EMG Evidence of Indirect Decompression during Lateral Transpsoas Interbody Fusion

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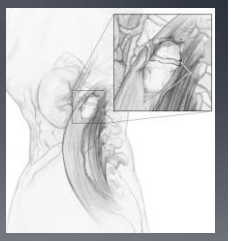
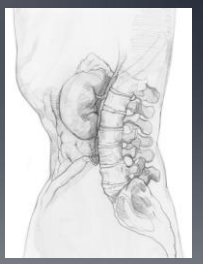
Lateral Transpsoas Approach

- LTIF, LLIF, XLIF, DLIF
- Minimally invasive, Retroperitonal Approach to the Lumbar Spine
- Achieves anterior interbody fusion
- May afford indirect decompression of the spinal canal and neural foramen
- Increasingly safe procedure



Anatomical Considerations

- Cleft between TP and posterior border of psoas
- Roots move dorsal to ventral at more caudal levels
- L3/4, L4/5 at relatively higher risk from a posteriorly situated retractor



Neuromonitoring

- SSEP
- S-EMG
- T-EMG
- Directional Stimulation

Radiographic and Clinical Evidence of Indirect Decompression

- Oliviera et al.: 24.7% foraminal diameter
  33.1% canal diameter
- Elowitz et al.: increased canal area
- Kepler et al.: 35% foraminal area
- Clinical and radiographic data support indirect foraminal decompression after LTIF

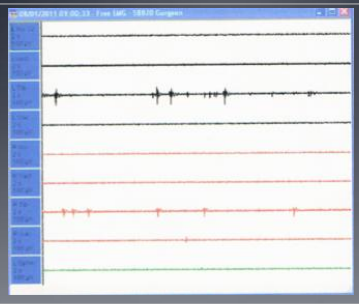
S-EMG and Nerve Root Compression

- S-EMG Discharge in 18% of cases
- Typically resolves with decompression
- May serve as an indicator of decompression

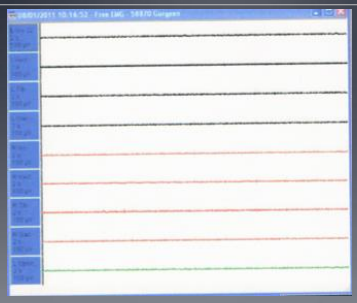
EMG Evidence of Indirect Decompression

- S-EMG discharge at case outset
- S-EMG Quiet when trial inserted in the disk space
- S-EMG discharge returns when trial removed
- S-EMG quiet once interbody graft placed

EMG Prior to Interbody Graft



EMG After Interbody Graft



Summary

- LTIF is an increasingly popular technique for anterior interbody fusion
- Clinical, Radiographic, and now EMG data support the notion of indirect decompression in LTIF
- Further study is needed to elucidate the clinical implications of these findings

References

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