THE FUTURE OF CONDYLAR SCREW IN CRANIOCERVICAL JUNCTION STABILITATION

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Over the past decade occipital condyle screw has been accepted as a feasible alternative to standard occipital plates for occipital cervical fusion.

Four surgical techniques with different entry points or condylar screw trajectory were reported in literature.

In the opinion of the author further surgical approaches to access the occipital condyle are possible.
A comprehensive anatomical study based on existing literature, surgical observations and cadaver dissection has been performed, with particular attention paid to hypoglossal canal morphology and the relationship between condyle and surrounding neurovascular structures.
RESULTS

Five different potential surgical strategies are presented as a possible alternative approach involving the OC as cephalad fixation point in occipitocervical fusion.

Our attempt goes through developments aimed at:
• improving biomechanical stability
• preserving surrounding vital structure of the condyle
• exploring a less invasive approach
BILATERAL ANTEROLATERAL APPROACH
ANTERIOR APPROACH

TRAJECTORY
- postero-laterally
- caudally
MINIMALLY INVASIVE POSTERIOR BILATERAL APPROACH

TRAJECTORY
- medially
- cranially
PERCUTANEOUS POSTERIOR APPROACH
CONCLUSIONS

Condylar screw can be dealt with different approaches and corridor including a minimally invasive posterior bilateral approach or a percutaneous posterior approach. Additionally, switch from posterior to anterior should be also considered by using the traditional anterior approach, familiar method to access the subaxial cervical spine, or a bilateral anterior/anterolateral cervical approach.

The aforementioned approaches have their own pro and cons which need to be proved and discussed. Furthermore biomechanical, cadaveric and radiological studies are required to assess the safety and reliability of these novel strategies.