

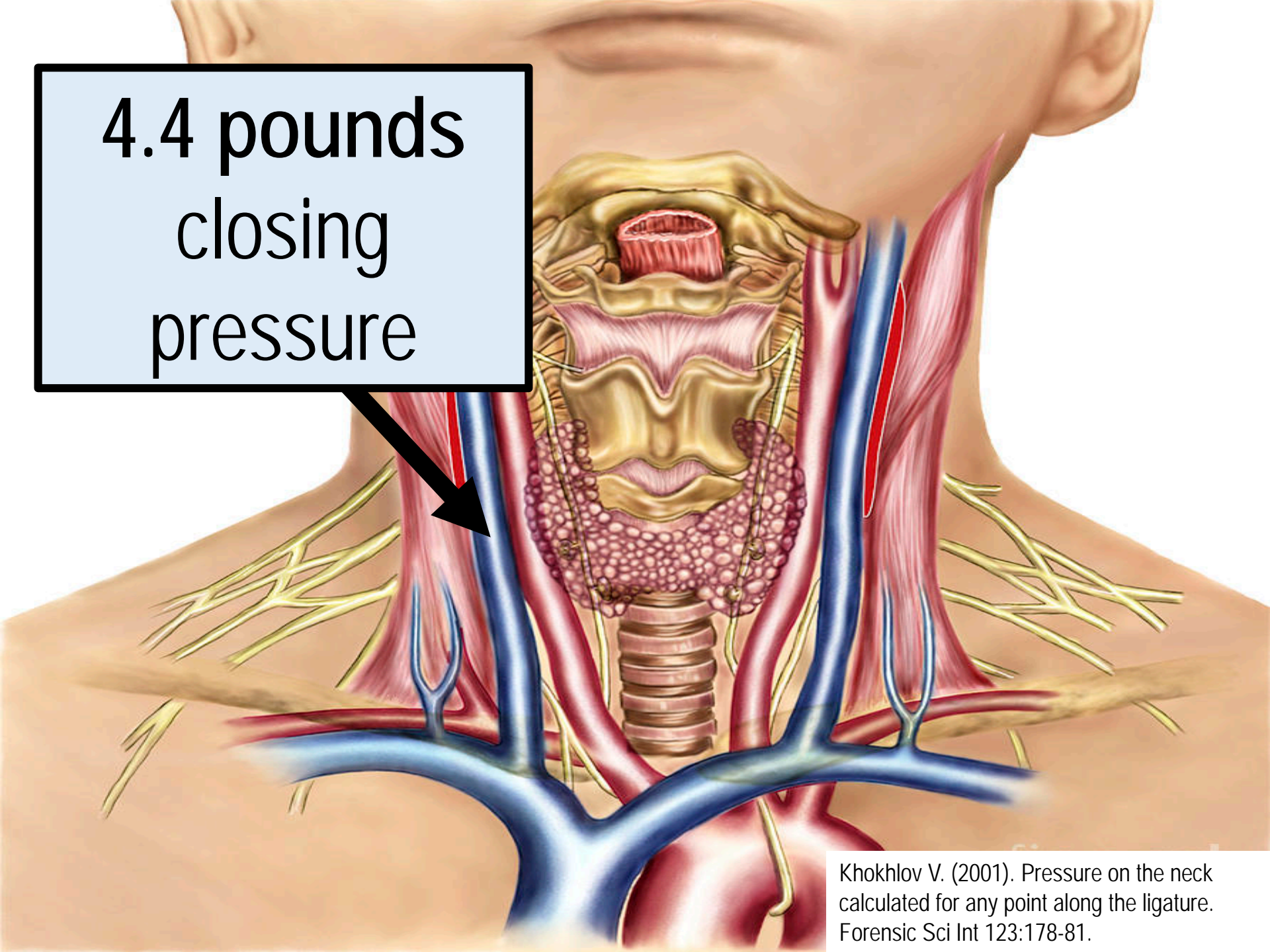
A black and white photograph showing the profile of a woman's face and neck. The lighting is dramatic, highlighting the contours of her face, her closed lips, and the side of her neck. The background is dark, making the subject stand out.

# Strangulation Injuries

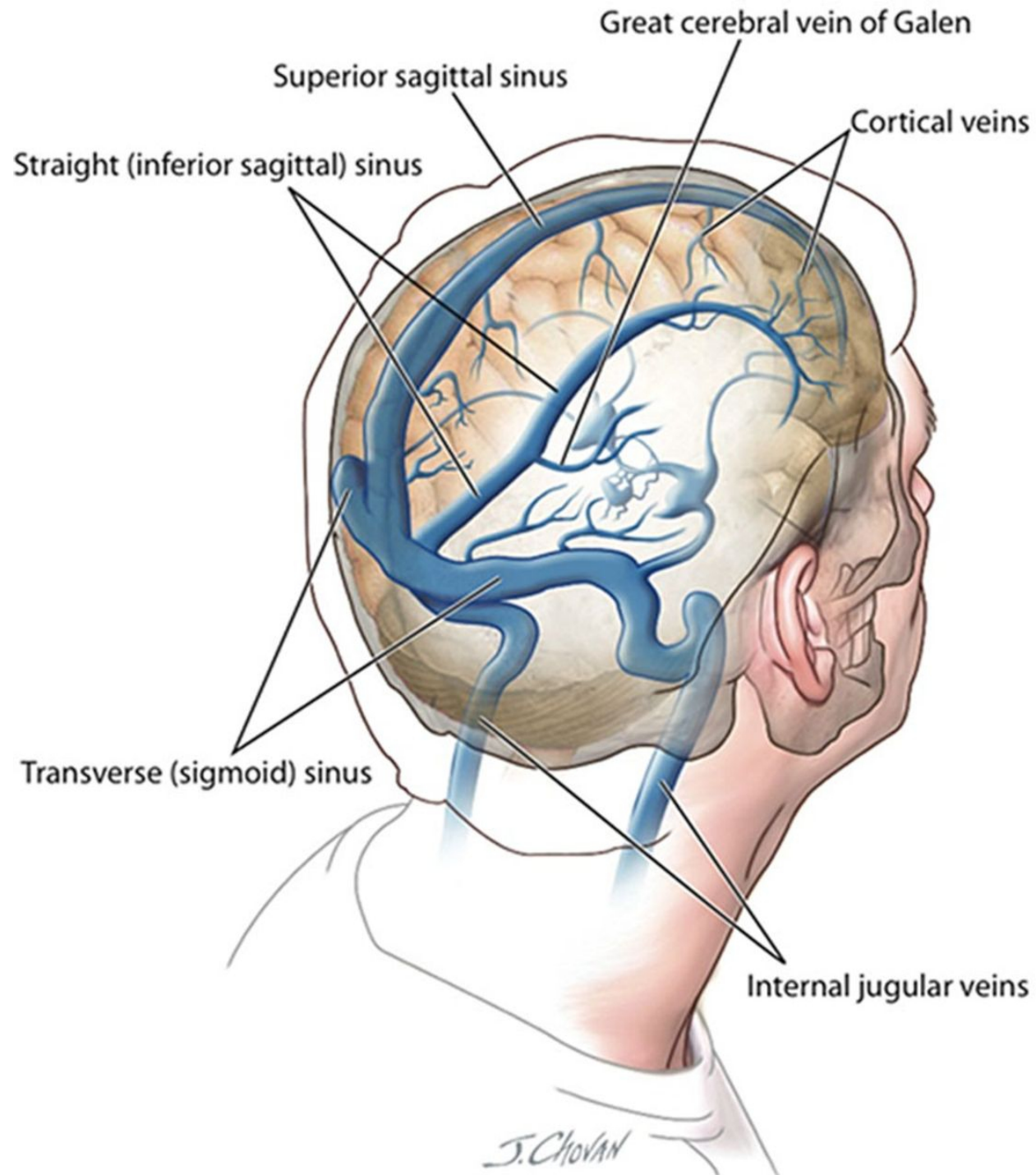
*Dan Batsie*

4.4 pounds

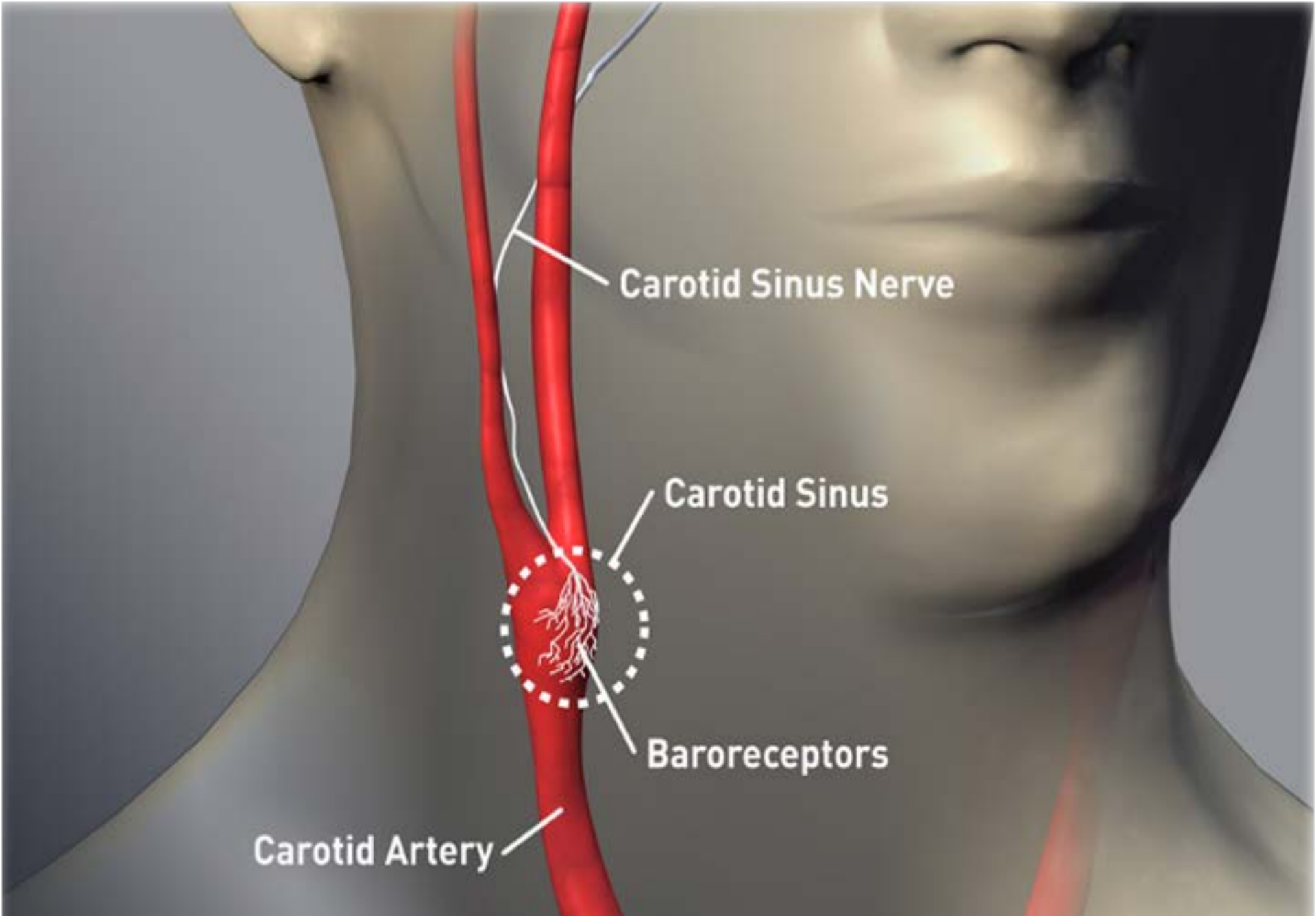
4.4 pounds  
closing  
pressure



Khokhlov V. (2001). Pressure on the neck calculated for any point along the ligature. *Forensic Sci Int* 123:178-81.

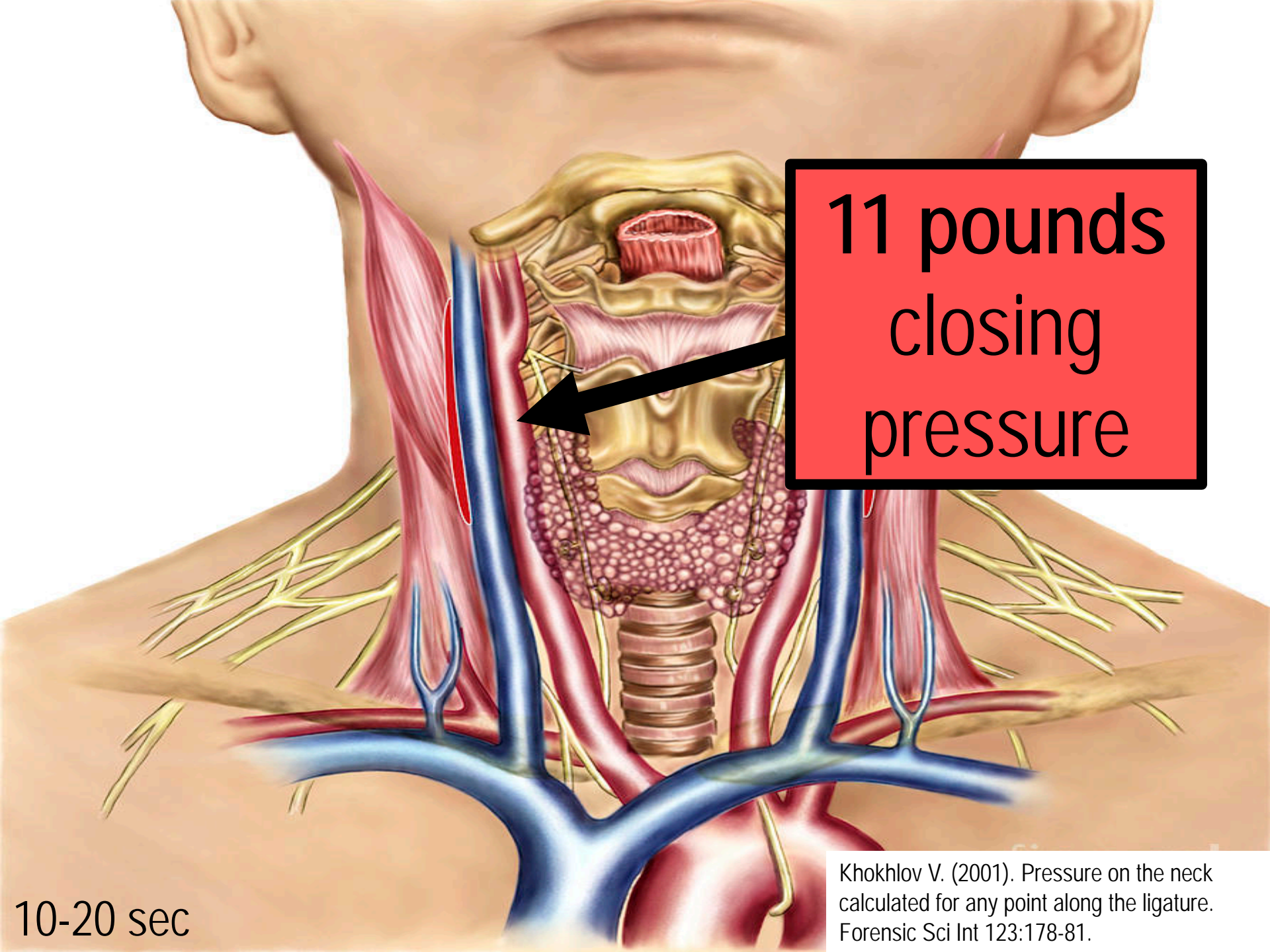






Clarot, F, Vaz, E, Papin, F, et al. (2005). Fatal and non-fatal bilateral delayed carotid artery dissection after manual strangulation. *Forensic Sci Int* 149:143-50  
Iserson K. (1984). Strangulation. A review of ligature, manual, and postural neck compression injuries. *Ann Emerg Med*.13:179-85.

11 pounds



11 pounds  
closing  
pressure

10-20 sec

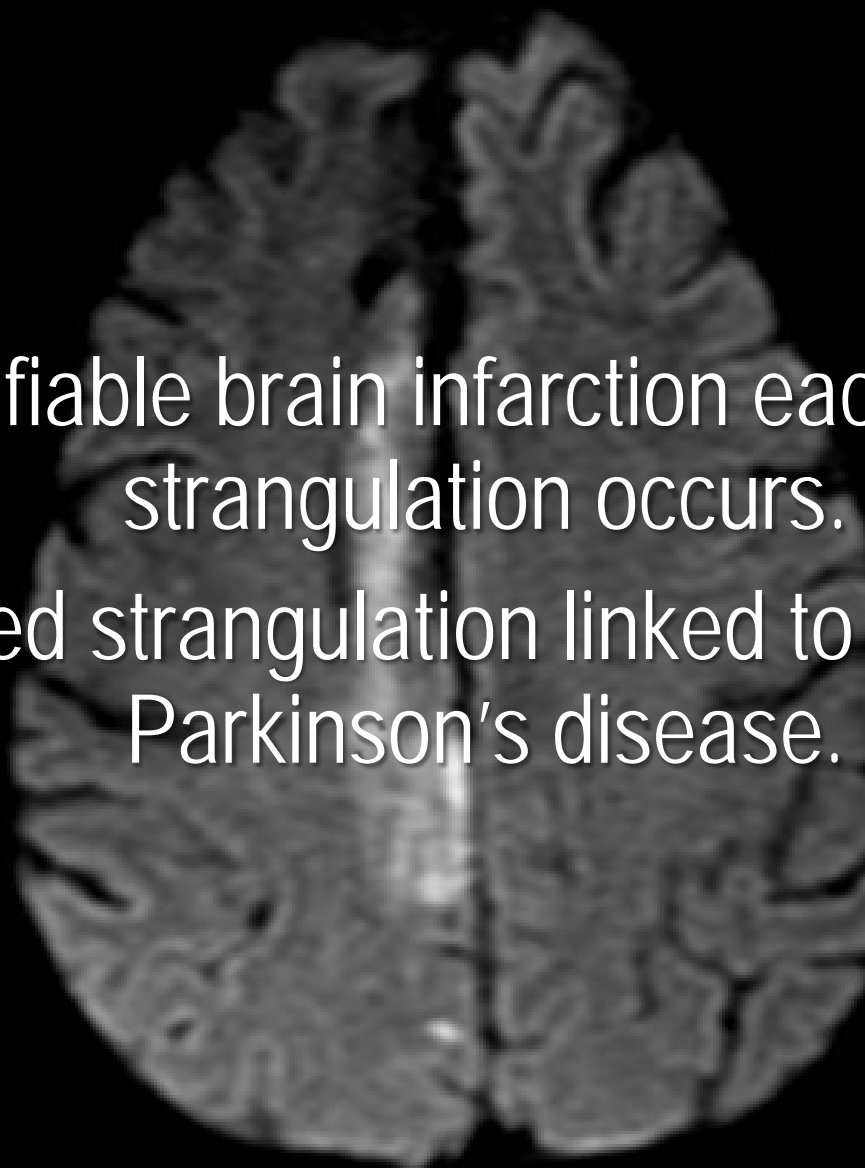
Khokhlov V. (2001). Pressure on the neck calculated for any point along the ligature. Forensic Sci Int 123:178-81.

# Loss of consciousness (10-20 seconds)



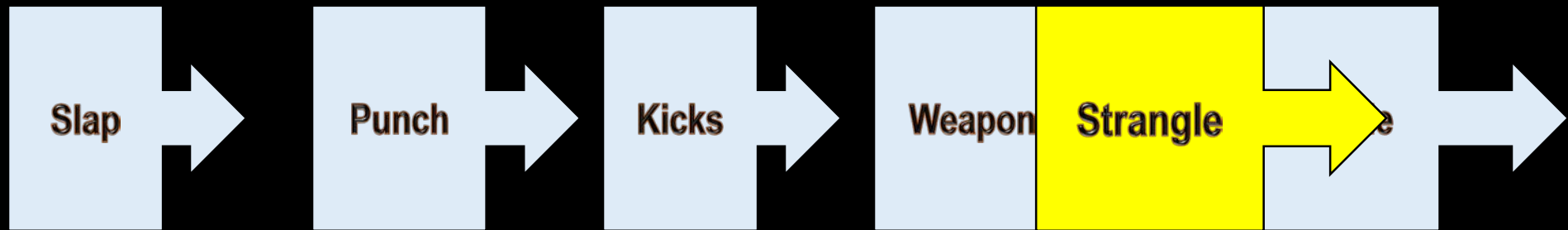




- 
- Identifiable brain infarction each time a strangulation occurs.
  - Repeated strangulation linked to stroke and Parkinson's disease.



# Continuum of Intimate Partner Violence





7x more likely to die

10% of all violent deaths in the US  
25% of women killed by an intimate partner

Block C, Devitt C, Fonda D, et al. (2000). The Chicago women's health study: Risk of serious injury or death in intimate violence: A collaborative research project. Washington DC: Dept of Justice. National Institute of Justice.

Funk, M, Schuppell, J (2003). Strangulation Injuries. Wisconsin Medical Journal. 102(3): 41-45

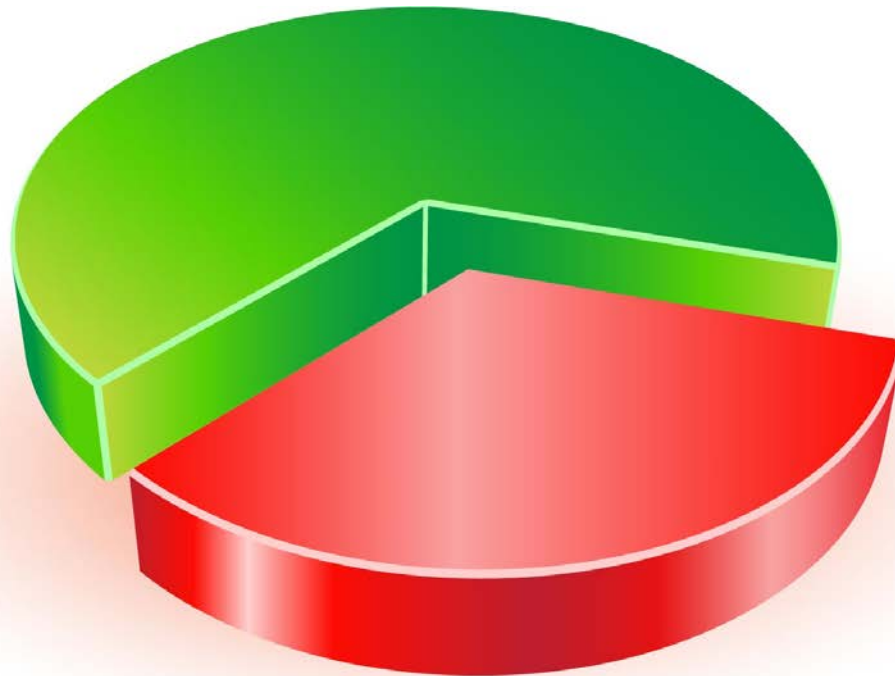
# Prevalence



We don't really know...

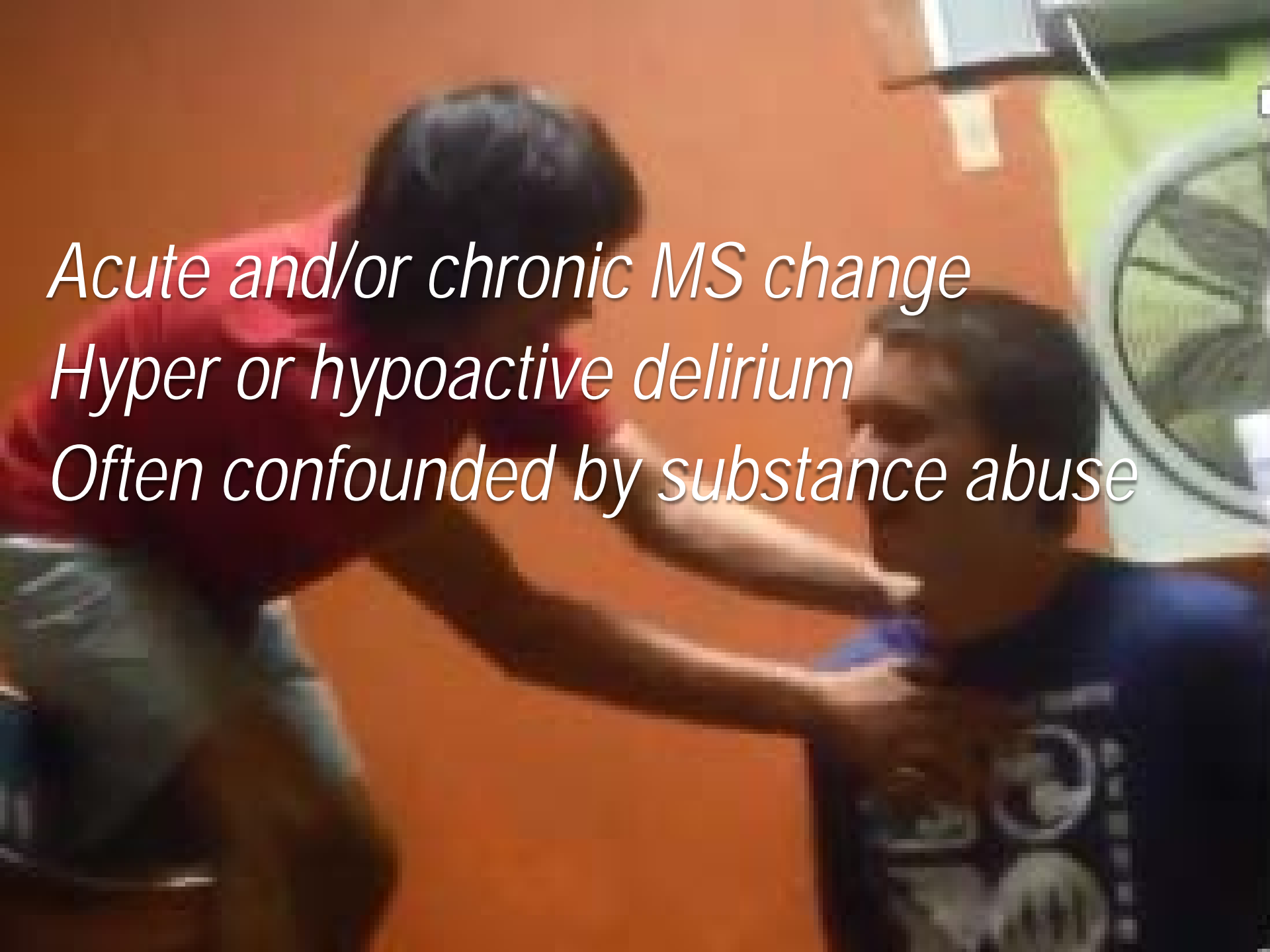
- 39% report it to police
- 3% seek medical attention

*35% had "injury too minor to photograph"*





You've missed them



*Acute and/or chronic MS change  
Hyper or hypoactive delirium  
Often confounded by substance abuse*

...of the ... and ...  
... and ...  
...

- 1. ...
- 2. ...
- 3. ...
- 4. ...
- 5. ...
- 6. ...
- 7. ...
- 8. ...
- 9. ...
- 10. ...

*[Handwritten signature]*

Panasonic

MINI

Why do I care?

Arterial bleeding  
Airway edema  
Pneumonia  
Pulmonary edema  
Stroke





Yen K, Vock P, Christe A, et al. (2007). Clinical forensic radiology in strangulation victims: Forensic expertise based on magnetic resonance imaging (MRI) findings. *Int J Legal Med.* 121:115-23.

Clinical Scenario	Recommended Imaging Modality	Alternative Imaging Modality
Manual strangulation with no loss of consciousness and no physical evidence of force to the neck	None	None
Manual strangulation with no loss of consciousness but with voice changes	MRI with contrast	Fiberoptic laryngoscopy
Manual strangulation with loss of consciousness and/or physical evidence of force to the neck	MRI without contrast	CT with intravenous contrast
Incomplete near-hanging with intact consciousness and bilateral neurologic function	MRI without contrast	CT with intravenous contrast
Accidental strangulation with ligature caught in moving machinery but with intact consciousness and bilateral neurologic function	MRI without contrast	CT with intravenous contrast
Any form of strangulation with persistent unconsciousness	4-vessel cranial-cervical CT angiogram	MRI without contrast
Any form of strangulation with intact consciousness but with unilateral neurologic findings	4-vessel cranial-cervical CT angiogram	Doppler ultrasound of the carotid arteries or 4-vessel selective angiography






Strangulation indicators are rarely found during the primary assessment



*But there is a  
pattern.*



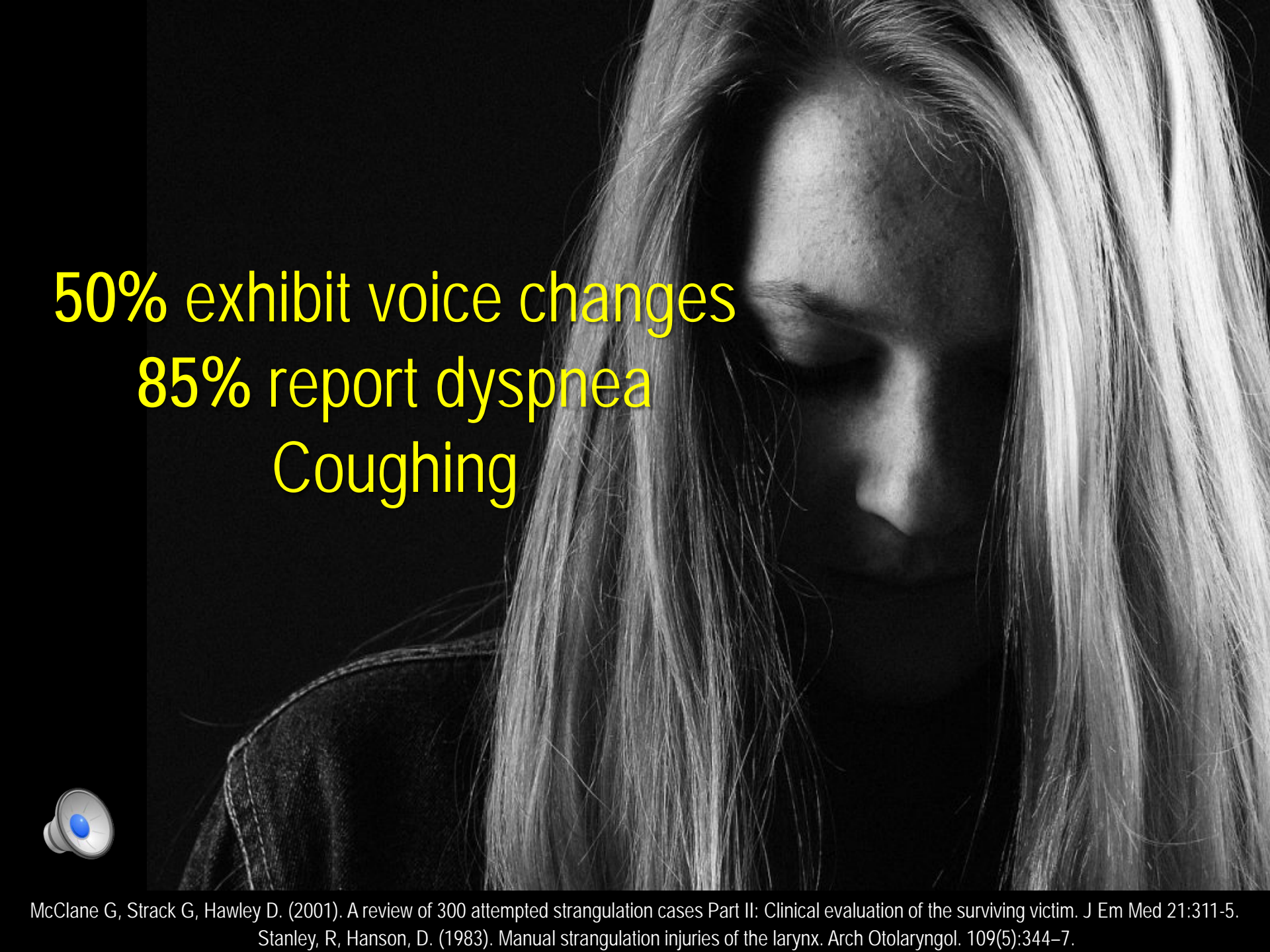


What does the victim  
tell you?







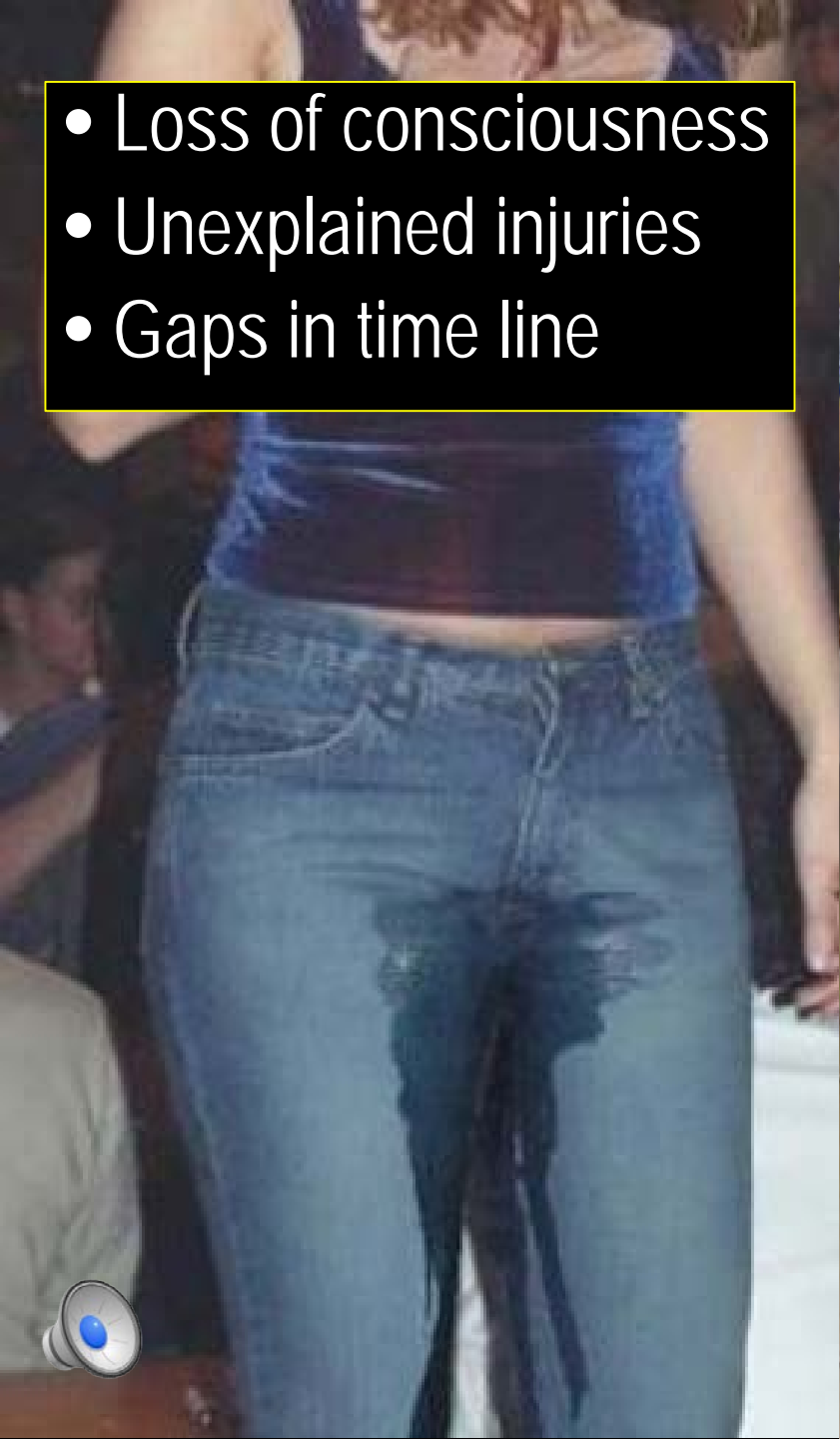


50% exhibit voice changes  
85% report dyspnea  
Coughing





- Loss of consciousness
- Unexplained injuries
- Gaps in time line





Vomiting  
Difficulty swallowing  
Drooling  
Pain







# Petechiae

Occurs with jugular venous occlusion  
Can occur within 20-30 seconds










What can I do?



A photograph of three New York City Police officers in uniform. The officer in the foreground is covering her face with her hand, appearing distressed. The other two officers are standing behind her, looking on. The scene is outdoors, with a yellow caution tape visible in the background.

*50% of officers were killed by  
a criminal with a history of  
strangulation assault*



Law Enforcement





Be a good EMT...

*Be a good neighbor*



518.432.7865

**NYSCADV**  
**NEW YORK STATE COALITION**  
**AGAINST DOMESTIC VIOLENCE**

518-482-5465

National Domestic Violence Hotline:

-1-800-799-7233

Rape, Abuse and Incest National Network  
(RAINN):

-1-800-656-HOPE

# Referrals

- Be yourself and know your limitations
- Use resources

**1-800-863-9909**

- There are organizations in the community that can help you?
- Free and confidential.
- 24-hour toll-free hotlines staffed by people who care.



A man in a dark blue police uniform with a badge and a red patch on the sleeve is speaking at a podium. He is wearing glasses and has his right hand raised, pointing upwards. A microphone is in front of him, and a water bottle is on the podium to his right. The background is a plain wall with a grid pattern.

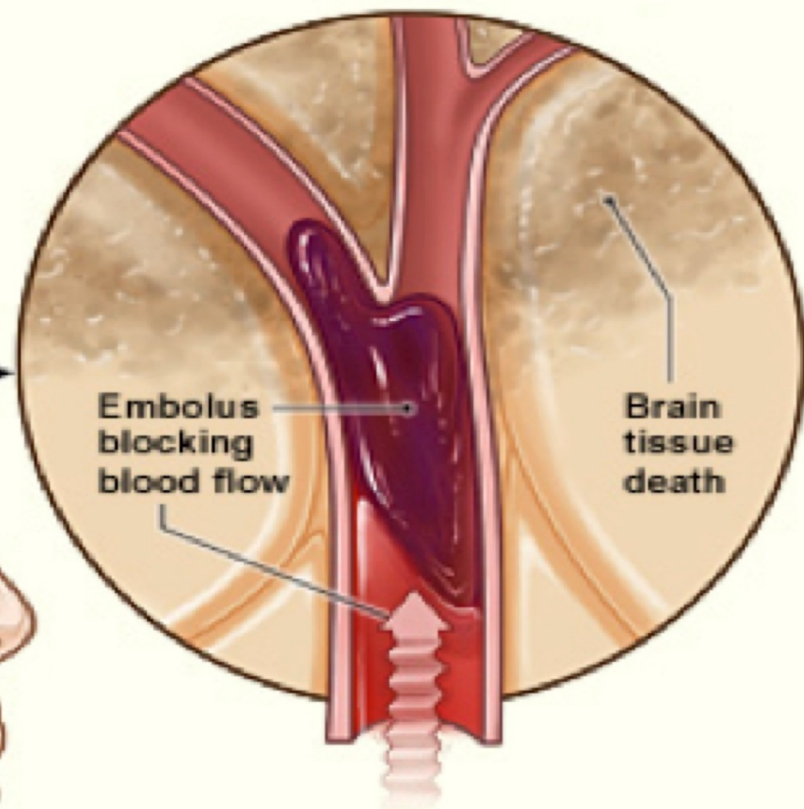
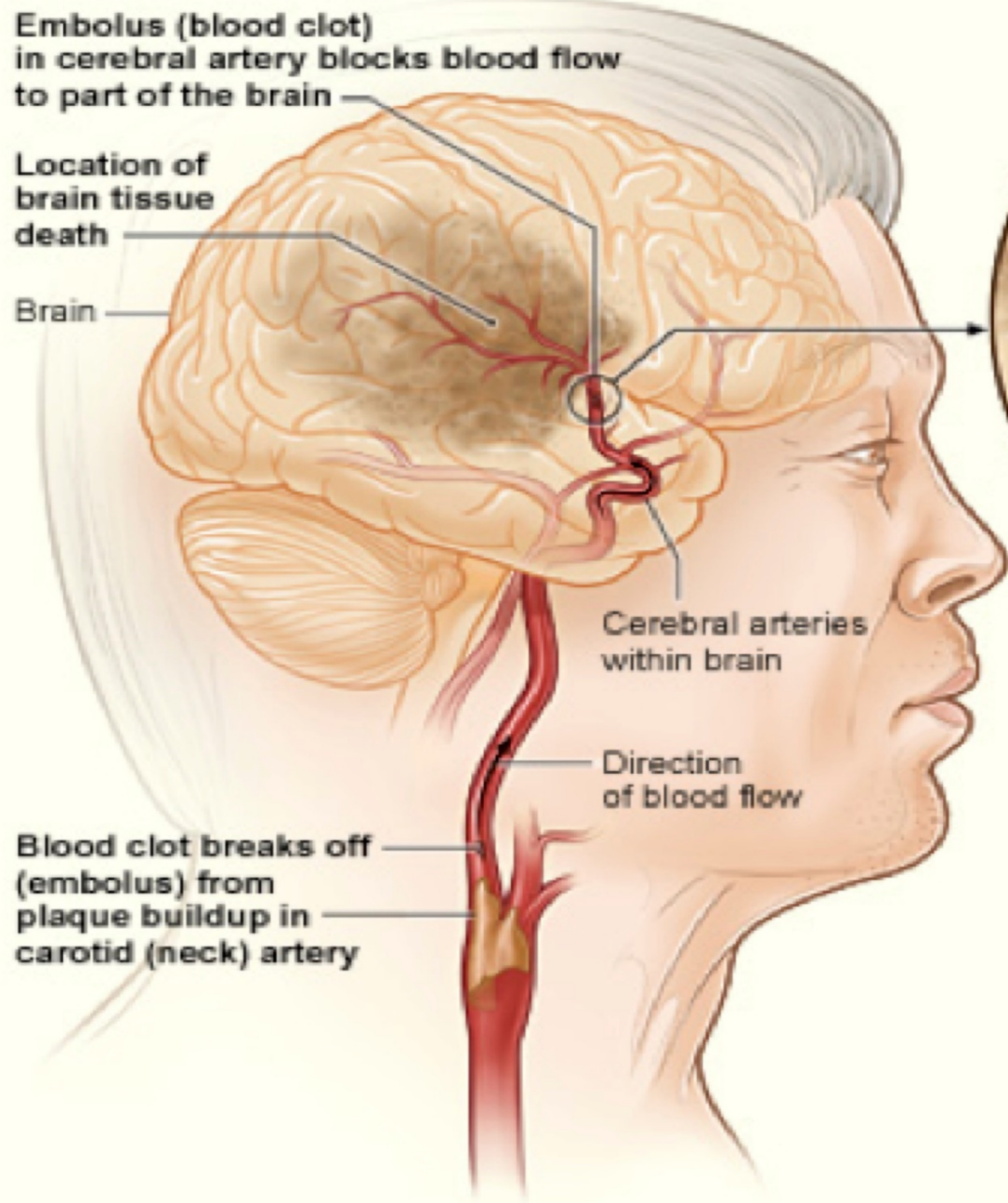
Be a Good Witness

# Thank You!

Dan Batsie

[danbatsie@gmail.com](mailto:danbatsie@gmail.com)

[@Danbatsie](#)





# Aspiration Pneumonia

Rothschild MA. Aspiration of gastric contents in hanging with typical position of the strangulation cord suspension. Arch Kriminol 1992;190(3-4):97-102.

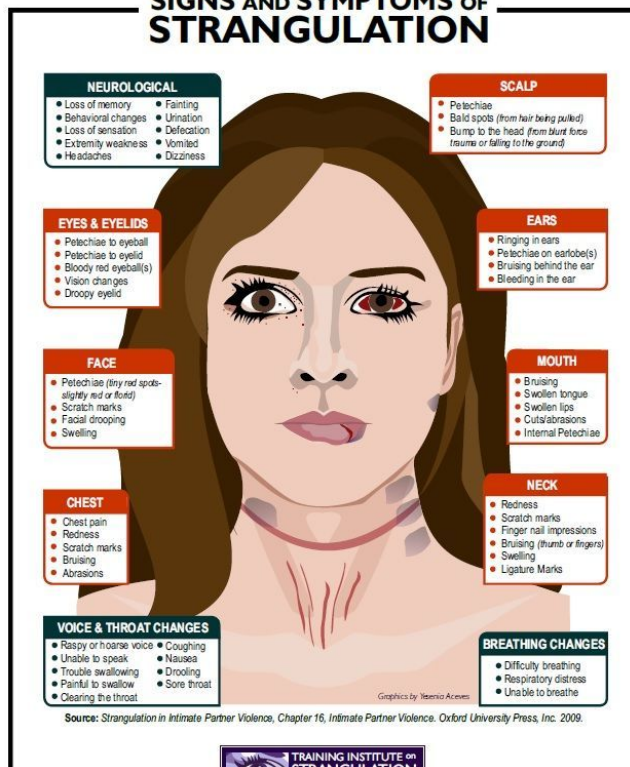
Grellner W. The Value of various lung changes in death by strangulation. Arch Krimino 1995;196(1-2):38-45.



*4 of 42 women who had  
been strangled  
experienced miscarriage  
within 2 weeks of the  
event*



## SIGNS AND SYMPTOMS OF STRANGULATION



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