PROCEEDINGS

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of the American Academy of Forensic Sciences
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and bronchiolitis. The histological examination of the liver revealed dilatation of linfatic vessels. The immunohistochemical staining method revealed generalized vascular proliferation of all organs. Acute cardiac failure in GSS was indicated as cause of death.

Gorham Stout Syndrome, Osteolysis, Child Disease

G38 Infant Death Investigation: A Retrospective Study From 2002 to 2011

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The goals of this presentation are to determine the incidence of the principal causes of infant deaths, analyze the risk factors and precipitating circumstances, access the importance of a deep forensic investigation for the determination of the cause of death, and suggest possible prevention measures.

This presentation will impact the forensic science community by describing how the implementation of multidisciplinary approaches and protocols for the classification of all sudden and unexpected infant deaths is absolutely fundamental. Placing infants in a supine position to sleep, avoiding tobacco exposure in pre- and postnatal periods, encouraging breastfeeding, and avoiding bed sharing are some of the prevention measures which may be largely implemented.

A retrospective study was conducted to analyze the number of infant death (under age one) cases which occurred in Northern Portugal during a 10-year period.

The most common presentation of infant death is Sudden Unexpected Death in Infancy (SUDI), defined as deaths in infants under one year of age that occur suddenly and unexpectedly, and whose cause of death is not immediately obvious prior to investigation. According to the Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) guidelines, deaths are classified within SUDI if they occur between 7 and 365 completed days of life and fulfill the following criteria: deaths that were unexpected and unexplained at autopsy; deaths during an acute illness that was not recognized as life-threatening; deaths due to an acute illness of less than 24h duration in a previously healthy infant (or death after this period if life had only been prolonged by intensive medical care); deaths from a pre-existing occult condition; and, deaths from any form of accident, trauma, or poisoning.

Thus, SUDI comprises a heterogeneous group, including deaths in which a careful review of the death scene and a meticulous postmortem examination will disclose a cause of death and those which will remain unexplained even after such examination.

After this thorough case investigation, infant deaths may be explained in cases with known and internationally accepted cause of death, but the related diseases were either lacking serious preceding symptoms or were not recognized. These include natural deaths due to acute medical illnesses, such as pulmonary injury related to ingestion of gastric content and infections (pneumonia and viral myocarditis) but also violent deaths (accidental or homicide), such as suffocation and poisoning.

In order to achieve the goals of this study, the forensic autopsy reports of infant deaths that occurred between January 2002 and December 2011 at the North Branch of the National Institute of Legal Medicine and Forensic Sciences (Portugal) and its offices were reviewed.

The analysis included a total of 103 sudden and unexpected deaths in infancy (SUDI), and the cases were divided in neonatal (17 cases, 16.5%) and postneonatal (86 cases, 83.5%). Infant deaths were divided into explained causes (85 cases, 82.5%), which included disease-associated causes of death (68 cases, 66%), as well as violent causes (17 cases, 16.5%), and unexplained causes (18 cases, 17.5%), classified as Sudden Infant Death Syndrome (SIDS).

Infant Death Investigation, Causes of Death, SUDI

G39 The Choking Game: A Deadly Game — Analysis of Two Cases of Self Strangulation in Young Boys

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After attending this presentation, attendees will know about the choking game, which is more frequent than expected and often goes unrecognized.

This presentation will impact the forensic science community by showing the importance of an accurate analysis of the circumstances of death, an in-depth inspection of places and things, and a careful autoptical and toxicological examination to do a correct diagnosis of a death by choking game.

The goal of this presentation is to provide information to show how cases of the “choking game” are more frequent than expected despite the fact that the phenomenon often goes unrecognized. The “choking game,” also called “jeu du foulard” in French-speaking countries, is defined as a self-strangulation or strangulation by another person with the hands or a noose to achieve a brief euphoric state caused by cerebral hypoxia. This provides a dizzy sensation, which is described as “cool.” Loss of consciousness may occur with potential injury from subsequent falling and/or due to hypoxic injury. Death may also occur, but young people do not seem to understand the danger of this behavior. It can involve both males and females, and the age range is 9-19 years, with an average of 13 years of age. Choking game participation is often associated with some health risk categories, such as poor mental health, substance use, exposure to violence, sexual activity, and gambling. These deaths are often classified as suicides or accidental deaths, without considering the possibility that they are a result of a deliberate self-asphyxiation in order to derive pleasure, which then turns into a deadly game. Death scenes and autopsy findings in suicides and asphyxial games are similar, so it is important to know the problem in order to better investigate. That’s why further studies are necessary in order to be able to recognize and adequately prevent this deadly game which can be difficult to identify. This presentation will impact the forensic science community by providing key information that can help correctly evaluate asphyxia cases in young persons, to understand if it’s suicide, accident, or a choking game, by presenting two cases involving two young boys who died as a result of a self-strangulation.

In April 2009, an adolescent 11-year-old boy was found by his stepfather, hanged from a bunk bed in his bedroom by a scarf made into a noose. His stepfather removed the ligature and began cardiopulmonary resuscitation. The boy was transported to the local hospital where he was pronounced dead one hour later. An accurate inspection was made, including the analysis of the young man’s computer. The results of this inspection, autopsy findings, and the testimonies of parents and teachers made it possible to confirm the death was a result of a “choking game.”

In June 2012, another adolescent boy, 15 years old, was

found with a scarf looped about his neck, suspended on the bunk bed, which was 103cm (3.4 feet) high, by his sister who went to his room to check on him because she hadn't seen him in three hours. The mother began cardiopulmonary resuscitation while his sister called the ambulance, but the boy was pronounced dead by physicians.

These two cases show the importance of a careful knowledge of this dangerous "game," which is widespread among young people all over the world. An accurate analysis of the circumstances of death, an in-depth inspection of places and things, and a careful autoptical and toxicological examination are essential in identifying the circumstances and cause of death and for the diagnosis of death due to strangulation during a "choking game."

Choking Game, Self-Strangulation, Asphyxial Game

G40 Hand, Foot, Mouth, ... And Medulla: Fatal Encephalitis in a Toddler Associated With Enterovirus 71 Infection

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After attending this presentation, attendees will understand the presentation, pathophysiology, and epidemiology of the emerging syndrome of Enterovirus 71-(EV 71) associated encephalitis in children.

This presentation will impact the forensic science community by elucidating the situations in which this condition should be considered and how identification at autopsy may be maximized. The significance of these cases to the public will be discussed.

A 17-month-old, previously healthy, female toddler presented to a Children's Hospital with fever, pallor, vomiting, poor perfusion, and shallow breathing. Initially tachycardic and self-ventilating, she abruptly developed bradycardia and deteriorated into cardiopulmonary arrest, from which she could not be resuscitated. During this brief terminal encounter, clinicians noted abnormal ocular findings, specifically ptosis, midline deviation, and nystagmus.

This child had been evaluated twice during the day preceding her death for suspected respiratory tract infection. No rashes or neurological findings were documented.

Gross autopsy findings included serous effusions, increased lung weight, and cerebral edema. The bladder was distended with urine. The lungs showed intra-alveolar edema and lymphocytic interstitial pneumonitis. Enterovirus was recovered from a lung swab. Examination of the fixed brain by a neuropathologist showed moderate symmetric brain swelling with dusky gray/brown discoloration, and congestion in the brainstem. Microscopy revealed meningoencephalitis, most severe in the caudal brainstem with focal necrosis, less severe in the cerebellate dentate nucleus, and relatively mild in the cerebrum (confined to the motor cortex, globus pallidus (inner segment), basal forebrain, hypothalamus, and inferior thalamus/subthalamus), typical of EV71 infection. No viral inclusions were identified.

The Enterovirus was subsequently sub-classified as EV 71. At least 3 children have died of EV 71-associated encephalitis in New South Wales this year, all identified following autopsy.

There is a clear association between Hand, Foot, and Mouth Disease (HFMD) and EV 71 and Coxsackie A virus 16, and a clear association between EV 71-associated HFMD and encephalitis. There is no strong evidence of a particular associated strain or recombinance between strains of EV or Coxsackie viruses.

HFMD is worldwide in distribution and outbreaks with associated encephalitis have been documented, although reports from Asia predominate. HFMD is a very common, highly infectious childhood disease with a highly variable presentation (non-specific, respiratory, or gastrointestinal); classically there is a vesicular rash on the hands and feet, or herpangina (vesicles within the mouth, often the posterior oropharynx) although the exanthema is often absent.

Possibly 6% of infected children will develop encephalitis. The prototypical case will be a child under three years of age with a brief, non-specific viral illness, with or without exanthema, in the summer or fall; deterioration will be rapid, with onset of any of a large variety of neurologic signs, although acute flaccid paralysis (sometimes monoplegia), myoclonic jerks, and cranial neuropathies are frequent. The mechanism of death is usually neurogenic pulmonary edema.

Forensic pathologists need be vigilant, as presentation may be non-specific and could be mistaken for Sudden Infant Death Syndrome (SIDS). Viral studies should be obtained, especially from the upper respiratory tract and rectum; cerebrospinal fluid is less reliable. Herpangina should be specifically sought, since the posterior oropharynx may be a "blind spot" in a routine autopsy. Ideally, the brain should be fixed and obviously examined with care, for it is the site of definitive pathology. If Enterovirus is recovered in the appropriate setting, the laboratory should be asked to sub-classify it. These cases are likely to be scrutinized by child mortality and public health authorities.

Although rare, these cases attract significant public interest and concern. It is unexpected in developed countries for children to die of an infectious disease, and in so rapid a fashion with dramatic neurologic signs; the presentation is ominously reminiscent of polio. The prodrome is indistinguishable from the usual frequent childhood viral illnesses. The public must invoke hygiene measures and isolation. Restriction from day care and support of children who survive with neurological impairment are economic burdens. Clinicians who see cases in the early stages may be considered culpable for a subsequent death. Trials of a promising vaccine are ongoing in China.

Enterovirus, Encephalitis, Children

G41 Fatal Tube Feeding Syndrome in a Young Child

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The goals of this presentation are to: (1) list the types of dehydration based on the relative losses of salt and water and on the composition and volume of intake; (2) list causes of hypertonic dehydration; and, (3) estimate free water deficit based on a child's weight and serum (or vitreous) sodium.

This presentation will impact the forensic science community by increasing awareness of the potential fatal consequences of enteral feedings with elemental hyperosmolar solutions in young children.

Tube feeding syndrome was first described in the 1950s as a cause of hypernatremia and hyperosmolar dehydration in adults, especially those with head injury or who were otherwise unable to communicate. Subsequently, it was recognized that decreasing the osmolarity of the solutions introduced via enteral tube feeding, in conjunction with increasing free water via parenteral or enteral methods, was successful in correcting or avoiding most electrolyte