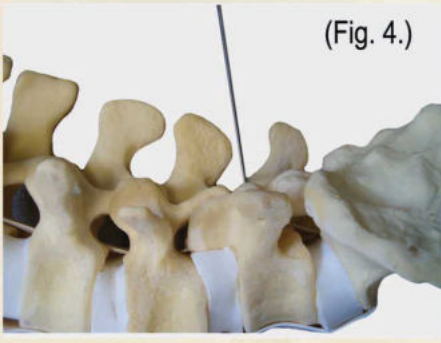
Use T wrench to tie nuts around the screws.

Final tightening is done with help of torque wrench, this is an important stage to securely lock the whole system. (Fig. 6.)

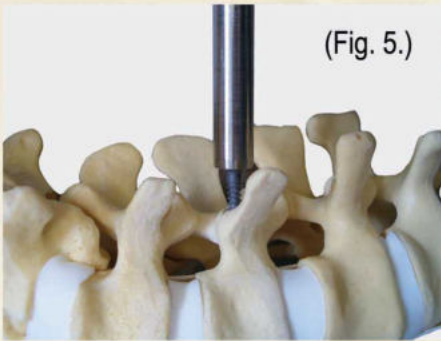
(Fig. 6.)

Rod holder is used during tightening process, in order to prevent the applied force from being transmitted into the rest of the implant. (Fig. 7.)

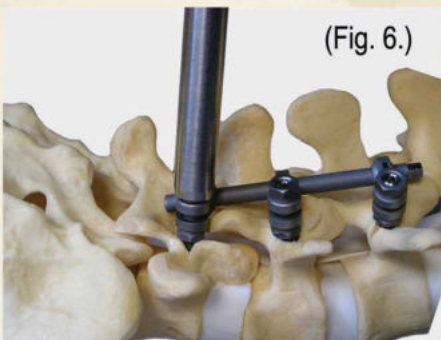
If cross-locking elements are used, connectors are attached to each rod, and then a thin transverse rod is passed through them. Locking screws are then tightened on both connectors.



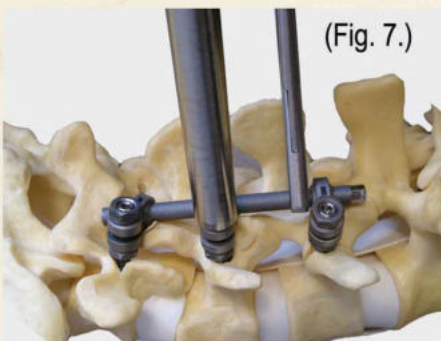
(Fig. 4.)



(Fig. 5.)



(Fig. 6.)



(Fig. 7.)

Unstable Thoracolumbar Axial Compression Fracture(Burst)

Insert screws into each pedicles of fractured vertebrae, as well as their adjacent vertebrae.

Position the rod in place, leaving the multidirectional connector loose.

Connectors on the lower vertebrae are tightened.

Ligamentotaxis is produced by applying distraction force to the screws of the adjacent vertebrae.

While distraction is maintained, traction is applied onto the screws of the upper vertebrae, thus restoring the physiological lordosis.

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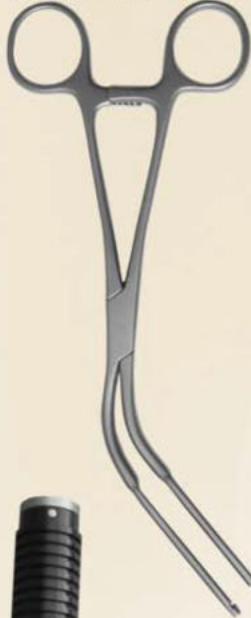
729-0007-0016 Drill Bit 2.0 mm



729-0007-0017 Drill Bit 2.0 mm (long)



729-0010-0020
Plate Holder Forceps



729-0009-48 Measuring clamp



729-0014-0005 Graftholder



729-0005-0010
Screwdriver 2,5 mm



729-0004-0010 Hammer



729-0007-0018 Tap 4,0 mm



729-0007-0015
Drill Holder quick connect



729-0010-0021
Plate Holder *



* optional



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