

SHORT COMMUNICATION

Transsternal Approach to the Upper Thoracic Spin Between T1 and T5 Levels

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Abstract

Transsternal approach can be used to reach the upper thoracic spine. This is a brief review on the relevant surgical technique which having knowledge about that is of great importance for the surgeons whom will employ this surgical approach.

Keywords: Transsternal approach - Upper thoracic spine.

1. Body

Although thoracic disc herniations are not very much common but those pathologies are encountered by surgeons from time to time. Since the thoracic disc herniations represent less than one percent of all disc herniations and relevant surgical operations, such pathologies are usually not commonly seen in surgical departments. The immobility of thoracic spine causes low incidence of degenerative pathological changes in that in comparison with cervical or lumbar spine. The majority of symptomatic discs usually occur between T8 and T11 levels.

For thoracic disc herniations, performing laminectomy is usually not very much acceptable treatment. There are some techniques to approach thoracic spine pathologies. Anterior techniques including transsternal, transthoracic and retropleural have better benefits in ventral exposure for intradural, calcified and centrally located discs in comparison with posterior techniques including lateral extracavity, transpedicular, transcostovertebral, stillerman's transfacet pedicle sparing and costotransversectomy which are much more appropriate for extradural, more lateral and nonlacified herniated discs.

By employing transsternal approach, accessing to the T1 to T5 levels of thoracic spine is possible although,

the level of the aortic arch which depends on individual anatomical variabilities sometimes limits optimal manipulations in this approach. Vertical incision over the sternal region or midline T-shaped incision can be used in this approach. Intraoperative identification of esophagus can be facilitated by placing an orogastric tube in it. After fascial detachments from the sternum, the sternum is opened and a sternal retractor is placed. The inferior thyroid vein and artery can also be ligated which provides better exposure. After reflecting the thymus to the right side, a window for surgical exposure is opened which is medially located to the left common carotid artery. Surgical manipulation to the disc is done afterwards that is similar to that which is done during anterior cervical operation.

Thoracic duct which ascends along the esophagus and then runs behind the left subclavian artery and enters the internal jugular vein, should be of notice to not be injured during performing the approach. Also special care must be taken to not injure neighboring neurologic and vascular structures during this approach.

There are various complications related to this approach including chylothorax, hemothorax, pneumonia etc. Such complications can be decreased by paying enough attention to certain anatomical structures during surgery.

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2. Conclusion

It is important for the surgeons to have detailed knowledge about the surgical anatomy and technique to employ the Transsternal approach to the upper thoracic spine. It would result in gaining better surgical results and decrease the amount of possible surgical complications which may occur by employing this approach.

3. References

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