2001 - REVISION OF LUMBAR TOTAL DISC REPLACEMENT WITH A NEW TECHNIQUE: PRONE TRANSPSOAS (PTP) APPROACH

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Lumbar total disc replacement (TDR) was a revolutionary surgical procedure, with the promised goal of solving degenerative spinal conditions without fusion.

When the procedure result in failure, we have several options to address it, that ranges from Posterior Lumbar Fusion to Lateral Lumbar interbody Fusion.

The advantages of using a lateral approach is the ability to promote segmental lordosis gain while avoiding the complication of accessing the anterior scar tissue and the muscular and bony tissue damage of a posterior-only approach.

However the use of the LLIF also has its disadvantages, such as, low segmental lordosis gain and the necessity of reposition the patient for posterior surgery.
• A 63 year–old female with previous lumbar arthroplasty at L4-L5 and L5-S1 performed at our institution in 2003.

• In early 2017, the patient presented to our practice with symptoms of radiculopathy on the left leg, lasting the prior four months. Conservative treatments with Pilates and pharmaceutical analgesia were recommended

• With the failure of conservative options and the presence of instability, the operative plan was to remove the arthroplasty and fuse the unstable L4-5 level.
Clinical Presentation

- The use of the PTP technique was chosen for two main reasons. Firstly, it avoids the anterior scar tissue; and secondly, the prone position allows posterior fixation and lateral access without repositioning the patient.

- The patient was positioned prone on a Jackson table, with hip and chest support, leaving the abdomen hanging freely to be laterally accessed and promoting lordosis.

- As the PTP (Alphatec Inc.) approach uses the traditional lateral retroperitoneal access, it was possible to target the remaining fibrous ring without the presence of scar tissue, enabling a safe approach with excellent vascular protection. The prosthesis was removed through the lateral approach, and a 30° cage was placed at the L4-L5 level.
Clinical Presentation

- Surgery duration: 205 minutes
- Intra-psoas time: 32 minutes
- EBL: 250 ml

After the surgery, the L4-L5 segmental angle increased from 22.3° to 30.9°

The patient spent one day in the hospital, and 0 days in ICU. No intraoperative complications occurred.

After seven days, the patient had a slight loss of motor weakness but with full resolution of her previous symptomatology
Although useful, lumbar TDR had one major pitfall: the difficulty of revision in cases of prosthesis failure, as posterior stabilization alone has a high rate of pseudoarthrosis, and anterior revision with fusion has a high risk of complication.

To avoid complications regarding the revision of TDRs, Pimenta et al., in 2006, proposed the removal of the TDR by the lateral approach, avoiding both the scar tissue and the complicated vascular anatomy of an anterior revision.

Although the use of a standard lateral approach is safe and effective, its major problem was the necessity of repositioning the patient to perform the posterior fixation, increasing the surgery time. Therefore the authors chose to perform the prone transpsoas (PTP) technique, as the method takes advantage of the power of the lateral approach with the additional benefits from a lordotic decubitus and single-position surgery.
The PTP approach is a safe and feasible technique to perform lateral retroperitoneal interbody fusion surgery. It presents some exciting features such as the increase of lordosis given the positional effect of prone position and the enabling of single-position surgery for circumferential fusion.