

Oblique Cervical Corpectomy in Treatment of Cervical Myeloradiculopathy

Essay

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم العظيم

صدق الله العظيم

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Candidate

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List of Abbreviations

<i>Abbr.</i>	<i>Full-term</i>
CSM	: Cervical spondylotic myelopathy
CSR	: Cervical spondylotic radiculopathy
IJV	: Internal jugular vein
MOC	: Multilevel oblique corpectomy
NSAID	: Non steroidal anti-inflammatory drugs
OC	: Oblique corpectomy
PICA	: Postero-inferior cerebellar artery
SCM	: Sternocleidomastoid
VA	: Vertebral artery
V1	: Vertebral artery first segment
V2	: Vertebral artery second segment
V3	: Vertebral artery third segment
V4	: Vertebral artery fourth segment
CT	: Computed tomography

MRI	: Magnetic Resonance Imaging
PLL	: Posterior Longitudonal ligament
LF	: Ligamentum Flavum
3D	: Three Dimensional
IVD	: Inter-vertebral disc
JOA	: Japanese Orthopedic Association

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Introduction

Oblique corpectomy (OC) is an alternative technique for the resection of spondylotic spurs ventral to the cervical spinal cord contributing to cervical spondylotic myelopathy (CSM) and cervical spondylotic radiculopathy (CSR).

CSM and CSR caused by compressive lesions from degenerative spondylotic changes have been surgically treated by various means: subtotal corpectomies with strut grafting, multiple discectomies with or without interbody fusions, anterior foraminotomy, laminectomy, and laminoplasty⁽¹⁻⁴⁾.

However, the choice of the most appropriate surgical approach for this condition is still controversial.

Anterior corpectomy and fusion offers direct resection of pathology but requires bone grafting and fusion with many months of immobilization, while laminectomy or laminoplasty offers indirect posterior decompression without the resection of the anterior pathology^(1,2,6).

An alternative technique, oblique corpectomy (OC), facilitates ventral excision of spondylotic bars

while averting the need for fusion ^(2,3). It may be applied for patients with straight or kyphotic axis of the spine.

Surgical recommendations must be based on patient characteristics, symptoms, and neuroradiologic finding.

Aim of the Study

This study aimed to review the surgical technique of oblique corpectomy and its efficacy to decompress the spinal cord and cervical nerve roots from spondylotic elements and tumours.

Chapter (1): **Anatomy of Cervical Spine and Vertebral Artery**

The Cervical Spine

The first and second cervical vertebrae are atypical in both their structure and function compared to the other cervical vertebrae. Weight bearing between them and the base of the skull is not via the vertebral bodies and intervening disc, like the other vertebrae, but rather via articulations that enable greater movement than other individual motion segments of the spine ⁽¹⁾.

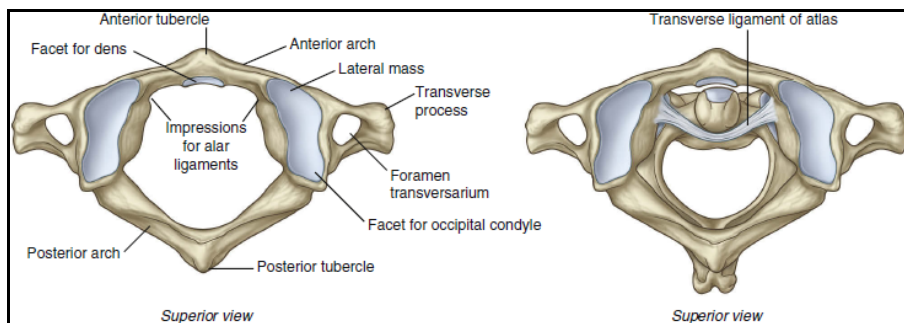


Figure (1): The atlas ⁽¹⁰⁾.

Subaxial cervical spine

An image of a typical cervical vertebra is illustrated in (Fig. 2). During development, the costal elements form the anterior tubercle, the costotransverse bar and the tip of the posterior tubercle produce the vertebral foramen. The vertebral artery typically passes

up through the vertebral foramen from C6 to C1, while the vertebral foramen in the lateral mass of C7 contains only the vertebral venous plexus. The vertebral artery passes anterior to the lateral mass of C7. The spinous processes of the typical cervical vertebrae are usually bifid and relatively short. Spinous processes elongate in the lower segments with the C7 level being transitional between the cervical and thoracic region. The spinous process of C7, the *vertebra prominens*, can be easily palpated posteriorly at the base of the neck and is not typically bifid ^(1,2).

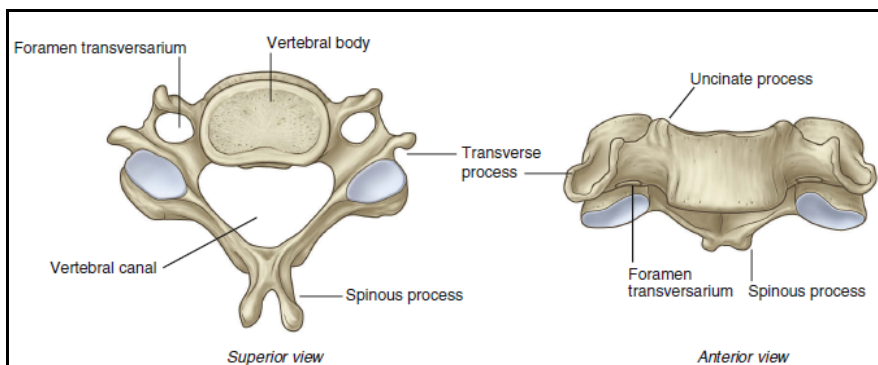


Figure (2): Typical cervical vertebra ⁽¹⁰⁾.

Each mobile segment, excluding the articulation between the occiput and C1, and C1 and C2, articulates via a three-joint complex. Anteriorly, there is a fibrous articulation via the intervertebral disc, comprised of an outer tough fibrous *annulus fibrosus* and the central