



Introduction

The lateral transpsoas interbody fusion (LTIF) is an increasingly popular minimally invasive technique for lumbar interbody fusion. While a posterior approach to the lumbar spine has traditionally been favored for the treatment of canal stenosis and neural foraminal stenosis, a growing body of evidence suggests that indirect decompression of the spinal canal and neural foramen can be achieved using a lateral transpsoas approach to the lumbar spine. We wish to add to this body of evidence intraoperative electromyographic (EMG) evidence of indirect decompression during LTIF as illustrated by two clinical cases.

Methods

The two cases presented in this manuscript illustrate resolution of spontaneous EMG (s-EMG) firing during LTIF, suggesting decompression of the affected nerve roots. Both of these cases were operated at the L2-3 level.

Pre-Operative MRI



Significant canal stenosis is present rostral to the prior fusion construct

EMG Tracing Prior to Distraction



EMG Tracing After Distraction



Results

In the first case, s-EMG firing was noted in the bilateral tibialis anterior leads. Resolution of EMG firing would suggest indirect decompression of the canal via ligamentotaxis as the L5 root traverses the L2-3 disk space. In the second case, s-EMG firing was noted in the left abductor hallucis and resolved with distraction of the L2-3 disk space. Again, this is best explained by canal decompression via ligamentotaxis as the S1 root traverses the L2-3 disk space.

Conclusions

In both cases, the patients experienced immediate improvement in their radicular symptoms. These cases illustrate EMG evidence of indirect decompression during LTIF.

Learning Objectives

- 1) Review the significance of spontaneous EMG discharges during spine surgery.
- 2) Discuss, in small groups, the role that EMG monitoring could potentially play in assessing adequacy of decompression intraoperatively

References

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