

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. **Conclusions:** 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

## P.142

### The effect of modern technology on cervical spine biomechanics. Literature review

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**Background:** The use of smartphones has increased drastically over the last decade. Improper posture, and excessive use have raised concerns about their effect on cervical spine health. **Methods:** MEDLINE database was searched for articles using the keywords: neck pain, musculoskeletal symptoms, cervical spine, cervical biomechanics, mobile phone, cell phone, smart phone, smartphone, mobile device, touchscreen phone. Full-text Articles from 1990 to 2017 were included. Statistical comparisons and tables are provided when appropriate. **Results:** 43 articles were included for review. First article was published in 2002. Majority of studies were published between 2010 – 2017 (36 vs. 5 in 2000-2010). Studies included were of cross-sectional, experimental, or systemic review design. No longitudinal studies were identified. We categorized articles into 5 sub-groups; we found 14 biomechanical studies, 10 electromyographic studies, 5 ergonomical studies, 14 clinical studies, and no surgical studies. **Conclusions:** Text-neck posture leads to significant changes in cervical spine biomechanics. Increased compressive load, antero-posterior shear load, and high cervical extensor muscles activity were associated with forward flexed neck posture adapted by smartphones users. Neurosurgeons need to take the abnormal posture and load distribution into consideration when planning for surgical interventions, especially in young adults with history of excessive use of smartphones.

## P.143

### Spinal cord intramedullary malignant peripheral nerve sheath tumour: case report and review of literature

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**Background:** Malignant peripheral nerve sheath tumours (MPNST) are uncommon but aggressive neoplasia associated with radiation exposure and neurofibromatosis (NF). These tumours are often found in the trunk, extremities, head and neck, with capacity to metastasize. Only a handful of case reports have described intramedullary spinal cord MPNST. **Methods:** We report the case of a 35 year-old female who presented with progressive gait disturbance and paraparesis. MRI of the spine demonstrated an enhancing intramedullary mass at the C7 vertebra. Laminectomy with expansile duraplasty, and extended surgical biopsy were performed for cord decompression and tissue diagnosis. **Results:** Pathological sections

demonstrated a spindle cell neoplasm with nuclear atypia, frequent mitotic figures, focal necrosis, and infiltration into adjacent neurological tissue. It was positive for S100, SOX10, p53 with partial loss of INI-1. Diagnosis of spinal intramedullary MPNST was confirmed, however given the prior history of remote trigeminal MPNST, it was unclear whether the mass represented a delayed metastasis, or a de novo neoplasm. **Conclusions:** Typically relegated to the periphery, our case represents a rare spinal medullary presentation of MPNST. While the differential for tumours in this location typically includes diffuse astrocytomas, ependymomas, and rarely schwannomas, we move that consideration of MPNST in select high risk cases advise surgical planning and subsequent therapy.