Anterior Low Suprasternal Approach to Cervicothoracic Lesion

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INTRODUCTION:

Anterior approach to cervicothoracic junction (CTJ) is very challenging due to structures at this region. Typically, it involves combination of thoracotomy, sternotomy, or clavicle resection with anterior dissection into the superior mediastinum. Localizing the diseased segment relative to cervicothoracic angle (CTA), understanding the osseous and vascular anatomy in the CTJ are critical factors for preoperative decision of the approach.

REPORT:

24 years old lady presented with numbness and weakness over left upper limb and worsening back pain for past 1 month. Gibbus was seen and tender over thoracolumbar. Left hand sensation and power reduced at C7/C8. ESR was at 93 mmHr. Imaging showed destruction of T1 and L2 vertebrae bodies with spinal cord compression which highly suggestive of TB spine. Anti TB was commenced, and she underwent T1 corpectomy through anterior approach and posterior instrumentation and fusion of lumbar.

DISCUSSION:

A sagittal MRI is used to evaluate the CTA and vascular anatomy. The CTA denoted the lowest vertebrae that could be reached without sternotomy. Type A, B, or C lesions are defined whether the lesion sites are above, within, or below the area of the CTA. Type A could be resected via anterior approach, type B via anterior approaches with or without manubriotomy while type C requires more aggressive exposure, including sternotomy, lateral parascapular thoracotomy or the lateral posterior extra- cavitary approach. Aortic arch lies behind the manubrium, whereas left BCV located at the level of suprasternal notch (SSN). For our patient, her CTA measures 29.4° and has 1 normal vertebra below the diseased segment which makes anterior approach without sternotomy feasible for T1 corpectomy.

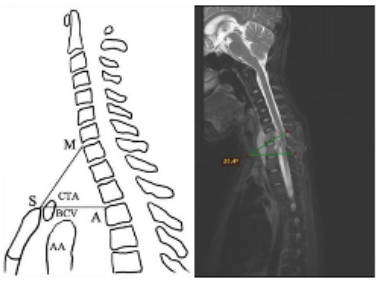

Figure 1: Right: In midsagittal MRI, two lines were drawn from SSN extended horizontally to corresponding anterior border of the vertebrae (SA) and another to midpoint of the anterior border of C7/T1 intervertebral disc (SM). The angle at SSN known as CTA. Figure also shows relation of left BCV and the aortic arch (AA). Left: The CTA measured in this patient was 29.4°.

Figure 2: Post operative xray of patient

CONCLUSION:

The relationship between the lesion site and the CTA combined with vascular anatomy helps to determine the type of approach needed. The final choice of which approach relies mainly on the availability of a healthy vertebra below the diseased segment while still above the SSN, and that is suitable for instrumentation.

REFERENCES:

1. H. Teng et al. Surgery in the cervicothoracic junction with an anterior low suprasternal approach alone or combined with manubriotomy and sternotomy. J Neurosurg Spine 10:531-542,2009.