A Fatality Occurring During Tumescent Liposuction

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CASE REPORT: Over the past decade, liposuction has become the most frequently performed procedure in aesthetic plastic surgery in many countries although it should not be considered without complications. Tumescent local anesthesia is subcutaneous infiltration of very dilute lidocaine and epinephrine to produce subcutaneous swelling. Mepivacaine has never been mentioned to be used in this kind of surgery. We report a case of overdose with mepivacaine and lidocaine in a 38-year-old patient who died during a procedure of tumescent liposuction of abdomen and both thighs in an outhospital clinic. According to one witness, the victim suffered an episode of tonic-clonic convulsion. When the emergency medical services arrived the patient was under cardiac arrest and the cardiopulmonary resuscitation measures were of no use.

METHODS: All drugs involved in the case were detected using gas chromatography with nitrogen-phosphorus detector and confirmed using gas chromatography-mass spectrometry full scan mode after solid-phase extraction using Chem-Elut columns. An additional high-performance liquid chromatography coupled to diode-array detection screening also obtained the same results. Quantitative analysis of the two local anaesthetics, lidocaine and mepivacaine, was undertaken by GC-NPD by comparison of each peak-area ratio with that of the IS against blood calibration curves (1, 5, and 10 mg/L). Limits of detection were 0.05 mg/L, the upper limit of linearity was 10 mg/L, accuracy was > 95%, and precision (n=3) demonstrated CV’s < 7% at 5 mg/L for both compounds.

RESULTS: Autopsy results showed general congestion with no specific signs of anaphylactic shock. Toxicological analysis revealed the presence of lidocaine and mepivacaine in heart blood, at concentrations of 4.9 and 16.2 mg/L, respectively. There are no defined anatomic or microscopic markers for toxicity caused by local anesthesia and toxicology remains the diagnostic mainstay.

CONCLUSIONS: Based on the autopsy findings, case history, and toxicology results, the forensic pathologists ruled that the cause of death was due to an overdose of local anesthetic agents. The low complication rates achieved in lipoplasty are due to adequately trained surgeons and anesthesia providers, and the diligent intraoperative and postoperative monitoring, which were mostly neglected by the operating surgeon involved in our case. Therefore the manner of death was considered accidental although due to gross medical negligence.

Keywords: Anesthesia toxicity, Lidocaine, Mepivacaine