



HRC Locking Cage™ ALIF

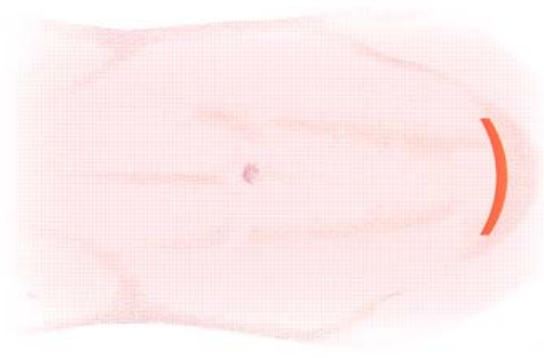
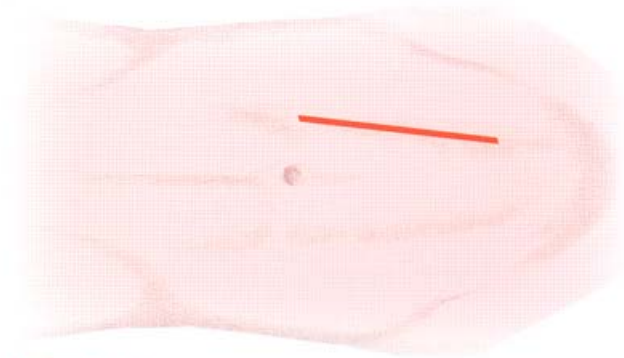
Surgical Technique



Innovative thought. Unique design.

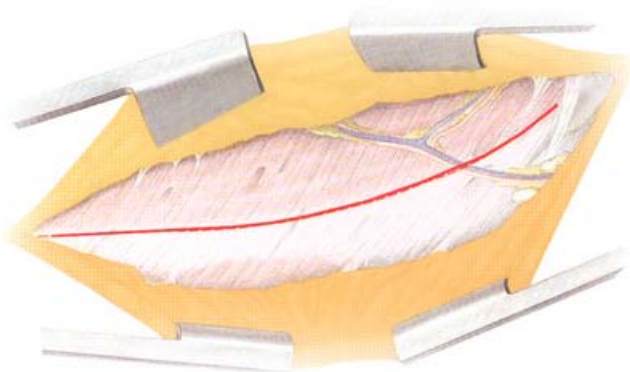
Introduction

The HRC Locking Cage ALIF allows a transperitoneal or retroperitoneal approach. The cages provide a locking mechanism, which has to be turned to allow the blade to lock into the end-plates at the end of the procedure.



Positioning

The patient is placed in the supine position on a radiolucent, hinging table and general anesthesia is administered.

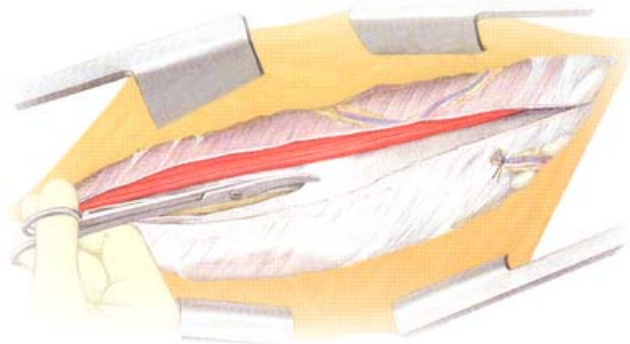


Incision

The lumbar spine is exposed through a median, a Pfannenstiel or a paramedian incision, and a retroperitoneal approach is developed.

A midline transperitoneal approach is possible as well as the Pfannenstiel incision, even for the L5-S1 level.

Exposure of the abdominal fascia and incision of the rectus sheath.



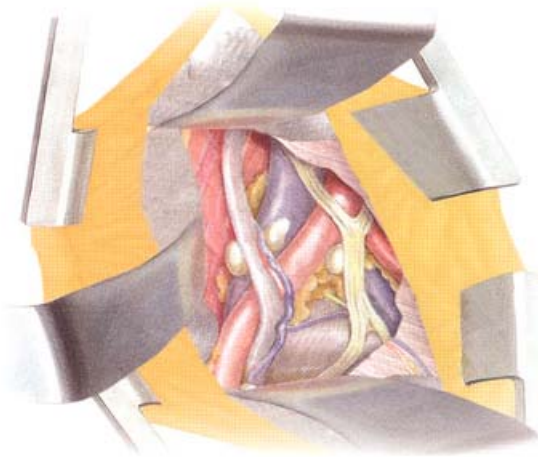
Approach

Division of the rectus sheath.

The superficial epigastric vessels can be ligated if necessary.

Exposure of the preperitoneal or retroperitoneal space.

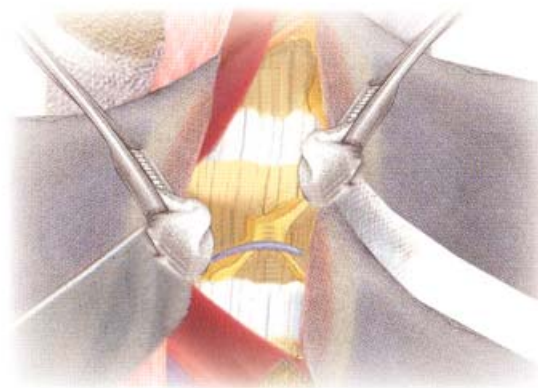
Careful blunt retraction of the peritoneum.



Approach

Exposure of the prevertebral space and iliac vessels.

Medial retraction of the peritoneum.



Retraction of the psoas muscle and careful preparation of the prevertebral vessels by using a swab in a clamp. Identification of the ureter.

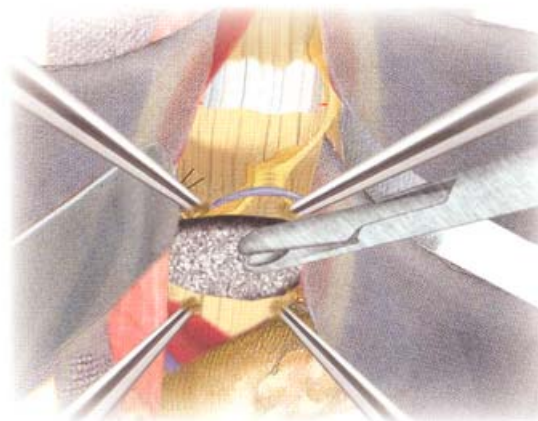
The corresponding segmental vessels have to be exposed and ligated.

Special attention has to be given to the ascending lumbar vein. Damage to it can result in profuse bleeding.

Exposure of the lower lumbar spine.

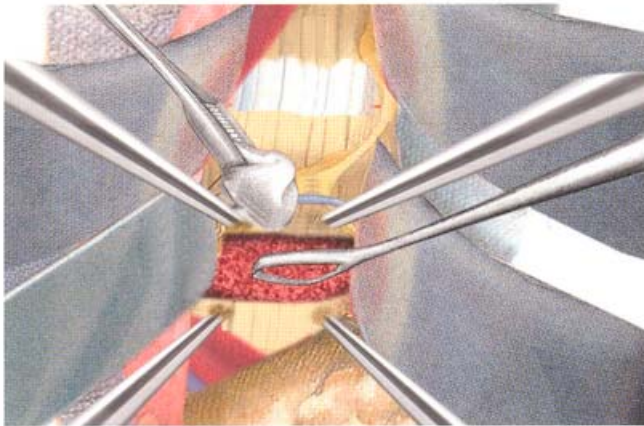
Ligation of the ascending lumbar vessels and the segmental vessels if necessary.

Note: In men use bipolar coagulation or ligation only, in order to avoid retrograde ejaculation.



Discectomy

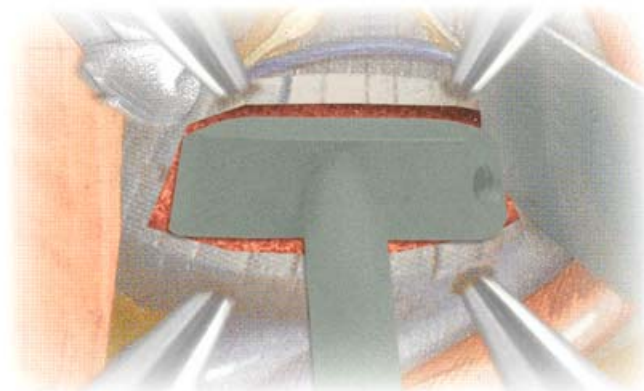
Prepare the intervertebral space, resect the remaining nucleus pulposus using the rongeur for a proper implant fit.



Curettage

Prepare the endplates of the vertebrae using the curettes, but stop after it starts bleeding to avoid weakening of the endplates.

This is important to facilitate vascular supply to the bonegraft without weakening the endplates.



Distraction

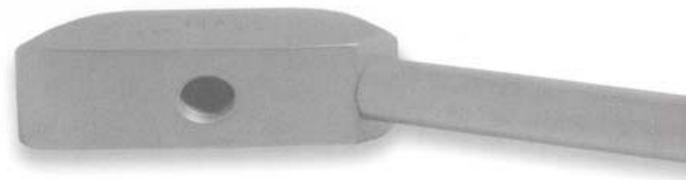
Expand the intervertebral space:

Insertion of the smallest trial-cage appropriate to the anatomy, which serves as a distractor as well.

Expand the intervertebral space using bigger sizes of trial-cages until the desired height is achieved.

Proceed the preparation as far as possible to the posterior wall of the vertebral body.

A lateral application is also possible using the ventrolateral hole of the trial-cage.



Assembly of the implant and impactor

Initially, the implant holder (a) is introduced into the guide (b).

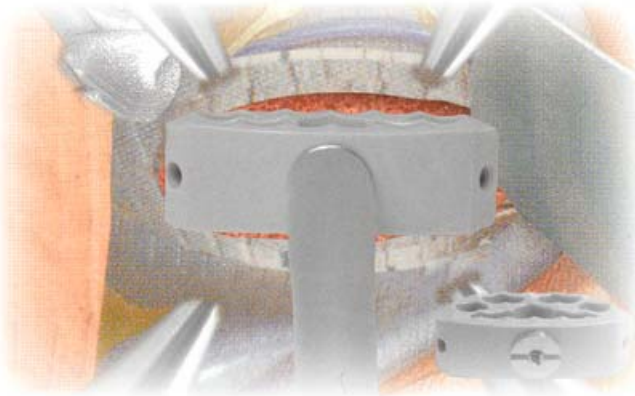
The implant should be firmly screwed to the implant holder.



Note: Tight screwing prevents quick wear of the instruments. Please mind your fingers, because blade may turn unintentionally.

Preparation of the implant

The impactor, together with the attached cage is inserted into the spongiosa filling base instrument and filled with bone or auto- and/or allograft material by means of a pincette and the introducer.



Insertion of the implant

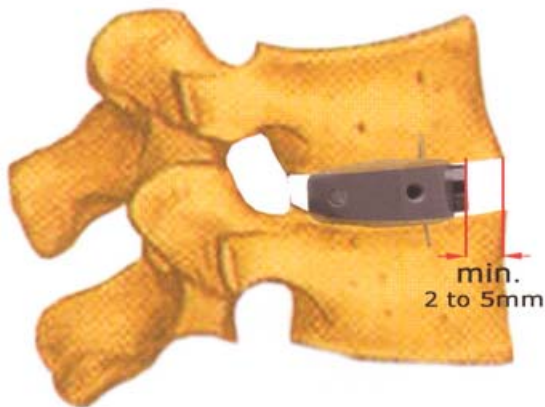
After inserting the implant, place sufficient bonegraft into the intervertebral disc.

Pay attention that the handle remains in a horizontal positioning during impaction.

This ensures that the blade remains closed.

Attention: Leave the instrument attached to the implant for the following assessment.

Note: The cage can also be placed by using the ventro-lateral hole of the cage.

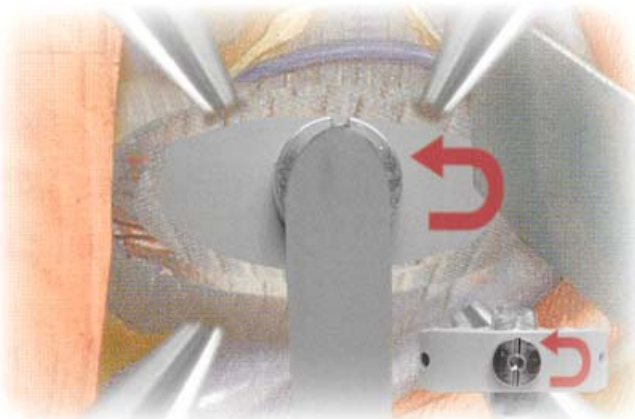


Assesment

Examine the exact position of the implant with an image intensifier.

The cage must be placed as posterior as possible, at least 2 to 5 mm behind the anterior wall of the anterior cortex.

The blade also serves as a marker for the correct placement of the cage.



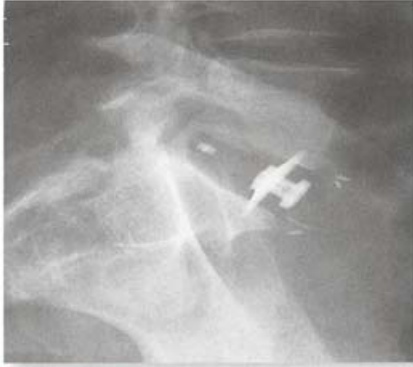
Locking

The implant can be locked after its correct positioning has been assessed.

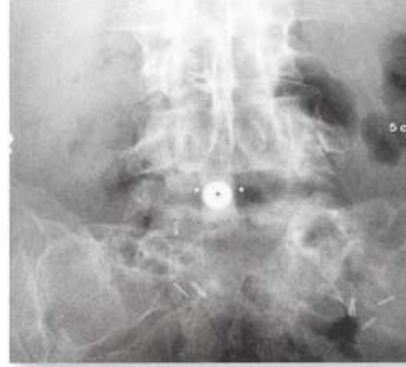
Turn the rotator counter-clockwise until it is perpendicular (about 90 degrees) to the enplate of the vertebrae.

X-Ray control

Carry out X-Ray inspection.



Sagittal plane



A.P. plane

Note:

Test the solidity of the anchorage of the blade by slightly pulling on the implant (holder or rotator).

In case of obvious instability, use a further fixation like anterior plate or screw system.

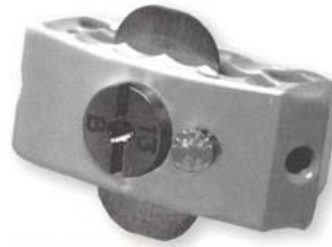
Generously place additional bonegraft on the anterior side of the implant.

This implant has to be considered either as a stand alone device (L5–S1) or as a standard implant together with a dorsal fixation (L2–L5).

Please use the additional security screw as shown in the following picture:



Screwing of the safety screw



Cut the safety screw



| | |
|--|------------|
| HRC ALIF Distractor/Trial Cage9 | HRCAIF9 |
| HRC ALIF Distractor/Trial Cage 11 | HRCAIF11 |
| HRC ALIF Distractor/Trial Cage 11 long | LHRCAIF11L |
| HRCAIF11Distractor/Trial Cage 13A | HRCAIF13A |
| HRC ALIF Distractor/Trial Cage 13B | HRCAIF13B |
| HRC ALIF Distractor/Trial Cage 13C | HRCAIF13C |
| HRC ALIF Distractor/Trial Cage 13LA long | HRCAIF13LA |
| HRC ALIF Distractor/Trial Cage 13LB long | HRCAIF13LB |
| HRC ALIF Distractor/Trial Cage 15A | HRCAIF15A |
| HRC ALIF Distractor/Trial Cage 15B | HRCAIF15B |
| HRC ALIF Distractor/Trial Cage 15L long | HRCAIF15L |



HRC ALIF Rongeur, 250 curved K323
HRC ALIF Rongeur, 250 straight K324



HRC ALIF Curette 1 HRCICUR1
HRC ALIF Curette 2 HRCICUR2



HRC ALIF Rotator HRCAIR



HRC ALIF Holder HRCAIP



HRC ALIF Applicator, assembled



HRC ALIF Holder, lateral HRCAIPC



HRC ALIF Trial Cage Holder HRCAIPF



HRC ALIF Introducer HRCAIMP



HRC ALIF Filling-Base HRCAIE

Please refer to the package inserts for complete product information including contraindications, warnings, precautions and adverse effects.