Oblique Cervical Corpectomy in Treatment of Cervical Myeloradiculopathy

Essay

Submitted for partial fulfillment of Master Degree of Orthopedic Surgery

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2016

سورة البقرة الآية: ٣٢

Acknowledgments

First and foremost, I feel always indebted to Allah *the Most Beneficent and Merciful.*

I wish to express my deepest gratitude and thanks to **Prof. Dr. Abd El Mohsen Arafa,** *Professor of Orthopedic Surgery, Faculty of Medicine – Ain Shams University, for his constructive criticism, unlimited help and giving me the privilege to work under his supervision.*

My most sincere gratitude is also extended to **Prof. Dr. Ahmed Elbadrawi,** *Associate Professor of Orthopedic Surgery, Faculty of Medicine – Ain Shams University, for his enthusiastic help, continuous supervision, guidance and support throughout this work.*

Last but not least, I can't forget to thank the orthopedic department of Ain Shams University for their continious teaching and guidance.

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List of Abbreviations

Abbr.	Full-term

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).]

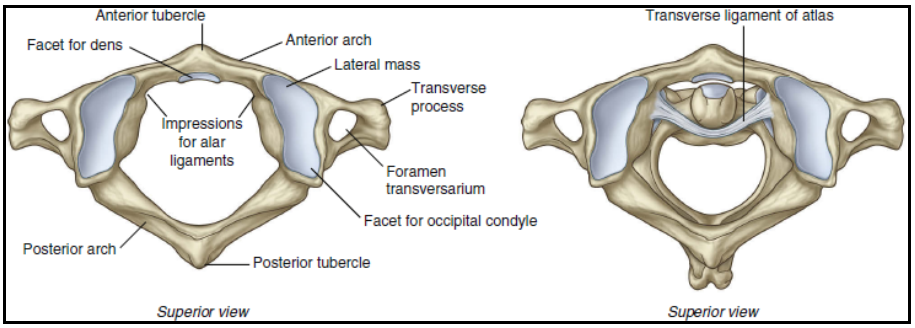

Figure (1): The atlas [(10).]

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].

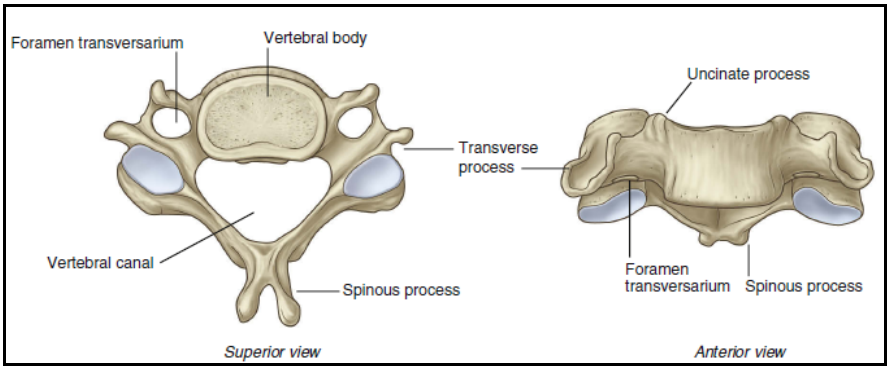

Figure (2): Typical cervical vertebra [10].

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