

## Forensic Clinical Anatomy of Spine in Child Abuse

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Forensic Clinical Anatomy of Child Abuse includes studies of Functional and/or Biomechanical Anatomy which are performed on cadavers to verify compatibility of lesions with accidental dynamics. Moreover, some kinds of damages following Child Abuse are strictly anatomical in nature and require morphological/morphometric methods of investigation for adequate assessment. Problems of differential diagnosis between anatomical structures (normal or variant) and pathological findings also frequently arise [1]. In the present work, we focused on anatomical bases of spinal lesions in two autoptical cases of abusive head trauma, with particular reference to methodological issues. Both cases presented brain subdural haemorrhage and multiple bilateral retinal haemorrhages. In both cases, the spinal cord was sampled in continuity with the dura mater and it was subjected to complete sectioning. Spinal subdural haemorrhages were found along all the spinal levels. The histopathological characteristics of these haemorrhages also permitted to reveal different chronologies of the lesions, with consequent forensic implications. Hypoxic-ischaemic damages coexisted, mainly at the level of cervical and lumbar spinal cord, together with gliomesodermic response. On the basis of *in vivo* imaging suggesting cervical sub-dislocations, portions of the vertebral column were also sampled and subjected to post-mortem imaging before further histopathological sampling. In one case, postmortem imaging permitted to confirm anterolisthesis of the second vertebral body over the third one. Histopathological analysis also showed the presence of haemorrhagic infiltrations of the epidural adipose tissue at the level of the atlanto-axial joints. A consistent methodology of analysis of the spinal structures should involve integration of postmortem imaging with detailed and exhaustive histopathological study.

### References

- [1] Porzionato A, Macchi V, Stecco C, Loukas M, Tubbs RS, De Caro R (2017) Forensic clinical anatomy: A new field of study with application to medicolegal issues. *Clin Anat* 30: 2-5.

### Keywords

Forensic Clinical Anatomy, Abusive Head Trauma, subdural haemorrhage, postmortem imaging, spine, spinal cord