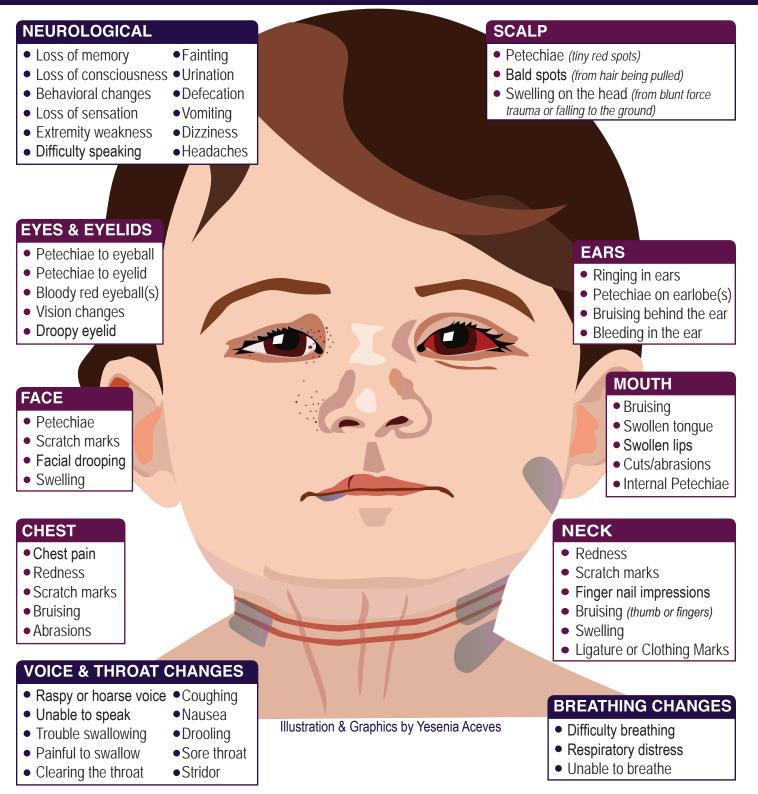
SIGNS AND SYMPTOMS OF STRANGULATION

(VISIBLE SIGNS MAY NOT BE PRESENT)



Source: Strangulation in Intimate Partner Violence, Chapter 16, Intimate Partner Violence. Oxford University Press, Inc. 2009.



Diana Faugno MSN, RN, CPN, SANE-A, SANE-P, FAAFS, DF-IAFN

Diana Faugno graduated with a Bachelor of Science in Nursing-University of North Dakota and a Master of Science in Nursing-University of Phoenix. Ms. Faugno is a Founding Board Director for End Violence Against Women International (EVAWI) She is a member of the Board of Directors for the California American Professional Society on the Abuse of Children.She is the current president of the Acadmey of Forensic Nurses as well as a retired-fellow in the American Academy of Forensic Science and a Distinguished Fellow in the International Association of Forensic Nurses. She currently is the nurse examiner at the Barbara Sinatra Childrens Center and a nurse examiner for Eisenhower Medical Center's SART team. She is the co-author on numberous textbooks and papers on dealing with the forensic medical aspects of violence.





RECOMMENDATIONS for the MEDICAL/RADIOGRAPHIC EVALUATION oF ACUTE ADULT, NON-FATAL STRANGULATION

Prepared by Bill Smock, MD and Sally Sturgeon, DNP, SANE-A

Office of the Police Surgeon, Louisville Metro Police Department Endorsed by the National Medical Advisory Committee: Bill Smock, MD, Chair; Cathy Baldwin, MD; William Green, MD; Dean Hawley, MD; Ralph Riviello, MD; Heather Rozzi, MD; Steve Stapczynski, MD; Ellen Tailiaferro, MD; Michael Weaver, MD



1. Evaluate carotid and vertebral arteries for injuries **GOALS:** 2. Evaluate bony/cartilaginous and soft tissue neck structures 3. Evaluate brain for anoxic injury

Strangulation patient presents to the Emergency Department

History of and/or physical exam with ANY of the following:

- Loss of Consciousness (anoxic brain injury)
- Visual changes: "spots", "flashing light", "tunnel vision"
- Facial, intraoral or conjunctival petechial hemorrhage
- Ligature mark or neck contusions
- Soft tissue neck injury/swelling of the neck/cartoid tenderness
- **Incontinence** (bladder and/or bowel from anoxic injury)
- Neurological signs or symptoms (LOC, seizures, mental status changes, amnesia, visual changes, cortical blindness, movement disorders, stroke-like symtoms.)
- Dysphonia/Aphonia (hematoma, laryngeal fracture, soft tissue swelling, recurrent laryngeal nerve injury)
- Dyspnea (hematoma, laryngeal fractures, soft tissue swelling, phrenic nerve injury)
- Subcutaneous emphysema (tracheal/laryngeal rupture)

Recommended Radiographic Studies to Rule Out Life-Threatening Injuries* (including delayed presentations of up to 6 months)

- CT Angio of carotid/vertebral arteries (GOLD STANDARD for evaluation of vessels and bony/ cartilaginous structures, less sensitive for soft tissue trauma) or
- CT neck with contrast (less sensitive than CT Angio for vessels, good for bony/cartilaginous structures) or
- MRA of neck (less sensitive than CT Angio for vessels, best for soft tissue trauma) or
- **MRI of neck** (less sensitive than CT Angio for vessels and bony/cartilaginous structures, best study for soft tissue trauma) or
- MRI/MRA of brain (most sensitive for anoxic brain injury, stroke symptoms and intercerebral petechial hemorrhage)
- Carotid Doppler Ultrasound (NOT RECOMMENDED: least sensitive study, unable to adequately evaluate vertebral arteries or proximal internal carotid) *References on page 2

History of and/or physical exam with:

- No LOC (anoxic brain injury)
- No visual changes: "spots", "flashing light", "tunnel vision"
- No petechial hemorrhage
- No soft tissue trauma to the neck
- No dyspnea, dysphonia or odynophagia
- No neurological signs or symptoms (i.e. LOC, seizures, mental status changes, amnesia, visual changes, cortical blindness, movement disorder, stroke-like symtoms)
- And reliable home monitoring

Discharge home with detailed instructions to return to ED if:

neurological signs/symptoms, dyspnea, dysphonia or odynophagia develops or worsens

(-)

(+)

Continued ED/Hospital Observation (based on severity of symptoms and reliable home monitoring)

- Consult NeurologyNeurosurgery/Trauma Surgerv for admission
 - Consider ENT consult for laryngeal trauma with dysphonia



RECOMMENDATIONS for the MEDICAL/RADIOGRAPHIC EVALUATION of ACUTE ADULT, NON-FATAL STRANGULATION

REFERENCES



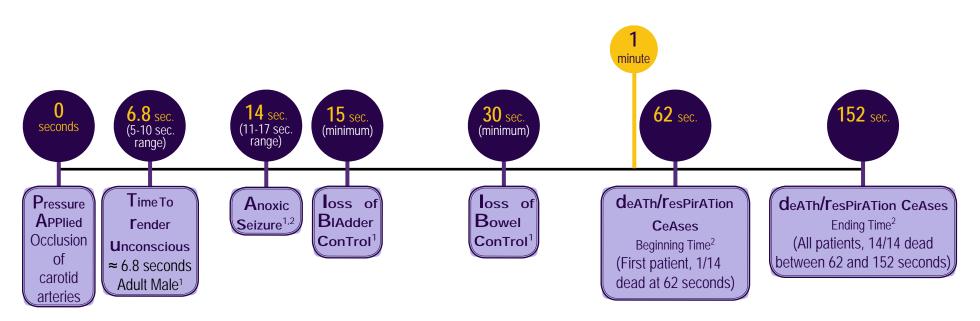
(Recommendations based upon case reports, case studies, and cited medical literature)

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PHYSIOLOGICAL CONSEQUENCES OF STRANGULATION Occlusion of Arterial Blood Flow: Seconds to Minutes Timeline

Created by: Ruth Carter; Bill Smock, MD; Gael Strack, JD; Yesenia Aceves, BA; Marisol Martinez, MA; and Ashley Peck



RefeRences and ResouRces

1 Acute Arrest of Cerebral Circulation in Man, Lieutenant Ralph Rossen (MC), U.S.N.R.; Herman Kabat, M.D., PH.D. Bethesda, MD. and John P. Anderson Red Wing, Minn.; Archives of Neurology and Psychiatry, 1944, Volume 50, #5.

2 Anny Sauvagneau, MD, MSc; Romano LaHarpe, MD; David King, MD; Graeme Dowling, MD; Sam Andrews, MD; Sean Kelly, MD; Corinne Ambrosi, MD; Jean-Pierre Guay, PhD; and Vernon J. Geberth, MS; MPS for the Working Group on Human Asphyxia, Forensic Med Pathol 2011;32: 104 – 107.

3 Training Institute on Strangulation Prevention: strangulationtraininginstitute.com



This project is supported all or in part by Grant No. 2016-TA-AX-K067 awarded by the Office on Violence Against Women, U.S. Department of Justice. The opinions, findings, conclusions, and recommendations expressed in this publication/program/exhibition are those of the author(s) and do not necessarily reflect the views of the Department of Justice, Office on Violence Against Women.

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PEDIATRIC-ADOLESCENT FOLLOW-UP EVALUATION

Name of Examining Agency:	
Address:	
Date of Initial Exam:Date of T	
Case Number(s):	
Name of Patient:	Date of Birth:
Address:	
Accompanied By:	
Others Present:	
PATIENT RELEA	SE STATEMENT
l,, l	hereby request and authorize the staff of;
(agency/agencies) evaluation and clinical procedures, including collect necessary for diagnosis and treatment as well as in request the medical staff to supply all items of evic laboratory reports (<i>initials</i>) to the appropria and any resulting legal proceedings.	vestigation. Furthermore, I hereby authorize and dence (<i>initials</i>) and copies of medical and
Patient Examined	Date
Parent or Guardian	Witness
PHOTOGRAPH	HIC RELEASE
I,	, hereby request and authorize the staff
of; (agency/agencies) body surface or colposcope images of injury, healin photographs is conditioned upon the images being the investigation or legal proceedings. De-identified education/teaching purposes.	to capture and produce photographs of ig injury or normal anatomy. The release of these viewed only by those persons officially involved in
Patient Photographed	Date

HISTORY	Patient's Name
 Review of initial exam documentation Reason for follow-up examination 	Yes No N/A Physical Abuse Strangulation Other
Summary of acute strangulation evaluation:	
Description of injury/abuse event(s) in patient's	own words:
Name of examiner:	Date:
Signature:	

Patient Label

PHYSICAL ASSESSMENT

Vital Signs: T _____ P ____ R ____ B/P _____ Pulse Ox _____

Neck Circumference _____ (Anterior) _____ (Lateral)

Mental Status/Behavior/Appearance:

Review of Systems

Neurological

Cardiovascular

Respiratory

HEENT

Gastrointestinal

Genito-urinary

OB/Gynecological

Skin/Muscle/Bone

Psych/Social

Since the strangulation, has the patient noted any of the following symptoms:

Coughing Drooling Dyspnea Dysphagia Odynophagia Headache Lightheadedness Neck pain Neck swelling Nose pain Nausea Vomiting Crepitus Uncontrolled shaking Combativeness Irritability Restlessness Otherwise altered mental status Describe:				
Voice changes Describe:				
Uision changes Describe:				
Weakness/numbness of extremities	Describe:			
Name of examiner:	Date:			

Signature: _____

PHYSICAL ASSESSMENT (continued)

Pain score:		Numbered scale used			🗌 Wo	ng Bak	er scale	e used (insert score)	
On a scale was the grip						•	the wo	rst pres	sure you can imagine, how strong
0 1	2	3	4	5	6	7	8	9	10
Is the patier	nt pregna	ant?	🗌 Ye	s; How	many v	veeks?			□ N/A
☐ Petechiae Locations: ☐ Conjunctivae ☐ Face ☐ Palate ☐ Ears ☐ Scalp ☐ Tympanic Membrane(s) ☐ Neck ☐ Chest									
 Tongue or oral cavity injury Describe: Neurological findings Ptosis Facial droop Paralysis Unilateral weakness Loss of sensation Other: 									
Absence Ovisible ir Ovisible ir	of norm njury (de	nal crepi scribe o	n body r	-	-	cricoid d	cartilag	e	

Method/Manner of Strangulation:

One hand	Estimated length of t	ime: <u>seconds</u>	minutes
Two hands	Estimated length of time:	seconds	minutes
"Chokehold"	Estimated length of t	ime: <u>seconds</u>	minutes
Approached from t	he front		
Approached from b	behind		
Multiple strangulat	ion attempts during incident	How many?	_
Jewelry on patient'	s neck during strangulation		
Ligature used	Describe if possible:		
Smothering attemp	ot Describe:		
Other	Describe:		

During the strangulation did the patient note any of the following:

Loss of consciousness/b	Number of times:	
Incontinence of urine	Incontinence of stool	
Bleeding	Describe:	
Patient's feet lifted off the	e ground	
Patient's shirt was tighter	ned around their neck	

During the follow up evaluation were symptoms noted by the examiner?

Yes:	
No	
Name of examiner:	Date:
Signature:	

Glasgow Coma Scale

	Spontaneousopen with blinking at baseline	4
Bastova respense (E)	Opens to verbal command, speech, or shout	3
Bestleye responise (E)	Opens to pain, not applied to face	2
	None	1
	Oriented	5
Destuarbal responses (10)	Confused conversation, but able to an swer questions	4
Bestverbal response (V)	In appropriate responses, words discernible	3
	In compreh en sible speech	2
	None	1
	Obeys commands for movement	6
	Purposeful movement to painful stimulus	5
Best motor response (M)	With draws from pain	4
	Abnormal (spastic) flexion, decorticate posture	3
	Extensor (rigid) response, decerebrate posture	2
	None	1

Cranial Nerve Assessment

Nerve	Assessment	Notes
CN I Olfactory	Identifies a familiar scent with eyes closed (coffee)	WNL Unable to assess
CN II Optic	Read one eye at a time, visual fields tested by having patient cover one eye and identifying number of fingers in each visual field	WNL Unable to assess
CN III Oculomotor	Check pupillary response with light, check accommodation by moving your finger towards the patient's nose, check for EOMs	WNL Unable to assess
CN IV Trochlear	Have patient look down and in	WNL Unable to assess
CN V Trigeminal	Ask patient to open mouth while you attempt to close it, have them attempt to move jaw laterally. Have patient close their eyes, touch their face with cotton and have patient identify where they were touched.	WNL Unable to assess
CN VI Abducens	Have patient move their eyes from side to side	WNL Unable to assess
CN VII Facial	Ask patient to smile and raise eyebrows, ask them to keep eyes and lips closed while you try to open them	WNL Unable to assess
CN VIII Acoustic/Vestibular	Test hearing with rubbing fingers or whispering	WNL Unable to assess
CN IX Glossopharyngeal	Observe patient swallow and check gag reflex	WNL Unable to assess
CN X Vagus	Assess gag and swallowing with IX, assess patient's voice characteristics	WNL Unable to assess

CN XI Spinal Accessory	Have patient shrug shoulders with resistance, have patient move head	WNL Unable to assess
	from side to side.	
CN XII Hypoglossal	Have patient stick out tongue and move it internally from right to left, assess	WNL Unable to assess
	articulation.	

Describe abnormalities here: _____

Cranial nerve assessment normal

DIAGRAMS (Document any injuries):

RIGHT CONJUNCTIVA

RIGHT INNER EYE LID

RIGHT OUTER EYE LID









LEFT OUTER EYE LID

LEFT INNER EYE LID

LEFT CONJUNCTIVA





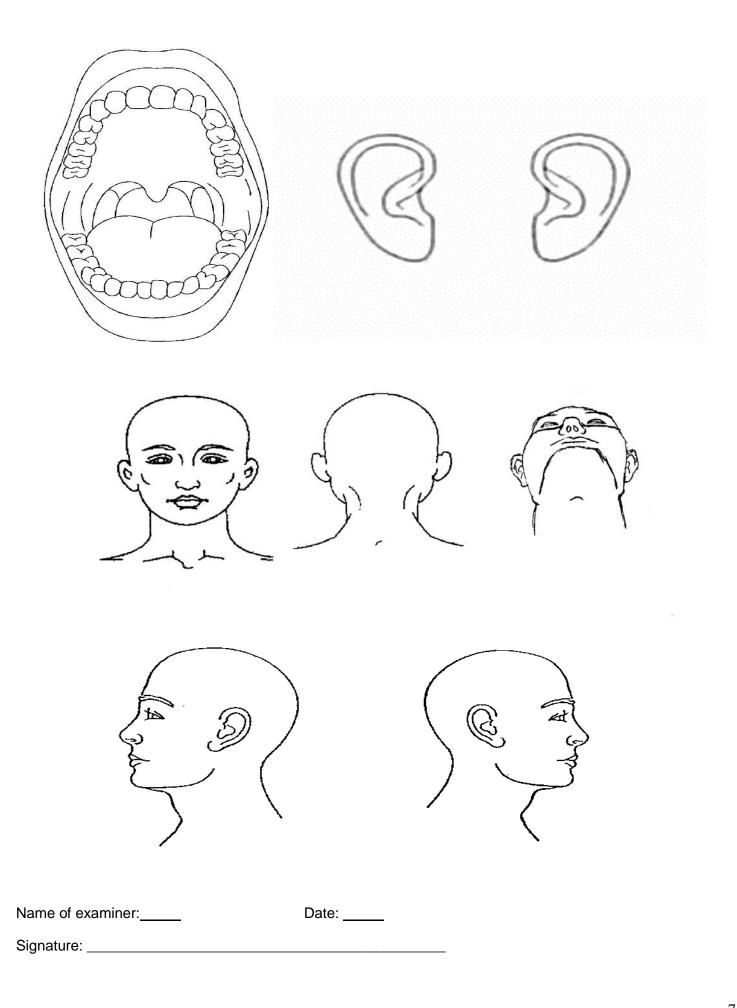




Name of examiner:

Date: _____

Signature: _____



PLAN of CARE & RECOMMENDATIONS:

Pediatric Strangulation Discharge Instructions

Name of examiner:_____

Date: _____

Signature: _____

DETAILED BODY SURFACE FINDINGS

1.	
16.	
17.	
18.	
19.	
20.	

If more space is required, please use a progress note and check the box below.

Please see progress note for additional findings.

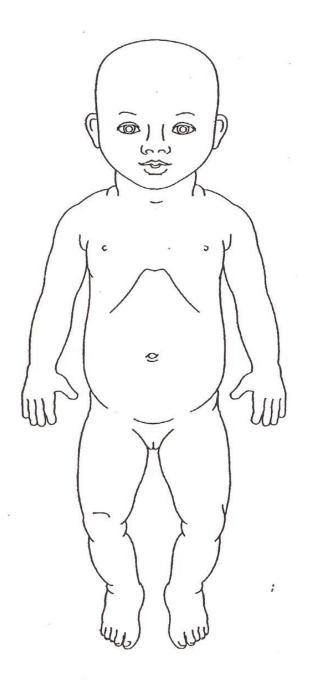
Please see age appropriate diagrams (appendices) for additional findings

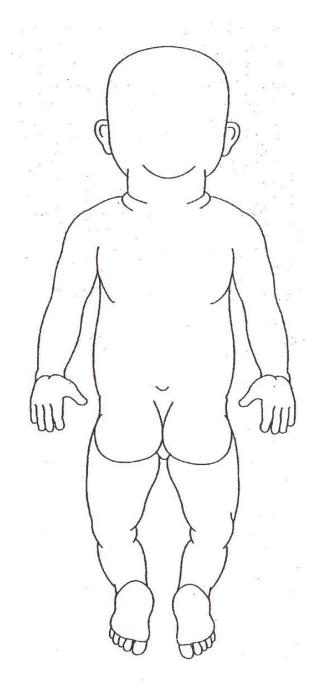
APPENDIX A

FEMALE INFANT BODY MAP/DIAGRAM

Numerically mark each finding (1, 2, 3...) and provide a detailed description.

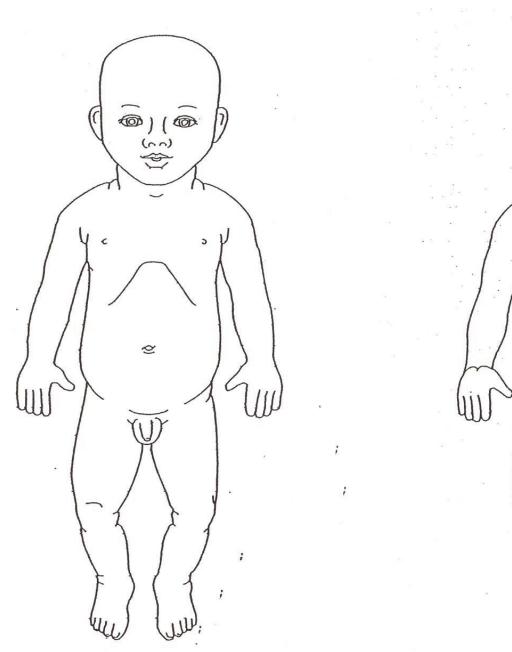
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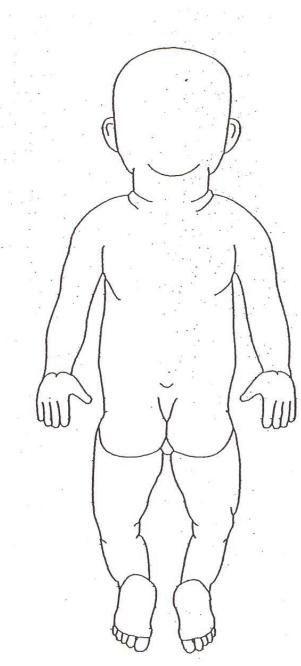




APPENDIX B

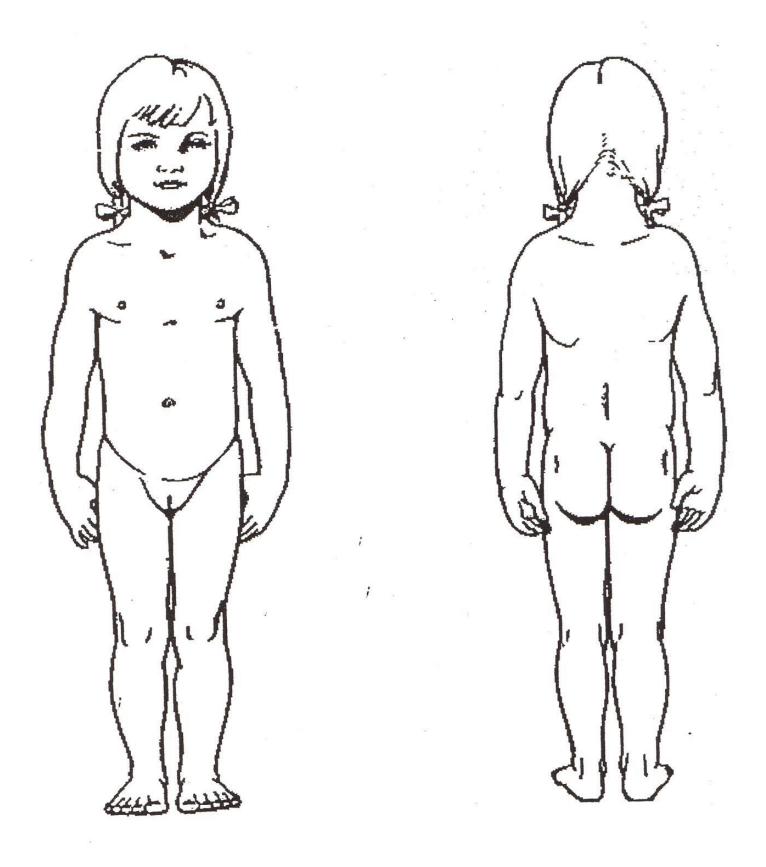
MALE INFANT BODY MAP/DIAGRAM





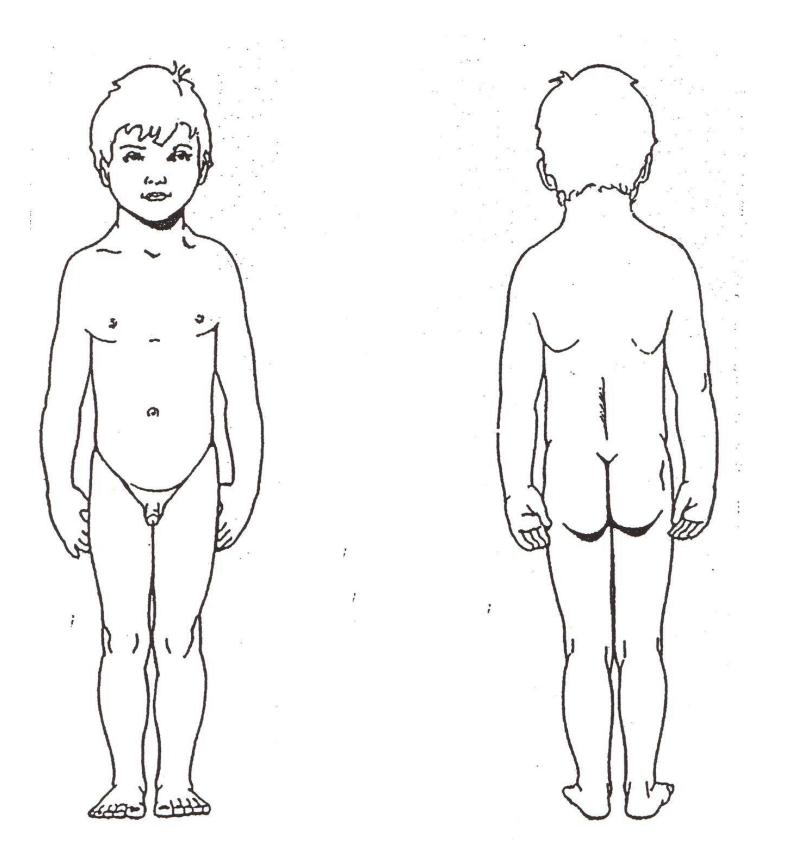
APPENDIX C

FEMALE CHILD BODY MAP/DIAGRAM



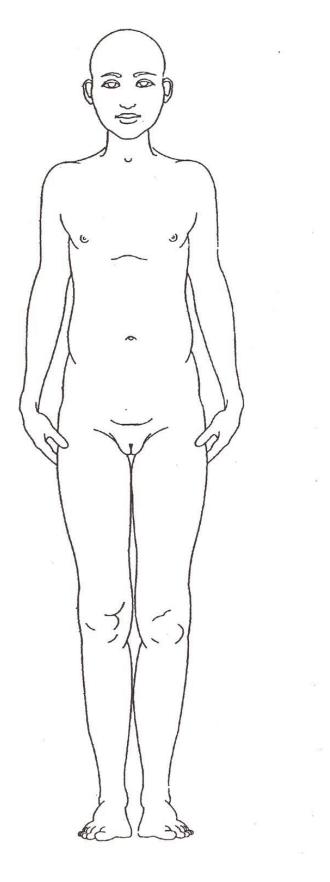
APPENDIX D

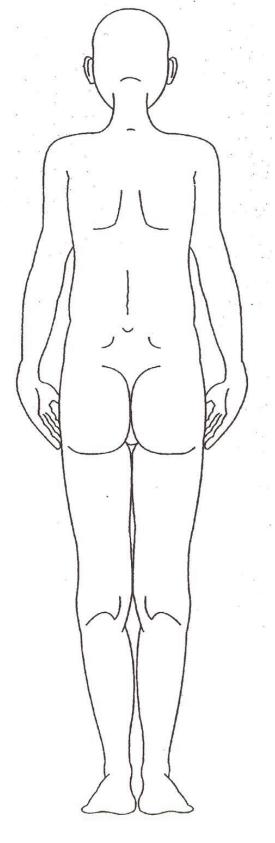
MALE CHILD BODY MAP/DIAGRAM



APPENDIX E

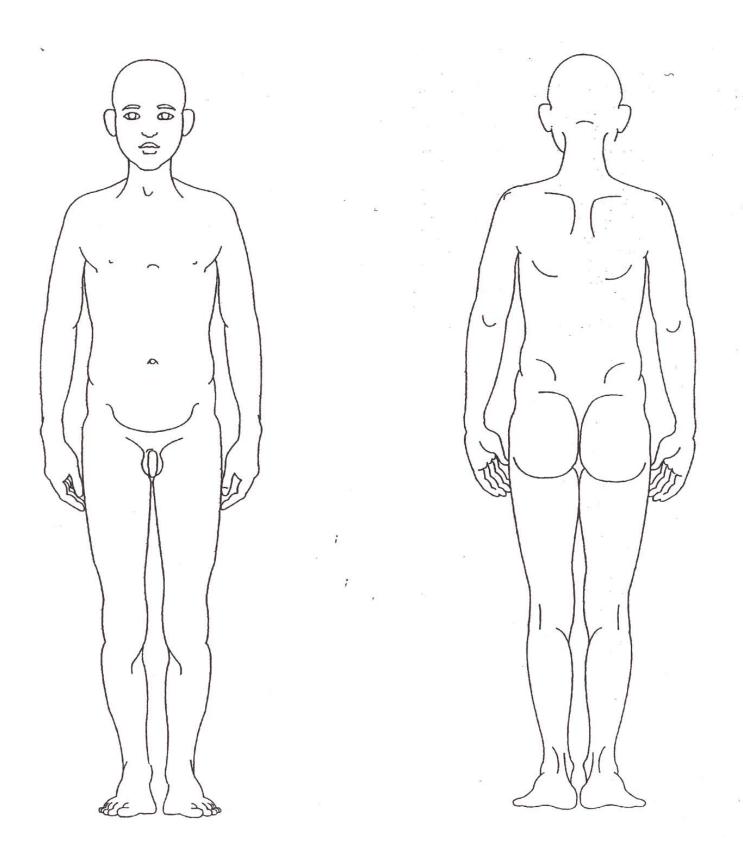
FEMALE ADOLESCENT BODY MAP/DIAGRAM





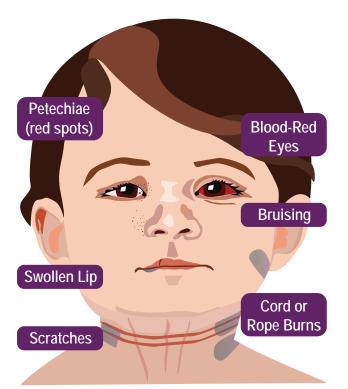
APPENDIX F

MALE ADOLESCENT BODY MAP/DIAGRAM



Strangulation

Visible Signs (may not be present)



Additional Signs and Symptoms

A larger version of the graphic above which contains detailed signs and symptoms is available for download at strangulationtraininginstitute.com/resources/library/pediatric/

This project is supported all or in part by Grant No. 2016-TA-AX-K067 awarded by the Office on Violence Against Women, U.S. Department of Justice. The opinions, findings, conclusions, and recommendations expressed in this publication/program/exhibition are those of the author(s) and do not necessarily reflect the views of the Department of Justice, Office on Violence Against Women. Strangulation is often under-recognized in children but no less serious than in adults. *Unconsciousness may happen within seconds and death within minutes*. Children may be strangled when caregivers lose control, as part of physical and/or sexual assault, or as a way of demonstrating ultimate power and control over the child. Regardless, strangulation of a child can have long-lasting physical and mental health effects and can result in death even months later.

Child victims of strangulation may feel terror and extreme pain. If strangulation continues, unconsciousness will follow. Before sliding into unconsciousness, a child victim may resist violently, producing injuries to their own neck or to the face or hands of their attacker. These defensive injuries may not be present in young or developmentally disabled children, or if the victim is physically or chemically restrained.

Observing Changes

Documentation by photographs organized in order, for a period of days after the attack is very helpful in beginning and building a journal of proof.

Victims should be given medical attention if they experience difficulty breathing, speaking, swallowing or experience nausea, vomiting, lightheadedness, headache or holding head, accidental urination and/or bowel movement in children not diapered. A medical evaluation may be extremely important in detecting internal injuries and saving a life.

Losing Conciousness

Victims may lose awareness or faint by any one or all of the following methods: blocking of the blood vessels from the heart in the neck (taking away oxygen from the brain), blocking of the large veins in the neck (preventing deoxygenated blood from exiting the brain), and closing off the tube from the mouth to the lungs, making breathing impossible.

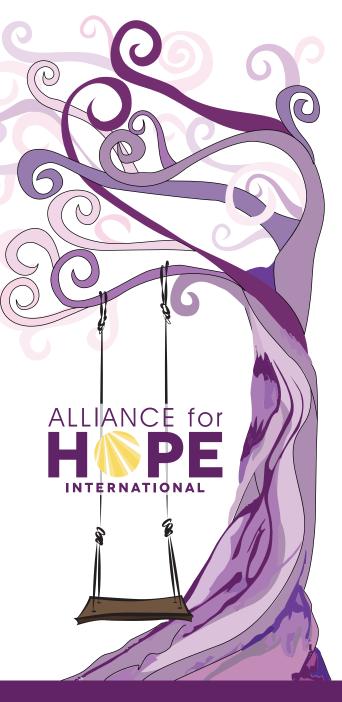




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Illustration & Graphics by Yesenia Aceves

Alliance for HOPE International 101 West Broadway Suite 1770 San Diego, CA 92101 (888) 511-3522 allianceforhope.com



STRANGULATION What Parents and Caregivers NEED TO KNOW

Monitor the Child's SIGNS

Date & Time

Photograph and Journal the Child's Signs

Monitor the Child's SYMPTOMS

Date & Time

Journal the Child's Symptoms

Date & Time

Journal Any Other Sensation

Signs of Strangulation

Head- pinpoint red spots (petechiae) on scalp, hair pulled, bump(s), skull fracture(crack), concussion.

Face- red or flushed, petechiae, scratch marks.

Eyes and Eyelids- petechiae to the left or right eyeball, bloodshot eyes.

Ear- petechiae (external and/or ear canal), bleeding from ear canal.

Nose- bloody nose, broken nose, petechiae.

Mouth- bruising, swollen tongue, swollen lips, cuts/abrasions(scrapes).

Under the chin- redness, scratch marks, bruise(s), abrasions.

Neck- redness, scratch marks, fingernail marks, bruise(s), abrasions, swelling, ligature(tie) or clothing marks.

Chest and Shoulders- redness, scratch marks, bruise(s), abrasions.

Symptoms of Strangulation

Voice changes- raspy and/or hoarse voice, coughing, unable to speak, complete loss of voice.

Swallowing changes- trouble swallowing, painful swallowing, neck pain, nausea/vomiting, drooling.

Breathing changes- difficulty breathing, hyperventilation, unable to breathe.

Behavioral changes- restlessness or aggressiveness, problems concentrating, amnesia(loss of memory), agitation, Post-traumatic Stress Syndrome, hallucinations.

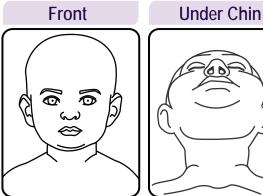
Vision changes- complete loss or black & white vision, seeing 'stars', blurry, darkness, fuzzy around the eyes.

Hearing changes- complete loss of hearing, gurgling, ringing, buzzing, popping, pressure, tunnel-like hearing.

Other changes- Memory loss, unconsciousness, dizziness, headaches, involuntary urination or bowel movement in potty-trained child, loss of strength. going limp.

Diagrams to Mark Visible Injuries

Use a pen or a marker to indicate any visble signs and/or symptoms.



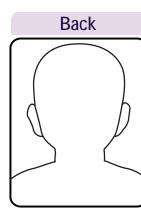


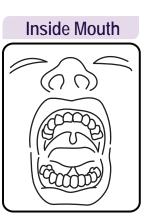
Right Side

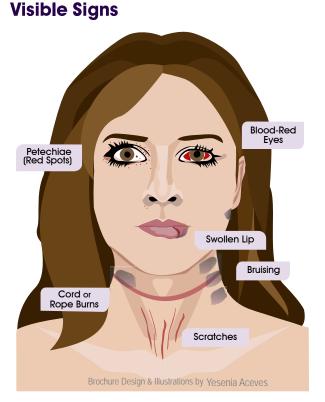
Left Side











Additional Signs and Symptoms

A larger version of the graphic above which contains detailed signs and symptoms is available for download at https://www.strangulationtraininginstitute.com/Esperanza

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Strangulation

Observing Changes

Documentation by photographs sequentially for a period of days after the assault is very helpful in establishing a journal of physical evidence.

Victims should also seek medical attention if they experience difficulty breathing, speaking, swallowing or experience nausea, vomiting, lightheadedness, headache, involuntary urination and/or defecation, especially pregnant victims. A medical evaluation may be crucial in detecting internal injuries and saving a life.

Losing Consciousness

Victims may lose consciousness by any one or all of the following methods: blocking of the carotid arteries in the neck (depriving the brain of oxygen), blocking of the jugular veins (preventing deoxygenated blood from exiting the brain), and closing off the airway, making breathing impossible.

Strangulation has only recently been identified as one of the most lethal forms of domestic violence: unconsciousness may occur within seconds and death within minutes. When domestic violence perpetrators choke (strangle) their victims, not only is this a felonious assault, but it may be an attempted homicide. Strangulation is an ultimate form of power and control, where the batterer can demonstrate control over the victim's next breath; having devastating psychological effects or a potentially fatal outcome.

Sober and conscious victims of strangulation will first feel terror and severe pain. If strangulation persists, unconsciousness will follow. Before lapsing into unconsciousness, a strangulation victim will usually resist violently, often producing injuries of their own neck in an effort to claw off the assailant, and frequently also producing injury on the face or hands to their assailant. These defensive injuries may not be present if the victim is physically or chemically restrained before the assault.

Alliance for HOPE International

ALLIANCE for a program of STRANGULATION PREVENTION

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ALLIANCE for INTERNATIONAL

Facts Victims of Strangulation (Choking) Need to Know

Monitor Your SIGNS

Date & Time

Journal Your Signs

Monitor Your Symptoms

Date & Time

Journal Your Symptoms

Date & Time Journal Any Other Sensation

bump(s), skull fracture, concussion. Face- red or flushed, petechiae, scratch marks. Eves and Evolids, petechiae to the left or right

Eyes and Eyelids- petechiae to the left or right eyeball, bloodshot eyes.

Signs of Strangulation

Head- pinpoint red spots (petechiae) on scalp, hair pulled,

Ear- petechiae (external and/or ear canal), bleeding from ear canal.

Nose- bloody nose, broken nose, petechiae.

Mouth- bruising, swollen tongue, swollen lips, cuts/abrasions.

Under the chin- redness, scratch marks, bruise(s), abrasions.

Neck- redness, scratch marks, fingernail impressions, bruise(s), abrasions, swelling, ligature marks.

Chest and Shoulders- redness, scratch marks, bruise(s), abrasions.

Symptoms of Strangulation

Voice changes- raspy and/or hoarse voice, coughing, unable to speak, complete loss of voice.

Swallowing changes- trouble swallowing, painful swallowing, neck pain, nausea/vomiting, drooling.

Breathing changes- difficulty breathing, hyperventilation, unable to breathe.

Behavioral changes- restlessness or combativeness, problems concentrating, amnesia, agitation, Post-traumatic Stress Syndrome, hallucinations.

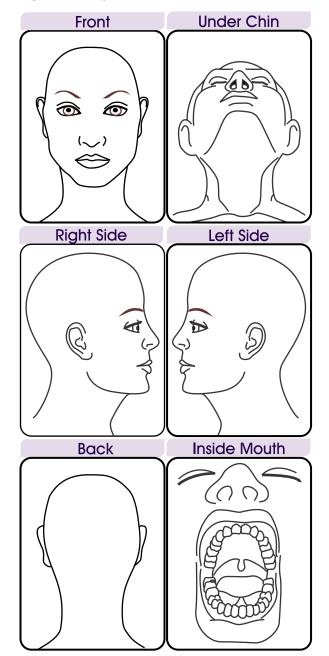
Vision changes- complete loss or black & white vision, seeing 'stars', blurry, darkness, fuzzy around the eyes.

Hearing changes- complete loss of hearing, gurgling, ringing, buzzing, popping, pressure, tunnel-like hearing.

Other changes- Memory loss, unconsciousness, dizziness, headaches, involuntary urination or defecation, loss of strength, going limp.

Diagrams to Mark Visible Injuries

Use a pen or a marker to indicate any visble signs and/or symptoms.



PEDIATRIC STRANGULATION DISCHARGE INSTRUCTIONS

Because your child has reported being "choked" or strangled, we are providing you with the following instructions:

Consider a small ice pack to the neck area for relief of pain. Offer popsicles or offer fluids that are cooling to the throat. Kids like this. Make sure someone is with your child for the next 24-48 hours.

Please report to the nearest ER or call 911 immediately if you notice the following symptoms or changes in your child:

- · Difficulty breathing or shortness of breath
- Loss of consciousness or "passing out"
- · Changes in your child's voice or difficulty speaking
- Difficulty swallowing, lump in throat, or muscle spasms in throat or neck
- Tongue swelling and/or drooling
- Swelling to throat or neck, new, worsening or persisting throat pain ("My throat still hurts")
- Prolonged nose bleed (greater than ten minutes)

- Continues to cough or coughing up blood
- · Continues to vomit or vomiting up blood
- Left or right-sided weakness, numbness, or tingling (child cannot use arm or leg)
- New or Worsening headache
- · Seizures (Abnormal, rhythmic or shaking movements)
- Behavioral changes or memory loss
- Thoughts of harming self or others ie: ("I do not want to live") ("I am going to hurt him")

It is important that the above symptoms be evaluated by a physician.

After your child's evaluation, keep a list of any changes in symptoms for your child's physician and law enforcement.

If symptoms worsen, report to your child's physician or nearest ER. You should follow-up with law enforcement regarding documentation of any and all information about your child's symptoms.

It is important that you have a follow-up medical screening in 1-2 weeks at the clinic or with your child's physician. Make sure to bring these discharge instructions with you.

IF you misplace these instructions call ______ or your provider for a copy.

I have been made aware of and understand the importance of following the above outlined instructions.

Patient/Parent Signature

Provider Signature

Date

1 copy patient file

1 copy patient