G99 Forensic Approach in a Case of Simultaneous Sudden Infant Death Syndrome

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Simultaneous Sudden Infant Death Syndrome (SSIDS) has received limited attention in the medical forensic literature with only a few articles directly addressing this topic. The goal of this presentation is to present a rare case of simultaneous sudden infant deaths (SSIDS) in twin infants. The complete multidisciplinary approach from scene investigation, autopsy examinations, and performance of toxicological testing, satisfies the SIDS criteria and explains this simultaneous lethal event.

This presentation will impact the forensic community and/or humanity by reporting the simultaneous death of a pair of twins. The rarity of the event makes it peculiar and the described complete pathologic investigation (death scene investigation, autopsy examination, and toxicological screening) is strongly recommended in SIDS and is warranted in SSIDS cases.

The case of a simultaneous death in premature, identical male monozygotic, 138 days old twins who were found lifeless in their crib three or four hours after feeding is presented. In the history given by the mother, she stated that early in the morning she fed her sons and then put them at one end of their crib. A few hours later she found the babies in prone position, cyanotic and breathless. She immediately took each of them out of the crib, wet their faces, and alerted medical rescue, meanwhile trying to unsuccessfully resuscitate them. It was also noted that the babies suffered from a cough and respiratory difficulties with mucus production for the last few days, and were seen by a general practitioner who prescribed a cough syrup. The mother also stated that both babies refused feeding before their deaths. The extended family had no history of prior SIDS deaths. After death notification, the authority immediately alerted a forensic pathologist and a detailed scene investigation was performed. Upon the death scene investigation, the babies were found lying on the sofa in the restroom of a small and poorly furnished apartment situated on the ground floor. A domestic gas stove was connected to its fuel cylinder and was found cold to the touch in the same room. A technical assessment performed by fire fighters revealed that the gas supply system was functioning perfectly. The mother, except for cigarette abuse, denied risk factors for SIDS, such as maternal alcohol consumption and legal or illegal drug use during the pregnancy. Internal temperature of the infants measured by means of a bulbus thermometer was 29°C each, and external temperature was 10°C. Rigor mortis was present and livor mortis was represented by fixed reddishpurple coloration localized on anterior part of the body. External examination was unremarkable, showing no sign of traumatic injuries and/or signs of compression of the nose or mouth or upper airway obstruction. Only an intense cyanosis on lips and nails was observed. Complete autopsies two days later were performed. In both cases, cardiac sections showed a septum secundum atrial septal defect, the lungs were hypoexpanded and heavy with diffuse, firm, red boggy parenchyma, with the presence of white fluid in the upper respiratory tracts. Examination of other organs showed cerebral edema, epicardial petechiae, and intense vascular congestion. Histological examination of the hearts revealed the presence of multiple foci of myocardial contraction band necrosis, and myofiber breakup. Examination of the sinoatrial (SA) node and the bundle of His revealed no abnormalities. The lungs showed subpleural haemorrhages, alveolar septa mildly thickened by edema, capillary congestion, alveolar edema, and interstitial infiltrates with leukocytes. No other findings were found except for brain edema and generalized intraparenchymal acute hemostasis. A complete toxicological screening was performed to test for concentrations of bromexine in blood and urine, and for determination of HbCO in the blood. Results of the analysis excluded toxic values for drugs, including carbon monoxide. Data provided from the death scene investigation, medical history of the children before death, macroscopic and microscopic autopsy findings and the results of toxicological examination, exclude any traumatic injury, carbon monoxide or drug intoxication, and led us to conclude that acute respiratory failure from interstitial pneumonia was the cause of the deaths. The presence of environmental risk factors such as the ambient air temperature in the infants' room, number and position of covers, type of bed, prone sleeping position, cosleeping, mother's cigarettes abuse, and recent signs and symptoms of illness, acting at the same prolonged time on each baby, had to be considered relevant in justifying the simultaneity of the lethal event.

Simultaneous Sudden Infant Death Syndrome, Acute Respiratory Failure, Interstitial Pneumonia

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