
FOREWORD

In 1860, a French Pathologist, Professor Auguste Ambroise Tardieu, described child abuse as “... a horrendous problem that would unsettle the soul of a moral philosopher.” In his paper titled *Étude médico-légale sur les sévices et mauvais traitements exercés sur des enfants* (Forensic study on cruelty and the ill-treatment of children), Tardieu describes “visible lesions to the brain, especially in very young infants submitted to such abuse. I have discovered effusions of blood on the surface of the brain, manifestly the result of blows to the head ...”¹

More than 100 years later, Norman Guthkelch, the first pediatric neurosurgeon in England, published an article in the *British Medical Journal* reporting a series of infants with subdural hemorrhages, some of which were recurrent hemorrhages, whose caregivers described violently shaking their children.² This was the first clear reference in the world’s medical literature to shaking as a means of inducing head injury in infants and small children.

Guthkelch’s description of how he arrived at his hypothesis about the dangers of shaking is an example of sheer genius. By the early 1970s, he had operated on hundreds of children with subdural hematomas. He noted that many had no evidence of external trauma to the head, and some of the subdural hematomas were recurrent. While visiting the United States, he talked with Dr. William German, the Chair of Neurosurgery at Yale Medical School. German told Guthkelch about how, when riding a roller coaster at an amusement park, his head had been severely jolted and whipped around but had not impacted with any surface. After this incident, German developed a headache. He diagnosed his own subdural hematoma and went to the hospital for treatment.

This caused Guthkelch to think about the children with subdural hematomas that he had treated. He then worked with a gifted social worker who interviewed several families and obtained a history of shaking the babies without impact (Phone conversation with Jenny, September 2002).

This discovery led to the adoption of the term “shaken baby syndrome” to describe the triad of signs associated with abusive infant head trauma—unexplained encephalopathy, subdural hemorrhages, and retinal hemorrhages. The existence of shaken baby syndrome has been widely debated, despite the large number of cases where caretakers admit to shaking their babies out of anger and frustration.³⁻⁵

Sometimes it is difficult to tell if a child’s head has been shaken, impacted, or crushed; whether the blood supply to the brain was purposefully occluded; or if another event may have caused a healthy, happy child to become suddenly ill with serious head trauma. The editors of this book have recognized this difficulty and adopted the term “abusive head trauma.” This term conveys the understanding that the previously healthy child suffered an inflicted injury, but the mechanism of injury—of which shaking is merely one—is not presumed.

This book breaks new ground in many ways. First, it is comprehensive in its approach. Every aspect of abusive head trauma is covered, from neuroscience to prosecution. It is truly multidisciplinary, involving health professionals, law enforcement officers, legal prosecutors, social welfare experts, mental health professionals, and rehabilitation specialists.

Another exciting aspect of this book is that a new generation of experts is writing exciting chapters. The list of authors demonstrates that the field is expanding and vigorous. Many new people have acquired expertise in diagnosing and treating abusive head trauma. It is refreshing to see a child abuse text that highlights the work of new experts. Although the ancestry of this book can be traced to the work of John Caffey, C. Henry Kempe, Ray E. Helfer, Norman Guthkelch, and other legends in the field, it is clear that the field is in competent hands with the current generation.

The subject of abusive head trauma is approached with a critical eye on literature and extensive clinical experience, providing the readers with balanced sources of data. Finally, the case-based approach makes this text an excellent resource for teachers of medicine and related disciplines as well as for “life-long learners” who want to sharpen their diagnostic acumen and medical skills.

The field of child abuse medicine has come a long way in a short time. This book is yet another landmark on our road to understanding the infant brain and its unique vulnerabilities. I thank the editors and authors for documenting our progress thus far.

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FOREWORD

Every day, newspaper articles, magazine stories, and television news accounts recount events of courtroom proceedings dealing with allegations that an adult has shaken an infant, resulting in the child's death or permanent and devastating brain injury. The stories are often similar in origin, telling of an otherwise law-abiding adult accused of committing a violent and seemingly senseless act against a helpless infant. Why would this happen? How could it happen? What really did happen? Typically these stories take on a controversial slant, highlighting the testimony of conflicting expert witnesses who are at the center of the legal conflict. Such news accounts often sensationalize events and create false controversies in an effort to promote a more dramatic story line.

Today's courtrooms have become the battleground for lawyers and experts who challenge the core science of medical research and theory on abusive head trauma (AHT). It is a battle fought before jurors and judges who have little knowledge of the scientific and medical issues that they are supposed to determine. Amidst this chaotic battle sits the judicial system and its search for truth and justice; however, the end result in many instances is confusion, deception, and a loss of integrity in both the science and the law—a sad and tragic epilogue in the wake of the even more significant loss or destruction of a small and precious human life.

For those involved in responding to child maltreatment, these stories occur far too frequently. Few professionals exposed to these scenarios question the reality that children are the daily victims of violent acts perpetrated by those who are supposed to love and protect them the most. For professionals, it is not a question of understanding and believing that these situations exist, but rather of getting others to understand these same truths and to explain why these truths should be accepted; this is no easy task. Denial is endemic to most perpetrators of these crimes, and the child victim cannot articulate what has occurred. Conclusive forensic evidence is rarely recovered from the crime scene. The decision regarding what has occurred is based largely on circumstantial evidence premised in large measure on medical findings and interpretation of their significance. It is no wonder that those accused of such crimes aggressively seek to challenge medical findings or offer alternative theories of causation.

The last two decades have witnessed an unprecedented growth in the state of medical research and knowledge regarding AHT. This increased knowledge base has brought with it improvements in the recognition and diagnosis of such trauma by medical professionals, concomitant increases in referrals of these findings to other investigating and prosecuting agencies, and more frequent legal filings through both the juvenile and criminal courts. Although most of these advancements in medical knowledge have reflected a consistent strain of thought within the medical fields, fringe elements have voiced alternative concepts, often with limited, if any, rigorous scientific support. These fringe concepts, however, have found a voice within the courtroom setting with amazing alacrity.

Courts sympathetic to the rights of the accused to present a defense, regardless of its validity, have been very reluctant to exclude fringe theories or to reign in the experts who voice them. Moreover, attorneys representing the accused have recently attempted to turn the tables and exclude the admission of expert testimony diagnosing AHT, unjustifiably asserting that there is no evidence-based scientific support for such testimony and that biomechanical data refutes "anecdotal" medical studies supporting these assertions. These attorneys are consistently supported in their challenges by a small group of experts who espouse these fringe theories. Internet sites devoted to challenging allegations of AHT, and conferences geared toward promoting these alternative theories, provide a ready market for these efforts that have culminated in repeated Frye and Daubert challenges in courts across the United

States, and in lengthy legal proceedings challenging convictions in the United Kingdom. While most of these challenges have not been successful, the efforts in combating them consume enormous professional and judicial resources. The search for truth and justice is seldom easy, nor is it one made without enormous personal and professional sacrifice by those committed to its pursuit.

So where do we find the truth? Where do we look for answers, for guidance, for perspective? How do we ensure that the pursuit of truth and justice on behalf of children and their families follows a path toward enlightenment and understanding and does not become sidetracked on a path of adversarial misdirection? How do we overcome the hidden agendas that permeate the law and that increasingly find their way into scientific research and literature? How do we discern competent scientific research and literature from that which is written in an effort to promote an agenda for courtroom testimony? How do we stop the misuse of scientific research and literature in the court process in an effort to distort the truth or to achieve a particular adversarial goal? How do we ensure the integrity and competence of professional responses and adherence to high ethical standards in these cases? These are some of the questions this book attempts to address.

Answers to these dilemmas will not come from a single source or from one group of professionals. If there is one thing we have learned from the trials, tribulations, and controversies of the past, it is that a multidisciplinary, coordinated response to these cases is the most effective method for coordinating information, promoting knowledge, improving professional practice, and arriving at the truth. The multidisciplinary nature of *Abusive Head Trauma in Infants and Children: A Medical, Legal, and Forensic Reference* reflects the importance of this principle and the value of this approach.

The educational value of this text is to be found not only in alerting professionals to the current issues and controversies that we all face, but also as a compilation of current professional thought against which novel and controversial theories can be tested and judged. While each chapter focuses on a unique professional perspective relative to the topic of AHT, each author recognizes the necessity for integration of their perspectives and subject matter expertise between the various professional disciplines. Readers will be encouraged to elevate their own practice to the standards outlined by these experts, and perhaps as importantly, they will be motivated to seek additional knowledge from professionals both within and without their fields of practice. Some may be inspired to pursue new and needed areas of additional scientific research. All should be challenged to develop best practices for themselves and their communities. No lesser standards can hope to withstand the rigors of the current and future challenges that are meted out in the crucible of the courtroom.

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FOREWORD

From 2000 to 2004, I was charged with the responsibility of advising police officers in the United Kingdom on how to investigate cases of child abuse. In doing so, I gained unique insight into how the many professionals involved in investigating and treating these cases actually carry out their work. I have been lucky to work with truly committed doctors, nurses, forensic pathologists, lawyers, and social service workers in countries such as Sweden, the United States, Canada, Bermuda, Germany, Estonia, and the United Kingdom. It has been my privilege to work with and learn from many of the professionals who have given their time to this book.

Every year, in countries all over the world, children are injured or killed as a result of abusive head trauma. During the last few years, the nomenclature for describing these injuries has changed from Caffey's "whiplash shaken infant syndrome" of the 1970s, to the "shaken baby syndrome" of the 1990s. The title of this reference work, *Abusive Head Trauma in Infants and Children: A Medical, Legal, and Forensic Reference*, more accurately reflects the true nature of how these children are injured and killed.

When I researched abusive head trauma (AHT) on behalf of the Home Office from 2000 to 2003, I was surprised to find a lack of reference works on this extremely important issue in the hundreds of published research works in medical and scholarly journals. That gap is now being addressed, and these new publications are written for both professionals and the public. This book is the first illustrated clinical and photographic reference on AHT, and it will be invaluable to all disciplines involved in child abuse cases. Only by working in a truly multidisciplinary environment can we hope to understand these cases and build strategies to treat, investigate, and prevent them.

This book does exactly that by addressing the epidemiology of AHT and moving on to discuss and illustrate the neurological and biomechanical issues involved in child abuse cases. Although the nonprofessional may never be able to unravel the intricacies of neuromedicine, the signs and results illustrated here will help police officers and lawyers understand what they are dealing with and how to present evidence in cases. Also, the presence of retinal hemorrhages has become a marker for these types of injuries in recent years, and here, in the chapters on eye examination, the ophthalmological aspects of AHT are explained.

Of course, professionals involved in the examination, treatment, and investigation of suspected AHT cases should not jump to the conclusion that an injury is the result of abuse. For this reason, the conditions that may sometimes mimic abusive injury are discussed in detail so that professionals are fully aware of any disputes surrounding diagnosis.

Children recovering from AHT need to be cared for by many people, not least of course parents. In addition, outpatient nurses and the social work professionals are often unsung heroes in their support of parents. This reference work includes chapters that colleagues in these fields will find informative while educating other professionals about their difficulties and successes.

Sadly, for police officers and lawyers, cases of abusive head trauma are more easily investigated when a child has died. Investigators will find the forensic and pathologic evidence needed to prove these cases is presented clearly in the chapters on forensic investigation and pathologic case studies.

Many of these cases actually do not go to court. For those that do, one might ask exactly how a jury of 12 "good men and women true" can understand the intricacies of brain pathology they will encounter in these cases. Chapters covering the use of technology in court cases to present evidence as simply as possible to jurors illustrate solutions to those problems. This same technology can also be used to train professionals in the arena.

The final chapters of this invaluable and educational work illustrate individual cases of AHT in child abuse. What they cannot do is show the grief and despair encountered by parents who have lost a child to AHT or soothe a young victim. The professionals who have contributed to this book have encountered that grief and despair many times, and it is one of the driving factors as to why they have given their time and energy to helping with this book in order to educate colleagues and public alike.

The dedication shown by all professionals working in this arena is clear. Thank you for your efforts, on behalf of injured and abused children everywhere, in bringing this book to fruition.

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PREFACE

The need for a comprehensive reference on abusive head trauma (AHT) in infants and children has been increasing since the last decade. As more communities work to develop effective methods for recognizing and treating victims, investigating cases, protecting victims from further harm, prosecuting offenders, and pursuing education and prevention efforts, there has been a growing interest in educating and training the professionals involved in all phases of the community's response to this problem. The time has come to synthesize what we know, what questions remain, and what scientific studies still need to be done. It is time to share information in an organized, comprehensive, and useful manner among professionals working in the field in order to provide improved recognition, treatment, investigation, prosecution, education, and prevention of this deadly form of abuse.

This text is designed to serve as a reference for medical, investigative, legal, social service, and prevention professionals. All of these disciplines are affected by AHT in children and all have made notable progress in handling the results of child maltreatment in general. Prevention efforts have also been cultivated, focusing specifically on avoiding the development of patterns of child abuse within the family. The goal of educating all professionals is to help children and families with the corollary of improving society's concern and care for the most helpless of its citizens.

The chapters offered here attempt to put the problem in perspective with respect to current attitudes and practices. In addition, notable differences between accidental brain injury and AHT are discussed in terms of the mechanisms of injury and the other signs to observe. Special considerations for the areas of nursing, radiology, neuroradiology, neurosurgery, and ophthalmology are addressed in specific chapters. Disorders that mimic AHT and fall into the differential diagnosis are carefully explained. As with other types of child maltreatment, the occurrence of associated injuries can help in making an accurate diagnosis, so the specific findings that distinguish AHT from other causes of injury are discussed in detail.

Clinical and investigative topics are covered in instructive detail and expanded upon with the addition of chapters devoted to photographic content. These chapters contain case studies and examples representing the many forms and sequelae of AHT, as well as the medical and investigative tools and techniques employed by professionals treating and protecting victims of AHT.

Specialists serving in social service, forensic, and prosecutorial roles will find chapters covering the contributions they make to resolving cases of AHT. The latest courtroom aids are explained to help present an accurate and visually compelling case. The roles of individuals who come into contact with children suffering from AHT are detailed in order to provide the background needed to deal with cases expeditiously. Each chapter emphasizes caring for the child and family as well as identifying the problem and the perpetrator. The chapter on neurodevelopmental outcomes offers follow-up information that is useful for planning how to care for a child who has been subjected to AHT.

It is well-known that shaking a child or infant is dangerous, so education alone seems insufficient. The challenges facing prevention efforts include informing caregivers of the dangers of inflicting head trauma on children and providing affirmative ways to handle the stresses of childcare. In addition, prevention efforts must offer caregivers incentives to consider those alternatives when they feel they have reached the limit of their resources.

Finally, a chapter presenting a hypothetical case illustrates the problem, the course of investigation, treatment concerns, and the medical and legal outcomes; thus, readers are given a broad perspective and the information pertinent to their area of expertise.

We have sought to offer a balanced approach to the problem of AHT while exploring current efforts and recommendations to address the concerns of professionals. It is hoped that this publication will become a reliable reference for professionals in the medical, investigative, legal, social service, and prevention areas.

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