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Criminal Investigation of a Burning Child

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Abstract

Something terrible has happened in the city of Dnipro, Ukraine, this summer. The media reported that several hooligans poured gasoline into an eight-year-old boy, set him on fire and then laughed. The event is so scary that it's hard to describe. Police determined the hooligans were several years older than the victim. Unfortunately, the hooligans attacked a helpless boy and thus committed a crime as difficult to find in the annals of forensics. The methodology of scientific research in the field of criminal law states the following: the crime was committed and the perpetrators were arrested. Further criminal investigations should determine all the circumstances of this horrific crime, and, above all, the degree of burns and the condition of the victim's organism. This paper discusses what forensics can do.

Keywords: Gasoline; Fire; Boy; Victim

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Introduction

Burn injuries represent a specific wound entity with unique clinical features which range from the difficulty of initial assessment to the long-term tendency to develop pathologic scars [1]. For long time considered as acute wounds, burns are in fact wounds showing a long term evolution transforming them into chronic wounds, if inadequately managed. The pathophysiological changes in the burn wound are characterized by effects caused by heat per se and complex superimposed local as well as systemic alterations. Due to profound disturbances of the immunostatus in general burn wounds are highly susceptible to infections upon completed keratinization. A common consensus among burn specialists emerges considering that a burn wound has to

be covered within a period of two to three weeks, justifying a dogma of rapid excision and grafting, a surgical approach popularized by surgeons since the 70's. In fact, burn wounds which remained unhealed for several weeks or months, either due to skin graft infection or by accumulation of the high level of proteases included the wound after 3 to 4 weeks of non-healing.

Degrees

The depth and severity of the burn are also determined by the ability of the contact material to transfer heat, a factor referred to as the specific heat [2]. This is especially important in scald and contact burns. The knowledge about the material type allows for a more accurate estimate of tissue damage. Burn depth is determined by the time of exposure, the

temperature at which the burn occurred, and the caloric equivalent of the burn media.

Another determinant of the severity of burn is the location of the burn wound and the age of the burned patient. The thickness of the skin layers increases from the age of 5 up to the age of 50. In elderly patients, the thickness starts to decrease at the age of 65. The epidermis can vary by location from 0.03 up to 0.4 mm. Clinically, the severity of burn injury can be categorized by the differences in the tissue damage and is determined by the depth of the burn.

- a. I degree: superficial burn of the epidermis
- b. First-degree burns are painful, erythematous, and blanch to the touch with an intact epidermal barrier. Examples include sunburn or a minor scald from a kitchen accident. These burns do not result in scarring, and treatment is aimed at comfort with the use of topical soothing salves with or without aloe and oral nonsteroidal anti-inflammatory agents.
- c. IIa degree: burn including epidermis and superficial dermis
- d. IIb degree: burn including epidermis and deep dermis

Second-degree burns are divided into two types: superficial and deep. All second-degree burns have some degree of dermal damage, by definition, and the division is based on the depth of injury into the dermis. Superficial dermal burns are erythematous, painful, blanch to touch, and often blister. Examples include scald injuries from overheated bathtub water and flash flame burns. These wounds spontaneously re-epithelialize from retained epidermal structures in the rete ridges, hair follicles, and sweat glands in 1-2 weeks. After healing, these burns may have some slight skin discoloration over the long term. Deep dermal burns into the reticular dermis appear more pale and mottled, do not blanch to touch, but remain painful to pinprick. These burns heal in 2–5 weeks by reepithelialization from hair follicles and sweat

gland keratinocytes, often with severe scarring as a result of the loss of dermis.

- e. III degree: burn including epidermis and dermis and subcuticular layer
Third-degree burns are full thickness through the epidermis and dermis and are characterized by a hard, leathery eschar that is painless and black, white, or cherry red. No epidermal or dermal appendages remain; thus, these wounds must heal by reepithelialization from the wound edges. Deep dermal and full-thickness burns require excision with skin grafting from the patient to heal the wounds in a timely fashion.
- f. IV degree: all dermal layers including fascia, muscles, and/or bones
Fourth-degree burns involve other organs beneath the skin, such as muscle, bone, and brain.

Nonaccidental trauma is an important consideration to help prevent future injury or death [3]. It is estimated that up to 20% of burn injuries are the result of child abuse or neglect, with highest incidence among young children (0-4 years of age). The likelihood of death is 4 times greater among those with suspected abuse. The anatomic location of the injury is affecting unreliable in differentiating nonaccidental and accidental burns; however, burns on both legs convey a 3 times greater likelihood of being abusive injury. In general, initial management of the burned child should be the same as for any other burn or trauma patient, with special attention directed to the airway, breathing, circulation and cervical spine immobilization according to the guidelines of the American College of Surgeons Committee on Trauma and the Advanced Trauma Live Support Center [4]. The algorithms for trauma evaluation should be diligently applied to the burn patient and the primary survey begins with the ABCs (airway, breathing, circulation) and the establishment of an adequate airway. Note worth to mention is to provide adequate pain control and relieve the patient from pain and stress. Pain medications should be carefully administered not to overdose and induce adverse side effects. In

addition, the amount of pain medication should be reasonable and be based on the burn size and subjective pain of the patient. Dosing of pain medication needs to be according to pediatric guidelines.

Criminal Investigation

The site of criminal activity is the traditional definition of a crime scene [5]. This definition allows the crime scene investigator to anticipate the presence of physical evidence, but offers no assistance or help in describing what types of evidence might be present. A definition based on physical evidence anticipation can be constraining in that it may inadvertently cause an investigator to miss crucial, unanticipated evidence. Definitions of this type include defining a scene based on evidence size (macroscopic or microscopic), type of crime (shooting, stabbing, beating, sexual assault, etc.), or type of evidence (blood, drugs, explosives, etc.). Crime scenes can also be defined based on location (inside, outside, underwater, in cars, etc.). This offers clues to accessibility, but offers no assistance with physical evidence anticipation. The determination of sequence can often be useful as a definition, especially for investigative or reconstruction purposes. Millions of words have been written in an effort to educate and train law enforcement personnel to become well-prepared police officers, show crime scene technicians how to process crime scenes, help law school students to complete bar examinations, and equip judges to fairly administer justice in the courtroom [6]. What is the single tie that binds all these phases of the criminal justice system together? Investigative case files. First responders deal with emergency situations, and then they must begin the paperwork process that may cross dozens of desks and linger in the courts for many years. That initial preliminary investigation sets in motion a comprehensive course of action culminating in the completion of the inquiry process that may not end for decades. As with all systems, a strategy must be in place to guide the development of the investigation. The role of forensic science services starts at the crime

scene with the recognition and recovery of physical evidence [7]. It proceeds with its analysis and the evaluation of the results in a laboratory, and the presentation of the findings to judges, prosecutors, lawyers and others in need of the factual information. From the first responders to the end-users of the information, all personnel involved should have an adequate understanding of the forensic process, the scientific disciplines and the specialized services provided by forensic laboratories. In practice, the problem often arises of how to distinguish an injury tort from a murder tort [8]. The killers in the course of the proceedings generally deny the existence of a direct intent to kill. The main reason for the difficulty in proving the intention to kill someone in this is that the intention is an internal psychic experience related to the willing side of the personality and until it is objectively manifested in the external world in a certain way, certain conclusions cannot be drawn with it. As a rule, proving the intention to kill someone is accomplished indirectly through circumstantial evidence, proving objectively manifest actions and statements made. Willing in the criminal sense is transformed with the intention of the moment when the perpetrator decides to achieve a certain goal by committing the crime. In practice, there are a number of objectively manifest facts that contribute to the certainty of the intent to kill.

Photography

Documentation of the crime scene is truly the most critical element of scene processing [9]. Without good documentation, it is often difficult to explain or make understandable to a jury any observation made by the technician. Without good documentation, it can be difficult if not impossible to weather a well-thought-out cross examination. If there is no supporting documentation that clearly and concisely demonstrates the points the crime scene technician is trying to make, counsel will effectively argue that the technician was mistaken. Documenting the condition of the scene is a core element of proving what did or did not happen at the scene. Without proper

documentation, it may be impossible for even the investigators to arrive at a conclusion regarding what did or did not occur. Unfortunately, documentation of the scene is one of the least understood processes of crime scene examination, which routinely results in an incredibly poor documentation product. The photographic documentation of crime scenes is the cornerstone of any criminal investigation [10]. The complete and accurate portrayal of a crime scene demands that investigators and photographers thoughtfully and purposefully record true and accurate depictions of the location and evidence. Photographs provide a link between evidence recovered at a crime scene and the identification of a defendant in a court of law. The systematic and complete photographic recording of all aspects of an investigation helps bridge the gap between an individual piece of evidence and the processing of that evidence that leads to the identification of a suspect. Consequently, crime scene photography is an important and required task that must be accomplished with dedication and skill.

Evidence

Many terms are applied to evidence: scientific, physical, testimonial, relevant, circumstantial, direct and indirect, exculpatory or inculpatory, probative, and admissible [11]. Each has a specific, although different, interpretation depending on who uses which descriptive adjective. Crime scene scientists/investigators are concerned with locating physical evidence at the scene and preserving it for future admissibility into a legal proceeding. The forensic scientist is concerned mostly with physical evidence and developing relevancy through scientific analysis. Attorneys are concerned with winning or losing a case and thus consider evidence as direct or indirect (circumstantial), probative or not, exculpatory or inculpatory, and admissible or not. The courts are concerned with finding the truth of allegations, the point at issue, so their concern is with relevancy and admissibility as defined by the law. Interestingly, with the sole exception of “physical,” each of the adjectives

listed above describes evidence in functional terms. Physical, however, does not have a function. It simply exists. Forensic evidence, when properly identified, collected, and preserved, can link the suspect to a victim, to the crime scene, to a weapon, or to other physical or biological evidence [12]. These linkages are especially significant in crimes of violence, and the more linkages that are established, the higher the probability that the suspect committed the offense. Forensic evidence is subdivided into two basic categories: physical evidence and biological evidence. Physical evidence covers items of non-living origin, such as fingerprints, footprints, fibers, paint, tire or shoe impressions, weapons, ammunition, and building materials. Physical evidence may be used as corroborative evidence, which tends to confirm or support the theory of the crime. This type could also be considered as circumstantial evidence, which indirectly infers a particular conclusion regarding the crime. CSI technicians are trained to identify, collect, and preserve physical evidence at the crime scene [6]. Maintaining the chain of custody is particularly important, as this documentation identifies everyone who has taken custody of or had contact with a particular item of evidence. The chain-of-custody documentation begins when evidence is discovered and must be maintained throughout all court proceedings. A break in the chain of custody could mean physical evidence would be considered tainted and therefore excluded from any criminal proceedings. Every time a piece of evidence changes possession—for example, being transported from the property/evidence unit to a crime laboratory for examination—another entry must be added to the custody log and on the evidence packaging. This is one of the most litigated issues, and even the slightest deviation can disqualify the evidence for future consideration by a judicial officer. It is a good thing to remember that once physical evidence is “bagged and tagged,” it must be accounted for every step of the way.

Reconstruction

Law enforcement personnel must take proper action to enhance all aspects of the crime-scene search so as to optimize the crime-scene reconstruction [13]. First, and most important, is securing and protecting the crime scene. Protecting the scene is a continuous endeavor from the beginning to the end of the search. Evidence that can be invaluable to reconstructing the crime can be unknowingly altered or destroyed by people trampling through the scene, rendering the evidence useless. The issue of possible contamination of evidence will certainly be attacked during the litigation process and could make the difference between a guilty and not-guilty verdict. Crime scene reconstruction is a reenactment of the events that took place during the commission of the crime [14]. Reconstructing a crime is a team effort and may involve the crime scene investigator, medical examiner, and law enforcement personnel. Information from the autopsy, evaluation of the evidence and witnesses, and victim and suspect statements are combined to answer the questions of who, how, where, and when. In homicide cases, the detective, crime scene investigator, and medical examiner who performed the autopsy and the medico-legal death investigator confer and examine all evidence to reconstruct the event that took place. In other cases, the judge can order the jury to visit the crime scene and ask the CSI to position all items of evidence in the location as originally found. That is one of the reasons why detailed documentation of the scene and mapping of the evidence is of utmost importance.

Conclusion

No matter what the perpetrators are several years older than the victim, they have committed the criminal act of murder in the attempt and they must be punished. The question here is what will they do when they grow up if they committed something so horrific in juvenile age. They should therefore be severely punished. The forensics in this case could not have done much, but the criminal

investigation they conducted and the facts they found would certainly lead to the severe punishment of the perpetrators of this horrific crime against the unfortunate eight-year-old boy. Unfortunately, he will feel the health consequences of this terrible crime all his life.

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