Advanced Treatment Options for Tibia Plateau Depression Fractures. Internal fixation with proximal tibial plates and biomaterials.

Stable construct

Optimal bone void filling

More intraoperative options
Advanced Treatment Options for Tibia Plateau Depression Fractures.
Internal fixation with proximal tibial plates and biomaterials.

The treatment of choice for tibia plateau depression fractures involves reduction and internal fixation to restore the plateau surface. The process of reduction frequently results in the formation of cancellous bone defects which require the use of a bone void filler in order to achieve anatomical fixation.

A common material used for filling tibia plateau defects has been autologous bone graft harvested from the iliac crest. However, this has not been a satisfying solution. Autologous bone grafts support integration and generation of new bone, but harvesting of the material is a painful procedure associated with significant donor site morbidity.

Internal Fixation

Internal fixation can be achieved with the following plates.  
- LCP Proximal Tibial Plates 3.5 & 4.5/5.0
- LCP Proximal Lateral Tibial Plate

Advantages:
- Minimally invasive technique
- Locking screw technology creates a fixed-angle construct
- Anatomically contoured to fit the proximal lateral tibia
- Ideal for buttressing
- Screws can be inserted close to the articular surface to create a raft for the support of depression fractures

1 For complete indications, contraindications and instructions please consult the following brochures: LCP Proximal Tibia Plate 3.5 (036.000.394), LCP Proximal Tibial Plate 4.5/5.0 (036.000.396) and LISS Proximal Lateral Tibia (036.000.203).
Filling of Defects and Associated Bone Voids

Tibia plateau depression defects with associated bone voids can be filled with an appropriate bone void filler.

Synthes provides two solutions which allow a minimally invasive treatment and optimal filling of irregular and difficult to reach bone defects.

**Norian Drillable**
- Drillable bone void filler with high compressive strength
- Can be implanted before or after final hardware fixation

**chronOS Inject**
- Osteoconductive bone void filler which remodels within 6 – 18 months into host bone

<table>
<thead>
<tr>
<th></th>
<th>chronOS Inject</th>
<th>Norian Drillable</th>
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<tbody>
<tr>
<td>Compressive strength</td>
<td>~ 4 MPa</td>
<td>~ 35 MPa</td>
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<tr>
<td>Remodeling time</td>
<td>6 – 18 months</td>
<td>&gt; 5 years</td>
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<tr>
<td>Drillable</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Procedure</td>
<td>Reduce – fix – fill</td>
<td>Reduce – fix – fill or reduce – fill – fix</td>
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<tr>
<td>Patient focus</td>
<td>Fast remodeling for young, non-osteoporotic patients</td>
<td>Allows early return to function for elderly osteoporotic patients</td>
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2 For complete indications, contraindications and instructions please consult the following brochures: Norian Drillable (036.000.757) and chronOS Inject (036.000.794).
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Key benefits of Norian Drillable
Norian Drillable hardens to carbonated apatite with bio-resorbable fibers, a product with unique benefits:
- Can be drilled and tapped, and screws can be placed through it at any time during or after the setting process
- Allows flexible surgical procedure: the bone void can be filled before or after final fixation
- Reaches a compressive strength of 35 MPa within 24 hours
- Injectable: Smaller incisions, less pain, faster recovery, complete void filling

Clinical case 1
55-year-old female patient with a tibia plateau C3 fracture, treated with LCP Proximal Tibial Plate 4.5/5.0 and Norian Drillable.

Key benefits of chronOS Inject
chronOS Inject consists of a brushite matrix and β-tricalcium phosphate granules:
- Osteoconductive: Fast osteointegration, remodels into native bone within 6 – 18 months
- Injectable: Smaller incisions, less pain, faster recovery, complete void filling
- Self setting at body temperature: No tissue damage, less pain, faster recovery
- Easy mixing and application: Faster and better defect filling

Clinical case 4
25-year-old patient with a 41-B3 fracture from snowboarding, treated with LCP Proximal Lateral Tibial Plate and chronOS Inject.