

# Strangulation

Presented to Monroe County  
Coalition Against Domestic Violence

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# Credit to My Mentor

Dr. Dean Hawley, MD

Pathologist, Retired

Part of the presentation slides are from his many  
numerous lectures

# Definitions: Medical and Legal

# Asphyxiation

- Venous obstruction, > cerebral stagnation  
>hypoxia > unconsciousness > produces loss of muscle tone and final arterial and airway obstruction
- Arterial spasm due to carotid pressure > leading to low cerebral blood flow and collapse
- Vagal collapse> caused by pressure to the carotid sinuses and increased parasympathetic tone
- Death ultimately occurs from cerebral hypoxia and ischemic neuronal death

# Indiana's Legal Definition

## Strangulation

### IC 35-42-2-9

Sec. 9. (a) This section does not apply to a medical procedure.

(b) As used in this section, "torso" means any part of the upper body from the collarbone to the hips.

(c) A person who, in a rude, angry, or insolent manner, knowingly or intentionally:

- (1) applies pressure to the throat or neck of another person;
- (2) obstructs the nose or mouth of the another person; or
- (3) applies pressure to the torso of another person;

in a manner that impedes the normal breathing or the blood circulation of the other person commits strangulation, a Level 6 felony.

(d) However, the offense under subsection (c) is a Level 5 felony if:

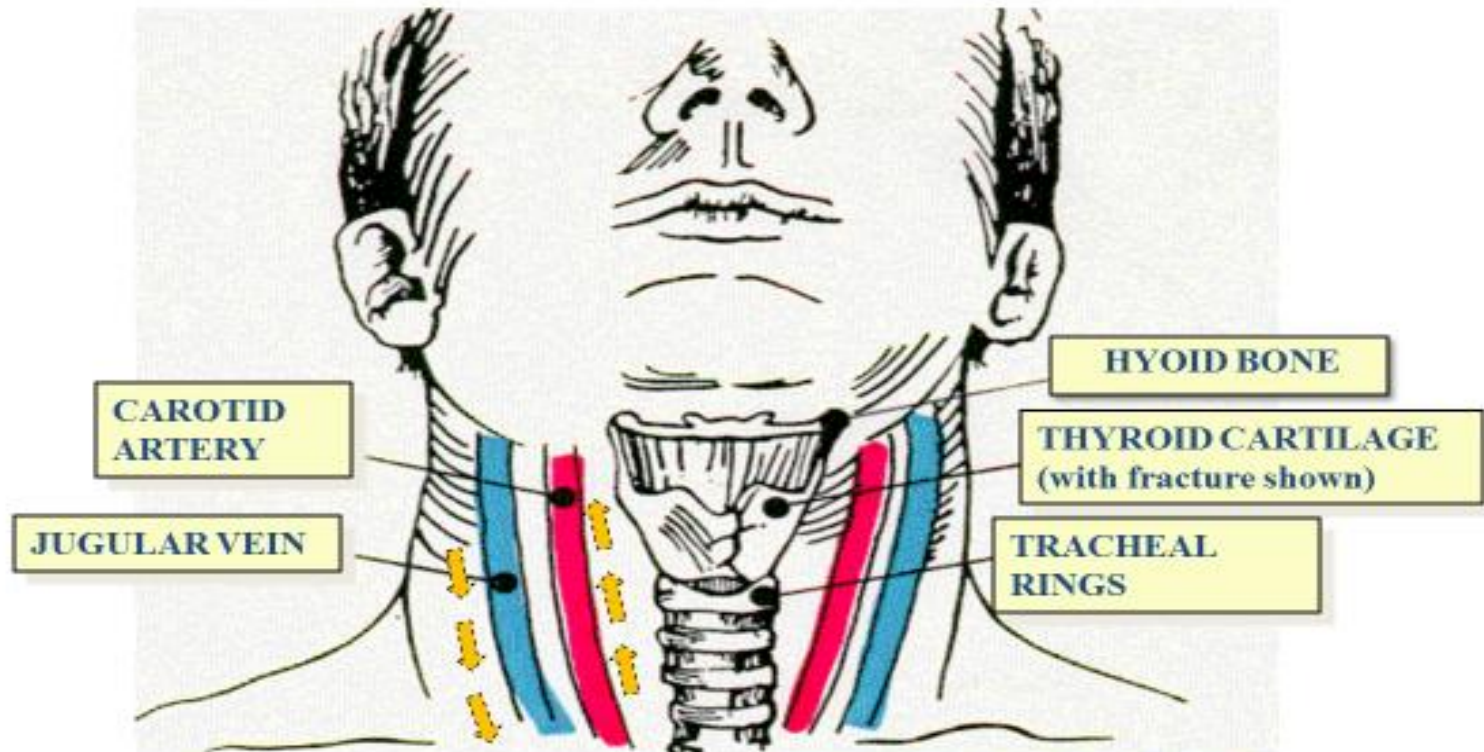
- (1) the offense is committed against a pregnant woman; and
- (2) the person who committed the offense knew the victim was pregnant at the time of the offense.

As added by P.L.129-2006, SEC.2. Amended by P.L.158-2013, SEC.432; P.L.252-2017, SEC.11

# Basic Information

- Definition – external force is applied to the neck that results in a depressed or completed loss of conscious (Stapczynski, 2010)
- Asphyxia - Functioning cells of the body, particularly the brain – deprived of oxygen
- External force – Hands (manual), ligature (cord-like) or gravity (hanging)
- Estimation of force – generally not possible or probably useful

# Neck Anatomy



# Obstruction of Vessels

Temporary obstruction of the carotid arteries, or the jugular veins (strangulation), or the airway (suffocation) will produce **ASPHYXIATION** -  
- an interruption of oxygenation.



# **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**

# 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**

# Timing

## **ASPHYXIATION**

- **If asphyxiation persists for long enough, the victim becomes unconscious, and then dies**
- **The rate of development of asphyxiation depends primarily on the circulation of blood through the brain, and to a much lesser extent it depends on the victim's ability to breath through the airway -- airway obstruction is rarely a factor in fatal strangulation assault, but death may be accelerated if suffocation occurs simultaneously with the strangulation assault.**

# Effect of Strangulation and Suffocation

## **STRANGULATION AND SUFFOCATION**

- **With complete and sustained obstruction of both jugular veins:**
  - 20-30 seconds causes petechiae above the point of constriction
  - 2 minutes to full unconsciousness
  - another 2 minutes of sustained unconsciousness until death
- **With complete obstruction of the mouth and nose by suffocation, you get the same approximate time interval, but the petechiae become generalized throughout the body, rather than just isolated to the head.**

**These are just approximate times. The presence of certain predisposing conditions can accelerate the process of irreversible asphyxiation -- the duration of sustained compression required to reach the "point of no return."**

# Factors Involved Determine Risk of Death

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

**Duration of Applied Force**



**Quantity of Applied Force**

**Surface Area Of Applied Force**

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

Signs-Symptoms-Injuries

# Recognition Signs and Symptoms

## What to Look and Listen for

### Breathing Changes

Difficulty Breathing

Hyperventilation

Unable to breath

Labored or loud breathing (hissing sound)

### Voice Changes

Raspy voice

Hoarse voice

Coughing

Unable to speak

### Swallowing Changes

Trouble swallowing

Painful to swallow

Neck Pain

Nausea/vomiting/drooling

### Additional Important signs and Symptoms

Loss of bowel and bladder

Unconsciousness

Petechiae

Skin abrasions

Lip incised abrasions

Bite marks inside of mouth/tongue

Patches of hair loss

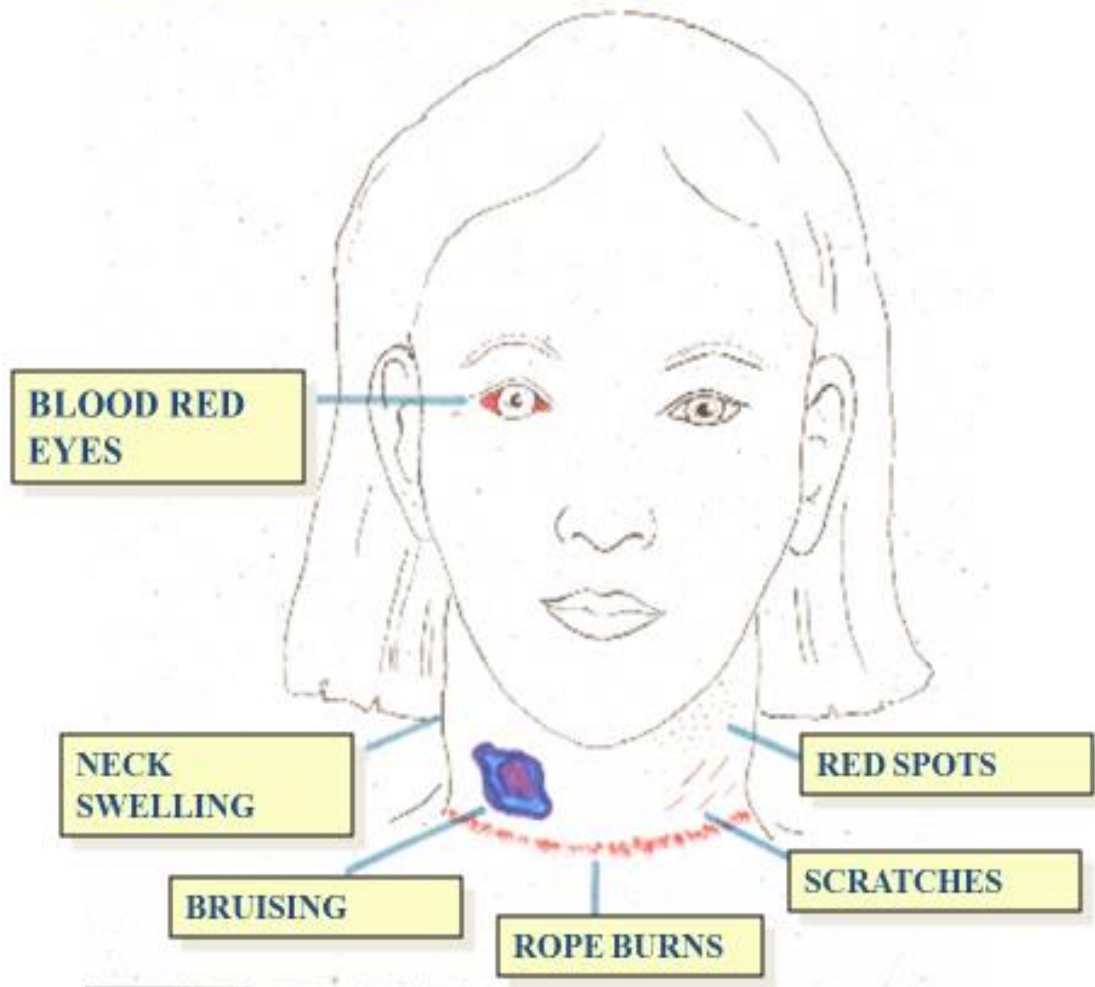
Red linear ligature marks/bruising

Light-headed or head rush

subconjunctival hemorrhage

swelling of tongue

**SIGNS (WHAT YOU MAY SEE OR HEAR):**



(B)



# **INJURY DURING STRANGULATION OR SUFFOCATION ASSAULT**

- **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**

**Multiple Strangulation attacks=increase in  
neuropsychological symptoms(> 5 events-D Smith et al)**

- Nightmares
- Personality changes
- Depression
- Insomnia
- Suicidal ideation
- Anxiety
- Memory Loss
- Dizziness
- Tinnitus
- PTSD/other symptoms>>> anoxic encephalopathy, psychosis, seizures, amnesia
- CVA and progressive dementia
- Abused women in general have more headaches, back pain, STI, vaginal bleeding, vaginal infections, pelvic pain, painful intercourse, UTI, appetite loss, abdominal pain and digestive problems than never abused women

## **Mental Health and Behavioral Changes**

- Due to brain cells deprived of oxygen
- If interruption brief, symptoms and signs are temporary and generally resolve.
- If longer, findings may be permanent and not resolve.
- Memory loss-brain cells that affect memory die first/  
Cells that stimulate breathing/control bowel and bladder >>>> cells last to die>>>>near death

# Complications

# **Potentially Fatal Medical Complications of Strangulation Assault**

**Aspiration of gastric contents with pneumonitis**

**Fracture of trachea or larynx with air leak**

**Swelling of the glottis or larynx with airway obstruction (complicated by intoxication)**

**Carotid artery dissection or thrombosis with stroke**

**In one case, persistent pain on swallowing apparently caused the victim to become dehydrated in a hot residence, and death was by dehydration.**

# Long Term Effects of Strangulation

Survey Results of Women Strangled-Wilber et al (2001)

Table 3. Medical Symptoms Experienced Within Two Weeks Post Strangulation Episode

Symptom	Yes (n)	Valid percent (%)
<b>General</b>		
Dizziness	23/41	60
Loss of consciousness	1/41	2
<b>HEENT</b>		
Vision change	11/40	28
Ringing in ears (tinnitus)	14/39	36
Sore throat	24/41	59
Voice change	18/40	45
Difficulty swallowing (dysphagia)	17/39	44
Neck pain	28/41	68
Neck swelling	14/40	35
Nose bleed	4/41	10
<b>Respiratory</b>		
Difficult breathing	34/40	85
<b>Gastrointestinal</b>		
Heartburn/acid reflux	10/34	30
<b>Genitourinary</b>		
Miscarriage	4/38	11
Involuntary urination (incontinence)	4/38	11
<b>Skin</b>		
Scratches on neck	18/41	44
Tiny red spots (petechiae)	22/41	54
Red linear marks	26/41	63
Rope or cord burns	3/40	8
<b>Neurological</b>		
Eye lid droop (ptosis)	8/40	20
Facial droop	4/39	10
L. or R. sided weakness	7/39	18
Paresis	2/40	5
Loss of sensation	12/39	31
<b>Psychiatric</b>		
Memory problems	12/39	31
Depression	30/37	81
Suicidal ideation	12/39	31
Insomnia	26/39	67
Nightmares	27/38	71

(B)

Lethality

# Lethality of Strangulation

- CAN LEAD TO DEATH IN MINUTES, SOMETIMES SECONDS
- 50% of our DV homicides involve an incident of strangulation within the year prior
- Life long effects even with no visible injury
- Symptoms can disappear rapidly



- **Prior non-fatal strangulation was associated with greater than 6x odds of becoming an attempted homicide**
- **Victims of prior attempted strangulation are 7x more likely of becoming a homicide victim.**
- **(Glass, et al, 2008).**

## Strangulation is a Red Flag...

- When battered women were asked what made them believe they were in danger or not -- the majority of women perceiving a great amount of danger in both a shelter & a hospital study mentioned **“choking”** as a tactic used against them that made them believe their partner might kill them.
  - Stuart & Campbell, 1989



doi:10.1016/j.jemermed.2007.02.065

## **Violence: Recognition, Management and Prevention**

### **NON-FATAL STRANGULATION IS AN IMPORTANT RISK FACTOR FOR HOMICIDE OF WOMEN**

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**□ Abstract**—The purpose of this study was to examine non-fatal strangulation by an intimate partner as a risk factor for major assault, or attempted or completed homicide of women. A case control design was used to describe non-fatal strangulation among complete homicides and attempted homicides (n = 506) and abused controls (n = 427). Interviews of proxy respondents and survivors of attempted

**□ Keywords**—intimate partner violence; strangulation; risk of homicide

#### **INTRODUCTION**

The 1993 National Mortality Followback Survey of

# Questions/Contact Information

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