MINIMALLY INVASIVE DECOMPRESSIVE LAMINECTOMY TLIF AND PEDICLE SCREW FIXATION USING BILATERAL PARASPINAL MUSCLE SPLITTING TECHNIQUE

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Introduction:

Currently used minimally invasive techniques for spinal fusion have been linked with improved outcomes and decreased post-operative pain, however they also have several drawbacks. The use of tubular retractors, while allowing satisfactory placement of pedicle screws and rods, also limits the operative field making adequate decompression difficult particularly in central stenosis. Furthermore, tubular retractors do not allow the placement of a contiguous posterolateral arthrodesis on the side opposite to the decompression.
Methods:

We analyzed the results of the bilateral paraspinal muscle splitting technique that we developed (minimally invasive decompression and fusion MIDF), which overcomes these disadvantages in 46 patients.
Results:

There were 23 one level, 16 two level, and 7 three level procedures. Of these, there were 36 new cases and 10 revisions. The length of incision for one level of MIDF was only slightly larger than for microdiscectomy averaging 6.5 cm. While operating time was not dramatically less, there was significantly lower blood loss and only 4 patients needed blood transfusions, all in 3 level surgery or revision. The amount of post-operative pain and time to mobilization was significantly decreased.
Conclusion:

The MIDF technique has allowed enhanced visualization through a modest incision for decompression and contiguous arthrodesis for one, two, and three level TLIF with pedicle screw fixation. We have seen favorable postoperative pain scales as well as increased mobility compared with conventional open midline approaches.
Longissimus/Iliocostalis plane

Paraspinal Planes

Multifidus/Longissimus plane
Multifidus/
Longissimus plane

Longissimus/
Iliocostalis plane

Blunt muscle splitting technique
Marking of the incision

Subcutaneous dissection, the length of skin incision is 7cm for two level decompression and fusion.

The lumbo-dorsal fascia is incised and the aponeurosis is seen underneath. Spinous processes are felt at the midline.

Incision of the aponeurosis of erector spinae

Dissection of the erector spinae muscle from the aponeurosis which is lifted with two Kocher clamps.

Bilateral spinous process exposure

Drilling of the lamina
construct on the ipsilateral side

construct on the contralateral side including bony fusion