G22 The Relationship of Back Surgery to Overdose at Autopsy

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The goal of this presentation is to define the relationship between the presence of a scar in the midline of the back, indicating a history of laminectomy, with drug intoxication sufficient to cause death.

This presentation will impact the forensic science community by discussing how presence of a laminectomy scar is a powerful marker for a drug related death. In a practice where toxicology is not routinely performed on all cases, the presence of a laminectomy scar should lead to toxicological analysis for that case.

Rationale: Individuals who have died suddenly and unexpectedly in which examination reveals a scar in the midline of the back of the sort left by a lumbar or cervical laminectomy are regularly received. Because the cause of death in such individuals is frequently intoxication with some drug, it is hypothesized that death due to a drug overdose is more common in individuals with evidence of a previous laminectomy than in individuals with no prior laminectomy. Therefore, we tested the null hypothesis. There is no difference in the frequency of death from a drug overdose in a study group with a linear scar in the midline of the back when compared to the frequency of drug overdose in cases evaluated at the medical examiner office in which no scar is found on the midline of the back.

Methods: A retrospective case-control study of deaths in 2008 investigated by the Jefferson County Coroner/Medical Examiner Office, Alabama was conducted. The study group consisted of decedents 18 years of age or older who had a linear scar in the midline of the back; as determined by review of the autopsy protocol (body diagram or written report). The control group was chosen from all the decedents examined at the Jefferson County Coroner/Medical Examiner Office, Alabama in 2008. Controls were matched to the study cases by age, race, and sex. Race and sex were matched exactly. Age was matched to the same year in 21 cases, to within one year in five cases, and to within two years in three cases. When more than one control was available the control used was determined randomly the throw of a die. The charts of both the study group (back scar) and of the control group (no scar) were reviewed for the cause of death and evidence of intoxication. All toxicology results were noted in the decedents, including the presence of cocaine, any other drugs or medications, and ethanol. Bodies charred by fire (six cases) or recovered as skeletal remains (two cases) were excluded from the study. This project was approved by the medical Institutional Review Board of the University of Alabama at Birmingham.

Results: For all decedents 18 years of age or older in 2008, the likelihood of death being due to a drug overdose was 12.8%. The study group of decedents with a linear back scar consisted of 27 decedents, nine of whom died as a result of acute intoxication with some substance of abuse. In the matched control group one decedent died of acute intoxication with a substance of abuse. Decedents with a back scar were thirteen times (odds ratio 13.0; 95% confidence interval 1.9-85; p= 0.011) more likely to die of a drug overdose than the controls. In other words, a body with a laminectomy scar is 13 times more likely to die as a result of an overdose than is another body without a laminectomy scar. Given the small p-value, chance is an unlikely explanation for these

results. The confidence interval is large because of the few cases in the study; a larger study will narrow the confidence interval.

Conclusion: This study shows that, when found at postmortem examination, the presence of a linear scar in the midline of the back of the sort following laminectomy is a powerful marker for a drug related death. In a practice where toxicology is not routinely performed on all cases, the presence of a laminectomy scar should lead to toxicological analysis for that case.

Back Scar, Drug Overdose, Intoxication

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