Duraloc®
CONSTRUANED LINER

Surgical Technique
A Comprehensive Acetabular Revision System
Introduction

Dislocation is the most common postoperative complication in total hip reconstruction. In revision hip surgery, dislocation rates have been reported as high as 25 percent.¹ The Duraloc® Constrained Liner is indicated for use in total hip cases where dislocation represents a significant postoperative concern.

The use of constrained liners has been reported to help reduce the incidence of dislocation in at-risk total hip patients.² The constrained liner is used where more conservative soft tissue tensioning alternatives, such as femoral neck lengthening, component positioning and lateralized acetabular components, may not be effective.

Features and Benefits

- Easily retrofits into the clinically established Duraloc and Solution System® acetabular shells.

- Available in 28 mm head configurations from 48 to 50 mm and in 32 mm head configurations from 52 to 74 mm.

- The thickness of the Enduron™ polyethylene is uncompromised by the constrained liners and is 6 mm or greater in all cases.

- A titanium alloy reinforcing ring strengthens the construct by locking into a circumferential groove in the liner face and securing the prosthetic head through stable axial capture.
**Surgical Technique**

**Step 1**

**Implant Acetabular Shell**
After reaming, place the appropriate trial shell in the acetabulum at the desired anteversion and inclination. Select a nonconstrained standard trial liner insert and complete trial reduction. If necessary, adjust the trial shell to establish the most favorable orientation, joint stability and functional range of motion. Implant the appropriate acetabular shell in a position that accurately reproduces the trial shell position.

**Step 2**

**Adjunctive Fixation**
If desired, secure the implanted shell with screw fixation. An additional trial reduction with a nonconstrained standard trial liner insert and trial head may be performed to confirm shell position.
Step 3
Replace Dynamic Locking Ring
If the Duraloc Constrained Liner is being retrofit into a Duraloc or Solution System shell, insert a new dynamic locking ring into the acetabular component.

Step 4
Insert Constrained Liner into Shell
Select the appropriate Duraloc Constrained Liner and place it into the acetabular shell (28 mm IDs are available for 48 and 50 mm shells, 32 mm IDs should be used with shells that are size 52 mm and larger whenever femoral head size permits). The use of a 22 mm Duraloc impaction device is recommended to impact the liner into position. Once the constrained liner is in place, do not perform trial reduction. Due to the liner constraining mechanism, the trial head will be very difficult to remove from the constrained liner.

Step 5
Reinforcement Ring Placed Around Femoral Component Neck
Place the constrained liner reinforcement ring over the head and neck of the femoral prosthesis. Both edges of the constraining ring are beveled to ease ring placement.

Skirted femoral heads are contraindicated for use with constrained liners.
Step 6

Insert Femoral Head into Constrained Liner
When relocating the reconstructed joint, significant force is required to ensure that the head is seated in the constrained acetabular component. Relocating the femoral head requires approximately 75 lbs. of pressure and will be easier if the neck of the femoral component is perpendicular to the face of the liner. Visually, the head must be fully seated in the constrained liner. It may be necessary to dry the ID of the constrained liner and the femoral head to avoid a vacuum seal and aid insertion of the head into the liner.

Step 7

Insertion of Reinforcement Ring
Ensure that both the inside of the reinforcement ring and the circular constrained liner reinforcement ring groove are free of debris. Using the appropriate size (28 or 32 mm) Duraloc Constrained Liner ring inserter, place the grooves of the inserter on the reinforcement ring. Gently impact the strike plate of the inserter until the inserter is in contact with the constrained liner. The reinforcement ring will remain slightly proud from the constrained liner.

Step 8

Final Seating of Reinforcement Ring
Use the bone tamp to perform the final seating of the reinforcement ring by tapping around the circumference of the ring until the ring is flush with the surface of the liner face.
Indications
The Duraloc Constrained Acetabular Liner is indicated for use as a component of a total hip prosthesis in primary or revision patients at high risk of hip dislocation due to a history of prior dislocation, bone loss, joint or soft tissue laxity, neuromuscular disease or intraoperative instability.

Contraindications
Any infection in or about the hip joint, bone or musculature compromised by disease, infections or prior implantation, which cannot provide adequate support of fixation for the prosthesis and skeletal immaturity.

Warnings
Closed reduction of this device is not possible. Patients should be made aware that treatment of device dislocation will require additional surgery. Use of components of other manufacturers with this implant may lead to premature wear or failure of the device. Only one attempt to assemble the constraining/reinforcing ring on the constrained acetabular liners should be made. If the device is not assembled correctly the first time then remove and replace with a new liner and ring. Do not install the constrained acetabular liner without the constraining/reinforcing ring in place. The ring constrains the polyethylene of the liner, aiding in femoral head capture. Do not use steam autoclaving for resterilization of the UHMWPE liner, as it may result in serious deformation and material deterioration. Bending, contouring or modifying this device may adversely affect the implant, potentially leading to early implant failure. Patients should be instructed on the impact of excessive loading that can result if the patient is involved in an occupation or activity that includes substantial walking, running, lifting or excessive muscle loading due to patient weight. These activities may place extreme demands on the constrained liner resulting in the failure of the device. Extreme demands on the device may also compromise fixation of the acetabular shell in the acetabulum.

Precautions
The implant should be handled carefully to avoid damage that could compromise the mechanical integrity of the device and cause early failure or loosening. Inspect implants for nicks, scratches or other defects that may cause failure of the implant. To prevent contamination of this prosthesis, keep free of lint and powders. Do not open the package until surgery. Do not place the implant in contact with prepared bone surfaces before the final decision to implant has been made. An implant should never be reused. Any implant once assembled and disassembled should be discarded. Even though it appears undamaged, it may have small defects and internal stress patterns that may lead to failure. The wear rate of prosthesis contact surfaces is greatly accelerated if loose fragments of bone cement become detached and act as an abrasive in the bearing surfaces. When using bone cement, care should be taken to remove all excess cement from the periphery of the implant. Ensure that the size of the liner corresponds to the size of the acetabular shell. The inner diameter of the acetabular components and the femoral head size must correspond.

Adverse Events
Two published case series describe the use of the Poly-Dial® Constrained Acetabular Liner. Wear or failure of the device. Extreme demands on the device may also compromise fixation of the acetabular shell in the acetabulum.

REFERENCES

CAUTION: Federal Law (USA) restricts these devices to sale by or on the order of a physician. Consult the package insert for complete product information.

For more information about the Duraloc Constrained Liner, visit our web site at www.jnjgateway.com/revisionhip.