ALTERNATIVE FIXATION POINT IN OCCIPITOCERVICAL STABILIZATION: OCCIPITAL CONDYLE SCREW. REVIEW OF THE LITERATURE

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INTRODUCTION

Occipitocervical fusion using screws and rods offers immediate stability and a high fusion rate. However, multiple cranial fixation points are required in order to compensate for the poor bony purchase. The occipital squama pathology or previous posterior fossa decompression may reduce the already limited available space. This issue is addressed by a novel technique of occipital condyle screws, which provides alternative fixation points.
METHODS

A comprehensive “Medline” and “Web of science” database search was performed. Cadaveric, radiographic and case studies were included.
RESULTS

The occipital condyle screw enables
• increased screw length
• greater screw pullout strength
• lower profile of the hardware
• extended grafting surface

Proximity of the vertebral artery and hypoglossal canal presents the greatest technical challenge of occipital condyle screw.

Four surgical techniques with different entry points, cranial-caudal and medial angulations were described. None of these techniques is superior to the other.
3 mm inferio to condylar emissary v.  
30 degrees caudally
10 degrees medially

4-5 mm
1-2 mm
5 degrees cranially
12 to 22 degrees medially
**ENTRY POINT**
- Center of the condyle

**SAGITTAL PLANE ANGULATION**
- ≤ 10 degrees caudally or cranially

**TRANSVERSE PLANE ANGULATION**
- 20-30 degrees medially

**LE ET AL.**
- 5 mm lateral to the medial wall of the condyle at least 2 mm caudal to the skull base

**0-5 degrees cranially**

≥ 20 degrees medially
Occipital condyle screw is a viable alternative to standard OCF techniques. Challenges exist due to the proximity of the vital anatomical structures. Choice between four available techniques depends on unique patient’s anatomy.