G2 Undiagnosed, Untreated Natural Disease Mistaken for Lethal Child Neglect: Liability of the Family in Determining Child's Death

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After attending this presentation, attendees will understand that in cases in which there is a potential component of neglect or abuse, careful scene investigation, review of medical records, complete autopsy with skeletal survey, toxicology, chemical and metabolic testing should be requested.

This presentation will impact the forensic science community by emphasizing the fact that even if lethal neglect is a rare cause of death in industrialized countries, natural disease being mistaken for child abuse is rare too. As a matter of fact there are many potential organic diseases which may mimic neglect or abuse and an appropriate histological examination of all organs should be undertaken to assist in ruling out organic disease.

A case is presented of a 4-month-old infant who was found unresponsive at home and transported at a local hospital, where he expired in the Emergency Department. Physicians noted child's cachectic state; the mother stated he had fever, vomiting, and diarrhea for seven days but she was afraid to seek medical care because was fearful of legal action against her. Further investigations revealed a completely inappropriate and inadequate diet of meat, homogenized milk, and oatmeal from his birth. The infant was never breastfed.

Crime scene investigation showed the extremely poor living conditions of the apartment where the 22-year-old mother lived with her parents and her sons. The family was occasionally followed by social care workers. The infant had never been followed by a pediatrician.

The child weighed 4,000 g and was 62 cm long. His clothing and bedding were urine-soaked and vomit-covered. Whole body radiographic examination showed no fractures. At autopsy, there were clear signs of malnutrition and dehydration, like skin tenting and wrinkled loose skin, sunken fontanels and ocular globes, depressed cranial sutures, focal alopecia, prominent ribs and bony planes, and dry serosal and mucous membranes. Partial lack of subcutaneous and deep fat deposits with a severe atrophy of skeletal muscles was found. Brownish material was found in gastrointestinal tract. There was a severe atrophy of skeletal muscles, heart, liver, spleen, and kidneys; the small intestinal wall appeared swollen, with reddish discolored mucosa.

Further histological examination showed a T-cell lymphoblastic massive infiltrate of the liver, kidneys, and other organs with multiple foci of bronchopneumonia in lungs, and sporadic evidence of aspiration. Immunocytochemical studies confirmed the diagnosis of acute lymphoblastic leukemia of childhood. Toxicological examination revealed no substances in blood or urine. The cause of death was attributed to an Acute Lymphoblastic Leukemia (ALL) – related cachexia, worsened by malnutrition and dehydration.

The ALL is rare under one year and the youngest infants (ages 0 to 6 months) have the worst outcome. At diagnosis of childhood ALL, anorexia-cachexia syndrome may occur, presenting with anorexia, weight loss, wasting of muscle and adipose tissue, hyperlipidemia, and other metabolic abnormalities.

In the case presented here, an early recognition with appropriate treatment of ALL would probably have given the child a chance of survival. In fact, despite the progressive improvements in outcomes achieved for the children treated on chemotherapy, the outcome is positive in less than 25% of cases.

Cases of suspected child abuse which ultimately are determined to result from natural diseases are extremely rare. Moreover, although it is important to suspect child abuse when the history and examination are consistent with the diagnosis, it is equally important to think of other potential diagnoses, considering legal medico-legal aspects related the liability of the parents in determining child's death.

Lethal Neglect, Acute Lymphoblastic Leukemia, Malnutrition

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