

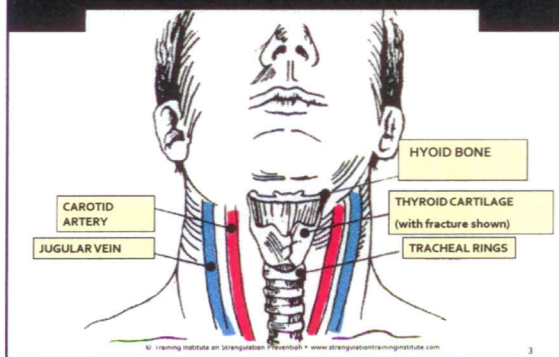
Strangulation: The Unreported Trauma

Jennifer Green RN, BSN, BA, SANE-A
Kansas City Sexual Assault Nurse Examiner Program Manager
Truman Medical Centers

Objectives

- Review anatomy and physiology of strangulation and common methods used
- Explore sign and symptoms of strangulation
- Discuss reasons that strangulation goes unreported
- Explore how trauma nursing response to victims of strangulation/choking can positively impact the victims health and prosecution

Key Structures of the Neck



Medical Vocabulary

Asphyxia (asphyxiation)

an interruption of oxygenation

Strangulation

A form of asphyxia characterized by closure of the blood vessels and/or air passages of the neck as a result of external pressure on the neck.

Choking

A form of asphyxia characterized by complete obstruction of the mouth and nose

Suffocation

A form of asphyxia characterized by obstruction of oxygen from getting into the lungs

Larynx

lay public thinks this is the key to strangulation. Larynx is NOT the most important thing...blood vessels are in strangulation.

STRANGULATION

- Pressure placed upon the neck
- Resulting in reduction of blood flow through the brain
- If this persists, then oxygen delivery to the brain is impaired, and the brain cells become hypoxic, then anoxic, then dead
- This type of serious bodily injury is called ASPHYXIA, and it occurs first at the cellular level, then throughout the body

3 Forms of Strangulation

- Hanging
- Ligature
- Manual



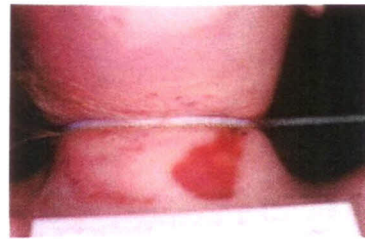
Family Justice Center Alliance ©2011

6

Hanging



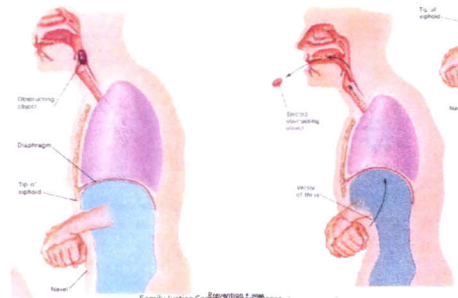
Ligature



Manual strangulation



Strangulation is not "CHOKING"



Suffocation

- Obstructing oxygen from getting into the lungs
- Sealing off the mouth and nose by manual compression
- Duct tape over face
- Head inside plastic bag
- Pillow over mouth and nose
- Sitting on chest




Suffocation

- Another form of "breath play" is increasingly common among adolescent and young adults. Most commonly known as the "choking game," it involves voluntary choking, throttling, or near-hanging in order to enjoy the altered sensations that occur as the "player" becomes unconscious. Other slang names at this writing include "flatline," "space monkey," and "suffocation roulette."



How do we know if there has been serious bodily injury, or a significant risk of death?



Quantity of Applied Force

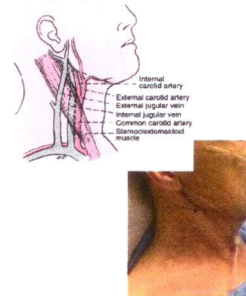
Duration of Applied Force

Surface Area Of Applied Force

Lethality risk is linked to several simultaneous factors, including pre-existing natural disease, medications and intoxicants.

Forensic Medical Findings in Fatal and Non-fatal Intimate Partner Strangulation Assaults

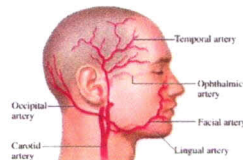
- It takes only **4.4 pounds of pressure** on the **jugular veins** for a period of **10 seconds** to cause unconsciousness.



*Paluch, Melissa; Strangulation in Domestic Violence Cases: Overcoming Evidentiary Challenges to Reduce Lethality. 2013

Forensic Medical Findings in Fatal and Non-fatal Intimate Partner Strangulation Assaults

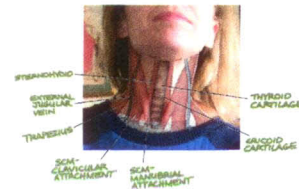
- It takes **11 pounds of pressure** placed on both **carotid arteries** for **10 seconds** for a victim to lose consciousness from acute severe hypoxia.



*Paluch, Melissa; Strangulation in Domestic Violence Cases: Overcoming Evidentiary Challenges to Reduce Lethality. 2013

Forensic Medical Findings in Fatal and Non-fatal Intimate Partner Strangulation Assaults

- It takes 33 pounds of pressure to cause obstruction of the trachea. This kind of pressure usually results in fracture of the trachea and generally results in death.



*Paluch, Melissa; Strangulation in Domestic Violence Cases: Overcoming Evidentiary Challenges to Reduce Lethality. 2013

Forensic Medical Findings in Fatal and Non-fatal Intimate Partner Strangulation Assaults

- Permanent brain damage in three minutes, and
- Death in four to five minutes.
- If death does NOT occur:
 - ** Hypoxia can cause impaired judgment, drowsiness, dulled pain sensation, excitement, disorientation, and headache.
 - ** Other signs and symptoms of hypoxia include anorexia, nausea, vomiting, tachycardia, tachypnea and hypertension which occurs when hypoxia is severe.



INJURY DURING STRANGULATION OR SUFFOCATION ASSAULT

- It is, of course, possible to touch the neck or cover the mouth and nose without causing strangulation or suffocation injury or posing a risk of serious injury or death
- Touching the neck becomes strangulation if there is sufficient pressure to cause internal injuries that promote asphyxiation

Enough-identify methods used



Signs and Symptoms

Strangulation

Choking

Suffocation

Physical Signs and Symptoms

Strangulation and Suffocation

- Skin abrasions (scratch marks, fingernail marks) and tiny red spots (petechiae) just over the face in strangulation, or generalized in the skin in suffocation
- Abrasions over nostrils
- Lip incised abrasions where lips are pushed against teeth
- Red linear ligature marks or bruising
- Fainting or unconsciousness
- Loss of control of bodily functions (urination/defecation)
- Changes in speech: Sore throat, raspy, scratchy voice
- Red eyes
- Subconjunctival Hemorrhage (blood in the whites of the eyes)
- Vision loss
- Stroke symptoms

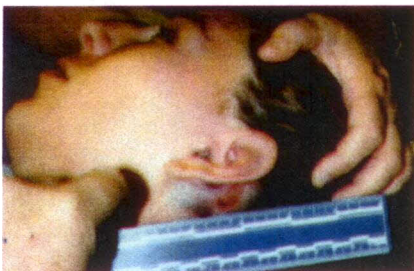
Claw marks



Family Justice Center Alliance @2011

22

Bruises Behind the Ear



Family Justice Center Alliance @2011

23

Bruises Behind the Ear



Thumb-print bruise



Family Justice Center Alliance ©2011

25



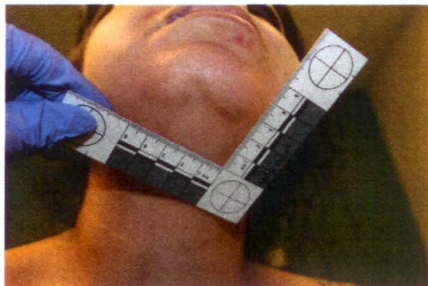
Abrasions:

- Under chin – due to instinctual chin lowering

Family Justice Center Alliance ©2011

26

Abrasions: Under chin – due to instinctual chin lowering



Red marks (erythema)



*This victim was strangled repeatedly with two hands.
Can you see the finger marks & bruising?*

Family Justice Center Alliance ©2011

28



© Training Institute on Strangulation Prevention • www.strangulationtraininginstitute.com

29

S
c
r
a
p
e
s



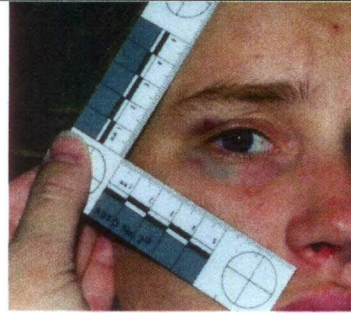
Family Justice Center Alliance ©2011

30

Choking/Suffocation and Petechiae



Petechiae - one red spot in eye



Family Justice Center Alliance @2011

32

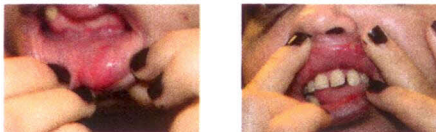
Strangulation



Strangulation



Check for injury inside the mouth



Oral cavity injuries from choking



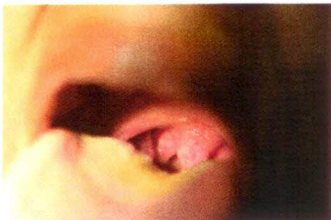
Oral injury from choking



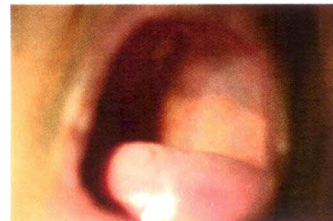
Oral injury from choking



Same patient different angle



Same patient different angle



S/S to watch for in the days following strangulation, choking and/or suffocation

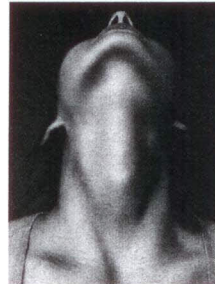
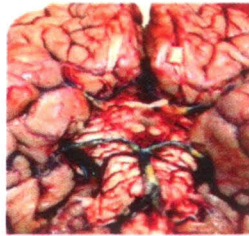
Date and Time:	Journal signs Red spots, scratch marks, bruises, swelling to the face, neck, ears, mouth, chin, scalp, chest or shoulders	Journal symptoms-voice changes, swallowing changes, behavior changes, dizziness, fainting, involuntary urination or defecation	Journal any other sensations
1)			
2)			
3)			

Delayed death-may seem ok at the time of the assault

- Delayed death is caused from:
 - Aspiration pneumonia
 - Infections
 - Swelling/congestion in the lungs
 - Swelling/congestion in the neck-rupture of lymph nodes which can only be seen on MRI
 - Hypoxic encephalopathy-swelling of the brain that follows periods of oxygen deprivation or brain tissue death
 - Cerebral abscess and softening

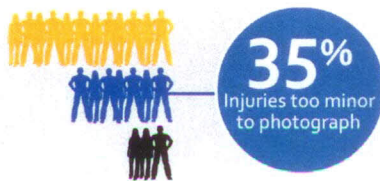
-External injury +Internal injury

- A murder case by manual strangulation. A 65-year-old woman was murdered by her daughter with manual strangulation, however she had no facial congestion and petechiae in the conjunctiva. Autopsy revealed defecting of both side posterior communicating arteries.



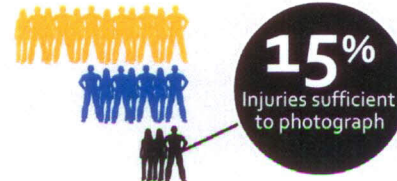
- More that 50% of strangulation/ choking victims have no visible injury

Realities of Strangulation



*The National Institute Of Strangulation Prevention

Realities of Strangulation



*The National Institute Of Strangulation Prevention

Realities of Strangulation



*The National Institute Of Strangulation Prevention

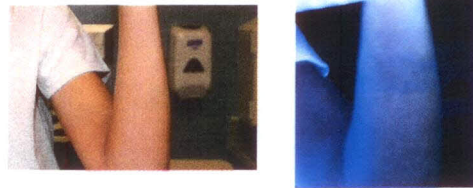
Subjective signs and symptoms

- Neck pain
- Dizziness
- Sore throat
- Loss of memory
- Headache
- Difficult or painful swallowing
- Nausea
- "Seeing Stars"
- Hoarse voice or reports voice changes

Just because you don't see injury doesn't mean it's not there

- The following slides are examples of injury that were visible with alternative light source.

Pattern Injury from bracelets



50

Note the pink debris imbedded in the skin. The patient reported the left pink bra strap being pulled during the assault from the front. Positive illumination was present on the left side but not the right. This was consistent with her history of the assault.



51

Area of illumination, old wound with scar tissue



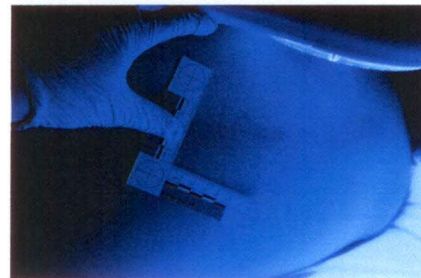
52

Pt reported being thrown from a moving vehicle on to her back. She complained of back pain 10/10 with tenderness. Injury was visible with the alternative light source.

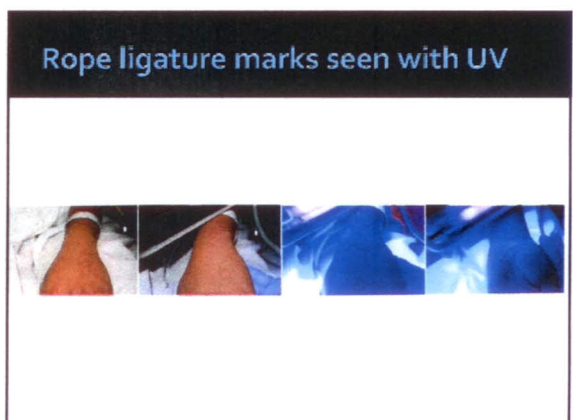
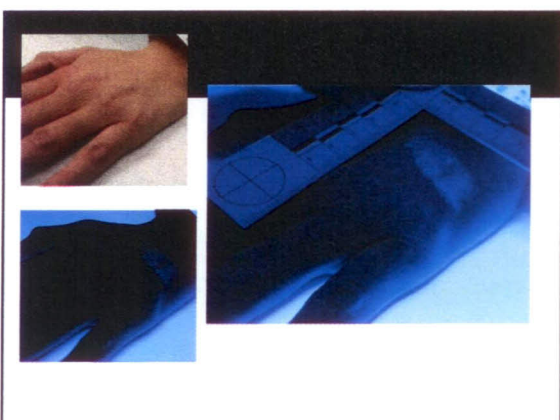
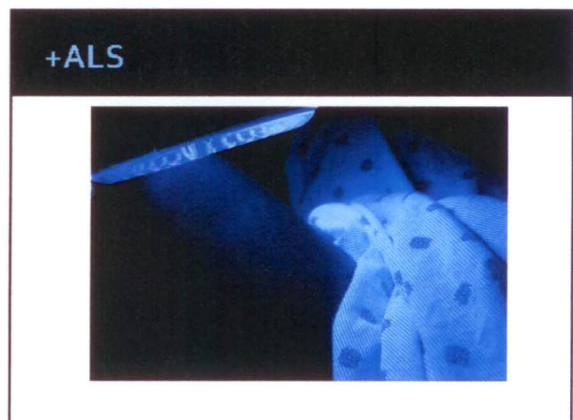
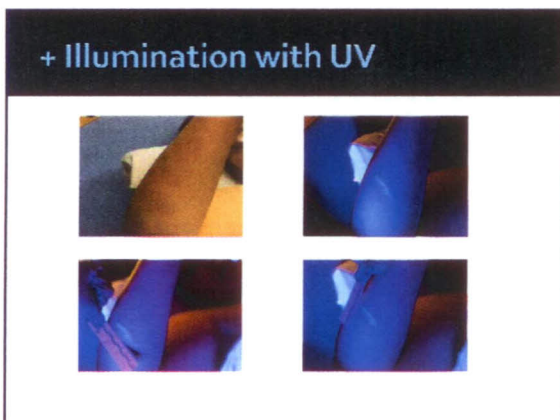
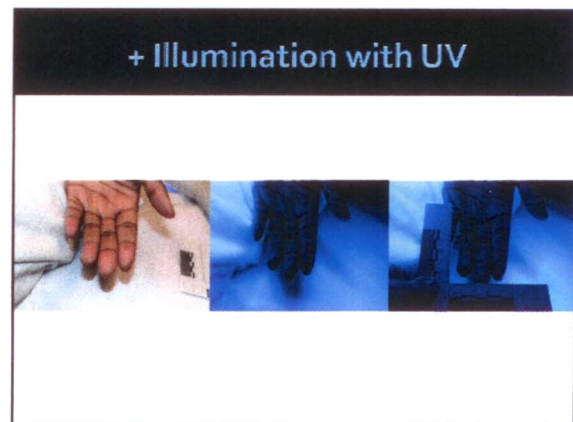
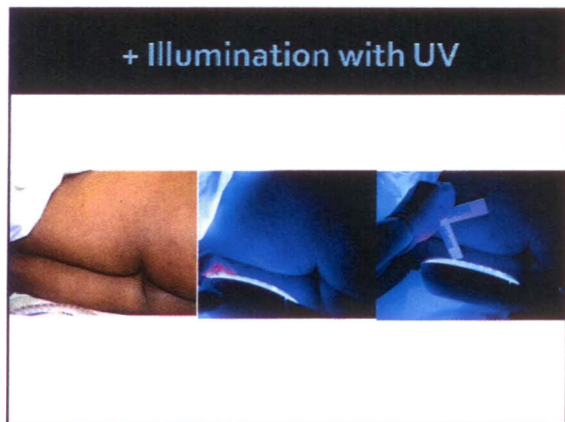


53

Same injury with a measuring tool



54



Exam and injuries

- + AL where pt reports perpetrators mouth was on her neck



12000166 tmt

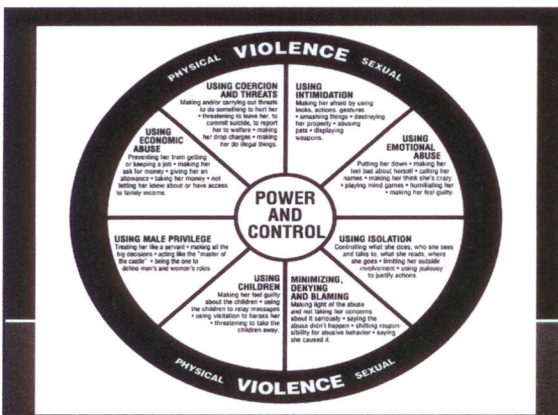


Why does strangulation and choking go unreported ?

Minimization by Victims

- Victims minimize strangulation attacks and may deny medical attention or resist cooperating with the criminal investigation.
- Such minimization may be because the victim already starts to deny what happened due to the cycle of violence or other intimidation by the abuser.
- For example, in one case, a victim's statement to a police officer stated, "He didn't really choke me, he just had me in a headlock and I couldn't breathe."

Mack, Melissa 2013



Minimization by Victims

- Many victims do not understand the serious medical dangers involved in strangulation, including long-term health effects.
- Many victims of strangulation have commented that if they knew how lethal strangulation was that they would have left a long time before they did.

Mack, Melissa 2013

Common Coping Mechanisms for Acute Trauma Victims

Freeze



Flight

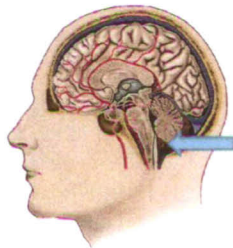


Fight



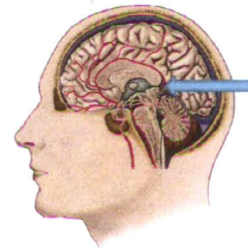
Understanding freeze, flight, and fight

- Parasympathetic response
- Danger signal sounds repeatedly
- Threat responses arise from deep in the primitive survival instincts of the body.
- Thought process slows down
- Stress response will override higher level critical thought.
- Repeated exposure to trauma can cause an overactive amygdala.



Understanding freeze, flight, and fight

- Sympathetic nervous system
- Adrenal medulla produces a hormonal cascade that results in the secretion of catecholamines
- Body is fueled with extra energy—adrenalin rush
- Revs up for fight or flight
- Hyper arousal



NONVERBAL INDICATORS OF DISCOMFORT or DISTRESS

- Rapid heart rate and breathing (breath holding or sudden change in breathing pattern may also be observed)
- Sudden flooding of strong emotions (e.g., anger, sadness, fear, etc.)
- Pallor or flushing
- Sweating
- Muscle stiffness, muscle tension, and inability to relax
- Cringing, flinching, or pulling away

The following response may be clearer indications of distress:

- Trembling or shaking
- Startle response
- Staring vacantly into the distance
- Spacing out or being uninvolved in the present
- Being unable to focus, concentrate, or respond to instructions
- Being unable to speak.

Common Immediate Trauma Responses

- Cognitive:
 - Memory impairment
 - Slowed thought process
 - Difficulty making decisions, solving problems, concentrating, and calculating
 - Limited attention span
 - Surreal
 - Recurring intrusive images or dreams

Common Immediate Trauma Responses

- Behavioral
 - Changes in behavior
 - Withdrawal
 - Silence or talkativeness
 - Improper humor
 - Excessive interest in anything that distracts
 - Relapse in chemically dependant persons

Minimization by Criminal Justice Professionals

- Often, when responding to a domestic violence call, first responders, such as 911 dispatchers, patrol officers, and paramedics are focused on more obvious injuries like stab wounds or contusions, especially when there is a lack of visible injuries due to strangulation, such as dramatic swelling or serious claw-like marks to the neck.
- More than 50% of victims have no visible injury
- Often, the perpetrator of the crime has visible injury that the victim has inflicted to protect his/her life.

Mack, Melissa 2013

Minimization by Criminal Justice Professionals

- Many first responders also lack specialized training to identify the signs and symptoms of strangulation.
- For example, a victim may be out of breath due to being strangled but mistake it for exacerbation of medical condition(s).
- Without knowing what to ask, listen, or look for, evidence of strangulation is not documented and the crime is not properly investigated.

Mack, Melissa 2013

Minimization by Offenders

- Many offenders use strangulation as a tool to instill fear and assert power and control over their victims.
- Offenders do not think that strangulation is as serious as other violent actions, like punching or stabbing their partner:
 - "Officer, I swear I didn't hit her. All I did was choke the living shit out of her once or twice. I swear I didn't hit her."

Mack, Melissa 2013

Consensual Touching

- Opponents will argue that strangulation should not be a crime because intimate partners may both agree to such an act during sex. Erotic asphyxiation, though potentially fatal, is popular in some communities and has been used as a defense in cases where the defendant was accused of assaulting or killing his sexual/intimate partner.

Mack, Melissa 2013

Burden of Proof

- While visible injuries may not be required, the prosecutor, like in any other criminal proceeding, must still prove beyond a reasonable doubt that the strangulation assault occurred.

Mack, Melissa 2013

Burden of Proof

- Missouri Stat. § 565.073 (2011). Domestic assault, second degree—penalty
- 1. A person commits the crime of domestic assault in the second degree if the act involves a family or household member or an adult who is or has been in a continuing social relationship of a romantic or intimate nature with the actor, as defined in section 455.010, RSMo, and he or she:
 - (1) Attempts to cause or knowingly **causes physical injury** to such family or household member by any means, including but not limited to, by use of a deadly weapon or dangerous instrument, or by choking or strangulation; or
 - (2) Recklessly causes serious physical injury to such family or household member; or
 - (3) Recklessly causes physical injury to such family or household member by means of any deadly weapon.
- 2. Domestic assault in the second degree is a class C felony.

Burden of Proof

- Serious bodily injury often requires substantial impairment of body part or organ, or substantial disfigurement.
- This lack of visible external injury leads to a lack of necessary documentation in hospital records and police reports and therefore less likelihood that charges will be filed.
- This required element of the offense often results in strangulation cases not being prosecuted because there was a lack of physical and external injury visible to the clinician.

Mack, Melissa 2013

Burden of Proof

- Although internal injuries may be present, the opportunity to detect such injuries is often missed **because the victim may not seek medical attention**. Many times the only injuries that show the victim was strangled are **visible during an autopsy after the victim has died**.

Mack, Melissa 2013

Burden of Proof

- Therefore, many victims of non-fatal strangulation who do not present visible, external signs of strangulation are precluded from getting the justice they deserve.

Mack, Melissa 2013

What can we do?

The following are evidence based questions for assessment for strangulation, choking, and suffocation. Documentation is vital to prosecution of these cases.

Strangulation Assessment Questions

- Do/did you have any difficulty breathing?
- Do/did you feel shortness of air?
- Do/did you have a sore throat?
- Do/did you feel pain, discomfort, or have trouble swallowing?
- Do/did you faint or lose consciousness/black out?
- Did you vomit, cough up blood, urinate, defecate, or lose any bodily function?

Strangulation Interview Questions

- Do/did you have any visible injuries? Where?
- About how long did the strangulation last? How long did it feel?
- How did it stop?
- Did you try to protect yourself? Describe?
- Ask the victim to demonstrate how he/she was strangled
- How hard was the grip?
- How much pressure was applied?
- Did you seek any medical attention between the time of the assault and now? Describe.
- What did you think was going to happen?

Strangulation Interview Questions

- What did he/she use? Hands? Forearms? Chokehold? Knee?
- If hands were used, one or two hands?
- If one, was it the right or left?
- What was the other hand doing?
- Were any rings, watches, or items worn by the assailant? (pattern injury?)
- Were any other objects used?
- Was there shaking during the strangulation?

Strangulation Interview Questions

- Were you thrown against the wall/floor and describe the surface?
- How was the assailant acting?
- Has he/she ever strangled/choked you or someone else before?
- What was the assailant's facial expression?
 - "I saw the hatred in his eyes"
 - "He seemed possessed-he looked like the devil!"

What can we do?

- All of these answers and appropriate documentation of injuries both in description and forensic photographs can help aid the prosecution of strangulation/choking cases.
- Be objective in description:
 - Size, shape, height, width, depth, location, color, and statement in quotation from the patient as to how the injury occurred. Pt/victim report's "-----"

Example of patient's history of assault when asked about sights, sounds, sensations, and taste

- Survivor reports, "He came over Tuesday morning. He told me he was there to kill me. He said, 'I'm going to kill you. I'm going to do it now.' He took me down to the floor. He was above me sitting on top of me. He was punching my head, pulling my hair, and he beat my head into the wood floor over and over. He put both hands around my neck and was strangling me. He took one hand off my neck, I'm not sure which, and he shoved his hand down my throat. I bit his fingers. I asked him for peace. I told him I just want peace. I told him to think of the children and what this would do to them. He said, 'I don't care about those things, the children are not important.' I told him I already called the police and that they were on their way. I was screaming for help. I could hear the children out at the bus stop waiting for the bus for school. They wouldn't listen to me. I kept thinking of my children and wondering how I was ever going to get out of this. All I could see was his face. Some how I convinced him that the police were on their way. He got off me to go get his gun. I got up and ran out the door into the street. He followed me half way down the street pointing the gun at me twice." Pt denies loss of consciousness or incontinence during strangulation/choking. Since the assault, pt has been seen at _____ hospital. Over the past two days she reports: passing out 5-6 times per day, trouble breathing, blurred "cloudy" vision, vomiting twice, coughing up blood at first bright red and now brown, dizziness, headache, shortness of air, "I can't pass food and am having trouble taking my pills. I have been able to drink water but it hurts." She reports fluid draining from left ear, burning with urination, and increased pain on the left side of her body from head to toes.

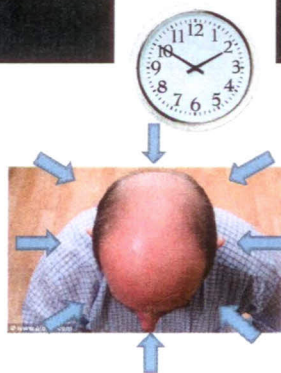
Forensic Photography

The Rule of Four in Forensic Photography



Take 8 photos

- 12 o'clock
- 1:30
- 3 o'clock
- 4:30
- 6 o'clock
- 7:30
- 9 o'clock
- 10:30



Ensuring Admissibility of Digital Images

NEVER erase a photo after it has been taken. The photo number sequence will show evidence of erased photos as gaps in the image numbers. If you take a bad photo, try again until you get a good photo, but do not erase your failed attempts.

Using Light to Define Injury

- Flash can wash out injury especially on light skinned patients. The light from the flash bounces off the skin surface and back into the camera.



Recommended techniques to avoid washout

- Use a well lit area
- Turn the flash off on the camera
- Use a side light technique with the flash off
- Dull the flash with a cotton ball or 2x2 gauze taped to the flash (or your hand in front of the flash)
- Use the flash attachment and divert the flash to the ceiling

Collect Evidence!

In the first four hours post assault
more than 50% of trace touch evidence is lost to secondary transfer

- Moisten a sterile cotton swab with sterile water or tap water and lightly swab the area:
 - The neck, mouth, nose, or chest
 - Anywhere the survivor was grabbed, held, punched, or pinched –**anywhere there is cell to cell transfer has taken place**
 - Consider finger nail scrapings if the survivor has scratched the perpetrator or has memory loss
 - Collect a standard:
 - Buccal standard
 - Head hair standard
- *KCPD crime lab has these supplies

- *Encourage filing a report
- *Refer survivor to the Bridge Programs for Advocacy

- Video

References

- Mack, Melissa. *He Takes My Breath Away: Why Legislators Must Take Action to Protect Victims of Strangulation*. May 2013
- Training Institute on Strangulation Prevention and the California District Attorneys Association. *The Investigation and Prosecution of Strangulation Cases*. 2013
- http://www.bwjp.org/files/bwjp/articles/Strangulation_Laws_Chart.pdf