FALL 2013 VOL. 38, ISSUE 3

the legal investigator

The Official Journal of the National Association of Legal Investigators

The Paradox of the Death Penalty

Francie Koehler, CLI | p.4

FORENSIC FOCUS | p.10

Bruises and soft-tissue injuries can be misunderstood, misinterpreted, altered and have false results. This pictorial forensic guide will help you consider all possibilities and correctly interpret what the evidence shows.

CRIMINAL FOCUS | p.16

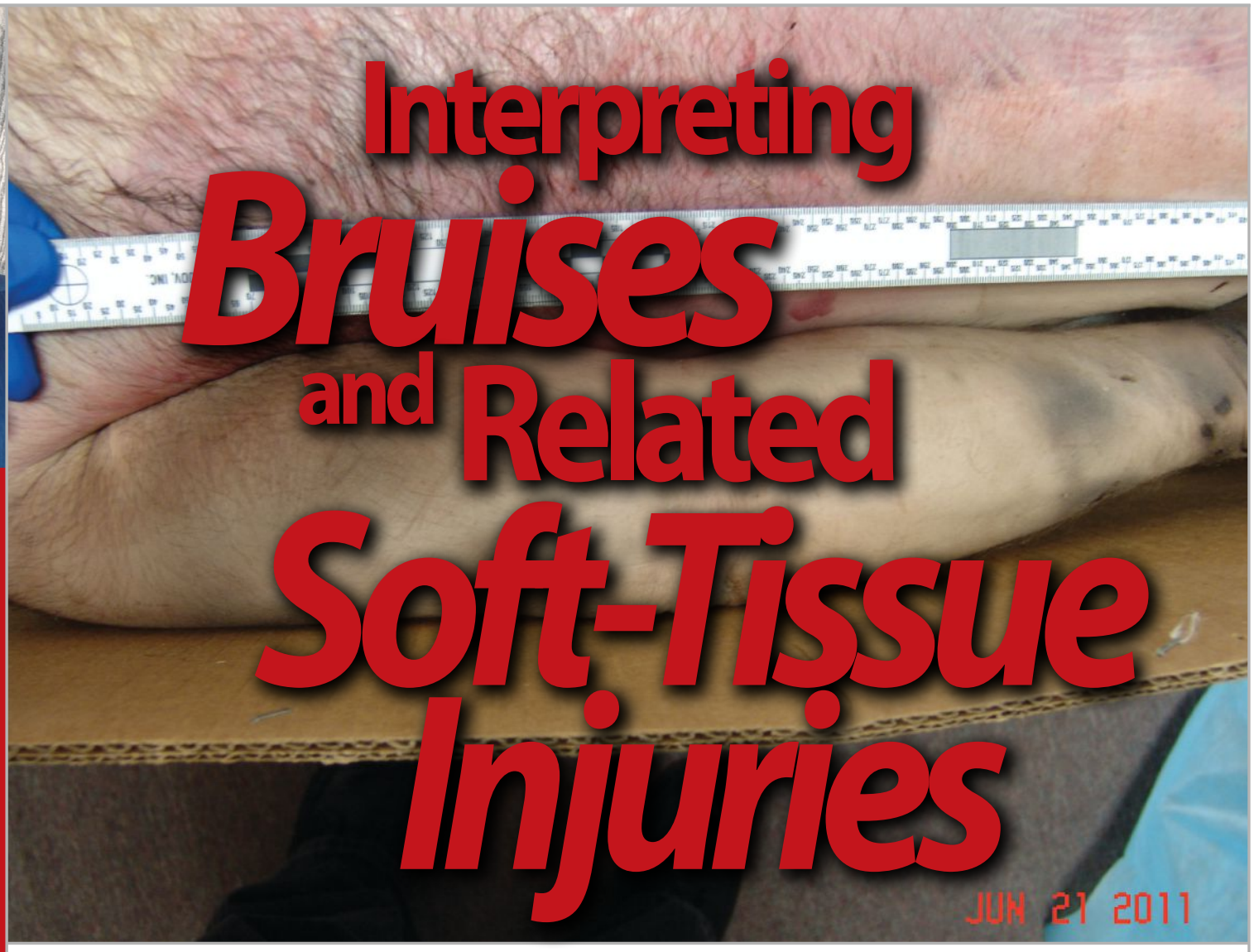
Many records in México are not open to the public, however, with this guide in hand you'll have the critical overview of the availability and procedures you need to research the most commonly requested records within México.

SAVE THE DATE | p.23

You won't want to miss the NALI Mid-Winter Conference in Hollywood, Florida on January 23 - 25, 2014. Topics include, the Zimmerman case, computer/ phone forensics, white collar criminal defense, and more.

by Dean Beers, CLI

Interpreting Bruises and Related Soft-Tissue Injuries



"Like other injuries, bruising may contribute to the circumstances of an incident, as well as support or refute statements and other contributory evidence.

Bruising is the result of a blunt force injury and can be related to a pattern injury, which may aid in determining the type of weapon or instrument causing the injury and how it may have been inflicted. This may be in use of force, as well as self-inflicted and induced injuries. Like other injuries, bruising may contribute to the circumstances of an incident, as well as support or refute statements and other contributory evidence.

Bruising is a form of contusion, grouped with lacerations and abrasions under blunt force injuries. But, for simplicity, we'll use contusion and bruise interchangeably.

The National Library of Medicine defines a bruise as, "… an area of skin discoloration. A bruise occurs when small blood vessels break and leak their contents into the soft tissue beneath the skin. Bruises are often caused by falls, sports injuries, car accidents, or blows received by other people or objects." This small blood vessel break and leakage is called 'extravasation'. Bruising does not result in broken skin (a laceration or sharp force injury).

Bruising can occur from an impact to the body, the body impacting an object or compression of the body or organ, such as grabbing, and internal injuries, such as sprains [Exhibit 1 - Bruising from Extremity Sprain]. Bruising, like other soft-tissue injuries, can be also caused by a force, such as pressure in a confined space. An example would be 'raccoon eyes' often seen in gunshot wounds to the head

Exhibit 1 - Bruising from Extremity Sprain

Exhibit 2 - Bruising from Gunshot Wound

Exhibit 3 - Bruising and Lividity

Exhibit 4 - Lividity Mistaken for Bruising

and caused by intracranial pressure (i.e. gases rapidly expanding). [Exhibit 2 - Bruising from Gunshot Wound].

Bruising is often confused with other injuries and non-injuries. Livor mortis (lividity) is a non-injury that is occasionally misinterpreted as bruising [Exhibit 3 - Bruising and Lividity, and Exhibit 4 - Lividity Mistaken for Bruising]. However, bruising is an injury of blood leaking, not blood settling, and is most often when the subject is alive; lividity is only a postmortem event.

Lividity is a reddish purple to purple coloration in the body due to accumulation of blood in the small vessels. Lividity is also mistaken for ligature marks, which are abrasions and not bruises [Exhibit 5 - Lividity Mistaken for Ligature Mark, and 6 - Ligature Mark Abrasion]. When the heart is no longer circulating blood, blood accumulates at the lowest points of gravity in the

Exhibit 5 - Lividity Mistaken for Ligature Mark

Exhibit 6 - Ligature Mark Abrasion

Exhibit 7 - Bruising with Aging and Abrasion

Exhibit 8 - Motor Vehicle Accident Lacerations

dependent areas. The pressure of settling blood may cause a rupture of small vessels with development of petechiae (Tardieu Spots). This lividity also differs from congestion frequently seen in acute fatal heart attacks, which are discernible by the congestion from the heart to head, and not below.

A hematoma is an injury similar to bruising; however is most often described as a mass of collected blood versus leakage. Abrasions may often accompany bruising and may help determine the events of injury causation [Exhibit 7 - Bruising with Aging and Abrasion].

Injuries can also assist with confirming or refuting statements, such as position in a vehicle [Exhibit 8 - Motor Vehicle Accident Lacerations]. In the photo, the injuries are lacerations, abrasions and contusions from an impacting vehicle intruding into the passenger compartment of the struck vehicle. This identifies that the subject was on the driver's side. These are not dicing lacerations from window or windshield shards, which are much smaller.

Because any combination of bruises, lacerations and abrasions are often seen together, abrasions are mistaken for contusions or bruises, but are not. Abrasions are the result of an object rubbing against another and causing skin surface scratching. Like bruising, this can occur from the body rubbing against an object or an object rubbing against the body. A laceration is a deeper abrasive tearing of the skin, also caused by the same events that may cause bruising, most often with more force.

The onset of bruising is not synonymous with an assault or malicious act. Most incidents resulting in bruising are simply accidents – we know of this from our experience as children, and our own children. We also know this in aging persons.

The age of a person, as well as their health, can have significant contributions to determining the origin and causation of bruising. Infants and elderly are much more susceptible to injury and superficial bruising.

The skin contains and protects blood vessels; these age groups have thinner skin and are consequently more susceptible to bruising. In addition, particularly of the elderly, medications can also result in being more

susceptible to bruising. Persons having various medical ailments, and treatments for various medical conditions, are also susceptible. You might also see indications of bruising at locations of intravenous drug use (illicit and medical facility).

The effects of alcohol, medications and illicit drugs on bruising, and life-saving efforts (i.e. chest compressions in cardiopulmonary resuscitation efforts) can all result in bruising. Children, elderly and intoxicated persons often have constellations of lower extremity bruising from imbalance and furniture [Exhibit 9 - Lower Extremity Bruising]. For these reasons, it is important to know the

Exhibit 9 - Lower Extremity Bruising

medical and social history of the subject, as well as the circumstances of the incident under investigation. If a person regularly takes a blood thinner, such as aspirin or Warfarin (Coumadin), there is an increased likelihood of bruising easily. Alcohol will also thin blood, resulting in increased susceptibility to bruising. Intoxication may include loss of balance and motor skills, resulting in falling and hitting objects, such as furniture. These may result in bruises and are often seen on the hands, feet and calves — from breaking falls and common heights of furniture. A person with different stages of multiple bruises on their calves, and a disarray of furniture in their home is more likely a result of intoxication and susceptibility to bruising, than a struggle and assault. The presence or absence of intoxicating substances will be necessary to determine and consider.

In analyzing the bruising of a subject, the aging of a bruise comes into question, which is not an exact 'science' any more than determining time of death is an exact science; although both use science to facilitate determinations. Similar to each other is that circumstances and experience are necessary. Taking all of the aforementioned circumstances into account, relative aging of bruising is possible – a timeframe, let's call it Post Injury Interval – that time from injury to observation and documentation of the bruising.

In living subjects (antemortem), and assessing the circumstances prior to death for decedents, the following is a general guide and is based on the inclusion of the circumstances [Exhibit 7 - Bruising with Aging and Abrasion]. Caution should be considered, as forensic pathology literature has noted yellow colored bruising in as little as 18 hours and brown colored bruising within hours of chest compressions in cardiopulmonary resuscitation efforts (reference Forensic Pathology, 2nd edition by Dominick DiMaio and Vincent J.M. DiMaio, MD). The coloration and accompanying changes are due to the gradual breakdown of the hemoglobin of the healing process. The rate of change may vary with medications, health, age, environment and severity of the injury.

1. 0-2 days swollen and tender [tender not applying to decedents]
2. 2-5 days red, blue, purple – images (A) and (B)
3. 5-7 days green – image (C)
4. 7-10 days yellow - image (D)
5. 10-14 days brown to mostly faded
6. 2-4 weeks clear

See also:

http://health.rush.edu/healthinformation/pediatric%20center/3/100207.aspx

Note that bruises, like abrasions, may appear in clusters and/or in various stages of progression. This is an indication of repetitive injuries at different time spans. Particularly notable and of concern in investigations is the abuse and neglect of children and the elderly, as well as death.

Like lacerations and abrasions, bruises may be an indication of an assault and/or defensive activities in an altercation. These injuries may be seen in the hands, feet, arms, legs and torso. Assaults may also result in bruising of the genitalia and anus, and be indicative of bondage and bindings. Proper assessment of these injuries must include the empirical data of the underlying event.

Bruises in living subjects have three basic elements:

1. swelling and damage to epithelium – skin cells;

2. coagulation, unless a medical condition or other previously mentioned thinner or anti-coagulate, with infiltration of blood into the tissues; and

3. color changes to the skin.

The absence of these elements will strongly indicate postmortem bruising and injury (i.e. grave robbers, body transport, body disposal, etc.). Postmortem bruising is rare, as it takes greater force to cause postmortem bruising than antemortem bruising. There can be postmortem changes to the body after several hours [Exhibit 3 - Bruising and Lividity]. A body may be refrigerated for an extended period of time, including after autopsy, to observe any injuries – including bruising – that may appear due to cooling of the body and additional settling of the blood (bruising will not change postmortem). Scientific confirmation of antemortem vs. postmortem injuries and bruising is often a part of the histology and microscopic studies (pathology) of autopsy. At death, cells remain in the state at the time of death. A forensic pathologist will be able to make an expert medical assessment and analysis.

The analysis of bruising is the same as all investigative processes – the application of empirical information, facts and evidence to the incident. Injuries, including bruising, cannot be affirmatively analyzed without knowing the medical and social background of the subject – alcohol and other drug use, medications, disease processes, etc. Information about the underlying incident and scene must also be known. Determining that the bruises are of a consistent age, or multiple stages of bruising, is as important as determining the patent and latent circumstances that would cause such bruising. With the exclusion of antemortem vs. postmortem analysis, investigations of injuries and injury causation – to include bruising — has the same criteria of evidence gathering and analysis.

Bruising, and related injuries, may support or refute the statements of victims, witnesses and parties to the incident, as well as alibis and other correlating evidence. Two examples are demonstrated in the accompanying images. In both cases, significant additional investigative findings were essential to the process.

In the first example, the decedent was assaulted, transported and fatally stabbed. An informant testified being present, but not a participant, and the initial assault was fatal, not the stabbing. Initially, the injury was reported as a bruise; it is actually a hematoma. Review of the injury evidence revealed hemorrhaging and both antemortem and postmortem injuries and bruises. Additional information indicated the informant inflicted this non-fatal injury. The evidence demonstrated that the informant's testimonial evidence was false [Exhibit 10 - Stab Wound with Hemorrhage].

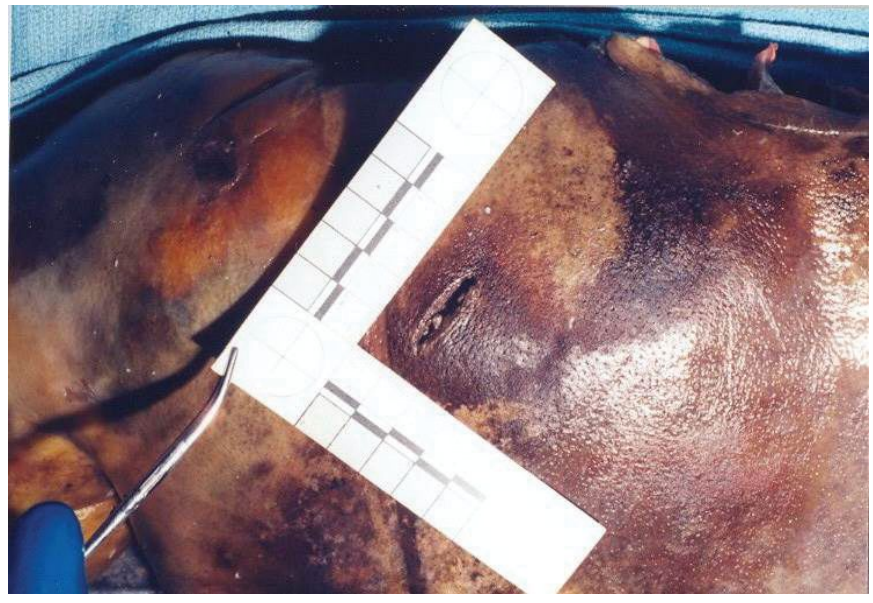


Exhibit 10 - Stab Wound with Hemorrhage

In the second example, testimony of the victim was proven false based upon the pattern injuries and corresponding bruises. The victim had reported to law enforcement that the defendant had assaulted her earlier in the day, by closing the apartment door on her leg. Review of the injury evidence revealed a pattern corresponding with the door frame; however, the aging of the bruises was inconsistent with her statement of having been the day of her reporting the incident. To the contrary, the evidence demonstrated the bruising was older [Exhibit 11 - Bruising with Pattern].

Like all forensic evidence, bruising and soft-tissue injuries can play an important role in the investigative and judicial process. The review of chronology, trace evidence, testimonial evidence, and both direct and indirect evidence are the totality of the incident circumstances. Injuries are the consequence of multiple possibilities — people do unspeakable things to themselves and each other, and go to great lengths to hide their own actions or intents. Consider all possibilities and then focus on what the evidence shows. Evidence does not lie — but it can be misunderstood, misinterpreted, altered and have false results. People lie – the truth may not be in their favor or acceptable to them.

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Dean Beers, CLI... Dean A. Beers, CLI, CCDI is an expert in criminal defense homicide and civil equivocal death investigations. He is certified in Medicolegal Death Investigations and is a Colorado POST-certified instructor, and has served as a forensic autopsy assistant. He has lectured extensively and authored multiple articles, peer-reviewed white papers, and provided expert testimony on Protocols of Private Investigation, and Forensic Investigation of Injury Pattern Analysis, as well as consulted as a subject matter expert in Equivocal Death Analysis, Injury Causation, Time of Death, Crime Scene Analysis, Investigative Protocol, Evidence Protocol, and Forensic Photography. He is the author of Practical Methods for Legal Investigations: Concepts and Protocols in Civil and Criminal Cases, released by CRC Press in February 2011, and previously Professional Investigations: Individual Locates, Backgrounds and Assets & Liabilities. He founded his agency in 1987 and operates it with his wife Karen S. Beers, BSW, CCDI, with whom he codeveloped Death Investigation for Private Investigators online continuing education for 14 states.

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Exhibit 11 - Bruising with Pattern

Additional Sources:

- **Death Investigation for Private Investigations**
- **Practical Methods for Legal Investigations**
- **Death Investigators Handbook**