Abuse in the Neonate

Disclosure Information for:
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- There are no relevant financial relationships related to this presentation/program
- There is no sponsorship/commercial support of this presentation/program
- The content being presented will be fair, well-balanced and evidence-based
- Learners who wish to receive Continuing Education Credit (CME/CLE/CE) must complete and turn in evaluations to successfully complete this program
Speaker Biography – Dr. Sheets

Lynn K. Sheets, MD, FAAP is a Professor and Section Chief in the Department of Pediatrics at the Medical College of Wisconsin (MCW) and Medical Director of Children’s Hospital Wisconsin’s (CHW) Child Advocacy and Protection Services (CAPS). Her career began in 1988 as the medical director of the child abuse program at the University of Kansas Medical Center where she co-founded the first Child Advocacy Center in Kansas and led development of a joint nursing and medical student elective in family violence. Dr. Sheets has led the CAPS program at CHW since 2006 and was instrumental in developing the accredited child abuse pediatrics fellowship at MCW which was one of the first in the nation. She is board certified in pediatrics and child abuse pediatrics. In addition to providing clinical services, educating others and leading research, she is the Chair of the Wisconsin Child Death Review Executive Council, and cofounded the Wisconsin Child Abuse Network (WI CAN). Dr. Sheets served on the Wisconsin American Academy of Pediatrics Board of Directors. In 2013, she received the prestigious Ray E. Helfer MD Award from the National Alliance of Children’s Trust and Prevention Funds and the American Academy of Pediatrics. In 2014, the Legal Aid Society of Milwaukee awarded Dr. Sheets the Equal Justice Medal for her work in advocating for poor and vulnerable children and families. She has a strong commitment to the prevention of child maltreatment and the development of trauma-informed approaches to improve child, family, workforce and community resilience.

Disclaimers:

• This lecture is not intended as legal advice and should not replace legal consultation
• Presentation contains disturbing scenarios
• Cases have been de-identified
Learning Objectives

• Describe risk factors for abuse of a neonate
• List neonatal skin findings that could raise concerns for child physical abuse
• List skin findings that could be confused with abusive injuries

Outline

• Cognitive errors as a barrier to recognition
• Overview of birth injuries – Skin findings are the focus of this lecture (this is not a review of all birth injuries)
• Bruises and skin findings – when to worry
Spectrum of Physical Abuse During Childhood

Neonate = Birth to 1 month of age

- Shaken, grabbed, hit, thrown, burned
- Slapped, spanked, whipped
- Assaulted

Heightened Vulnerabilities!

- Infant (<12 mo)
- Toddler 12-24 mo
- Preschooler 2-4 y/o
- School-age children
- Adolescents

Why Discuss Neonatal Abuse?

- Neonatal abuse – likely under-recognized
- Can happen in a home or hospital setting
- Many newborn skin mimics
- Much of abuse is preventable – recognize risk factors and help parents prevent
Risk Indicators for Abuse

• Child
  – Prematurity
  – Temperament—colic, fussy
  – Chronic illness
  – Developmental disability
  – Unwanted
  – Multiple gestation

Risk Indicators for Abuse (continued)

• Parent
  – Young
  – Mental health condition
  – Substance abuse
  – Poor impulse control
  – History of abuse as a child
  – Lack of social support
  – Poor knowledge of normal child development
  – Major stress
Risk Indicators for Abuse
(continued)

• Family
  – Intimate partner violence
  – Single parent
  – Poverty
  – Unemployment
  – Nonbiologically related adult living in the home
  – Mental health or substance abuse problems

Risk Indicators for Abuse
(continued)

• Community/society
  – Community violence
  – Lack of affordable, quality child care
  – Absence of community activities
  – Lack of government support for social welfare programs
Risk factors + Trigger

Infant Abuse

Infant Crying!

Crying Curve


Sheets - 2019
Infant crying


- May indicate something is wrong but not always
- Opioid crisis – neonatal abstinence and crying
- Causes stress and anxiety for caregivers – feelings of frustration, inadequacy, anger
- Abusive caregivers – unable to regulate the stress that is elicited by infant crying (McCanne, T. R., & Hagstrom, A. H. (1996). Physiological hyperreactivity to stressors in physical child abusers and individuals at risk for being physically abusive. Aggression and Violent Behavior, 1, 345–358)

- 89% of parents contacted the PCP because of excessive crying prior to AHT (Talvik, I., Alexander, R. C., & Talvik, T. (2008). Shaken baby syndrome and a baby’s cry. Acta Paediatrica, 97, 782–785)

Risk! Opioid Crisis and NAS

- Neonatal Abstinence Syndrome (NAS)
  - Tremors
  - Excessive or high-pitched crying, irritability, yawning, stuffy nose, sneezing, sleep disturbances
  - Poor feeding and sucking, vomiting, loose stools, dehydration
  - May seem sick with fever, sweating

Common Land Mines in Recognition of Abuse

- Human nature dictates that unintentional injury is the most likely diagnosis. All of us have an inherent COI – our work is easier if it is not abuse.
- Even if aware of your own biases, it is challenging to resist their influence. ("Nice family")
- The human mind has a tendency to fill in gaps in the history and make assumptions. ("I could see how that could happen")

"ABA" Bias – Anything But Abuse

- Abuse should be considered in any injury of a child
- Pay attention to the fleeting thought that injury is unexpected!
- Consult a colleague to check your thinking
- Consult a child abuse expert early if unsure
- If suspicion for abuse or neglect, report!
Neonatal Injuries

– What is a “neonate” Newborn less than 4 weeks old
– Birth injuries vs. unintentional injury vs. abuse vs. condition that can be confused with injury
– Birth injuries common
– Increase risk:

Birth – A High-Risk Journey!

• Common birth injuries (partial list)
  – Nasal septum (bony/cartilaginous) [1955 Kirchner, AMA J of ENT]
  – Caput – swelling of the presenting part
  – Cephalohematoma – bleeding under one of the bony plate membranes
  – Subconjunctival hemorrhage
  – Bruising from instrumentation – vacuum, forceps
  – Fractures – clavicle, other
  – Nerve injury – associated with shoulder dystocia
Birth Injuries

- Range from minor to severe
- Causes can be from the birth process to instrumentation to medical care at birth
- Risk factors – macrosomia (large baby), instrumentation (forceps or vacuum increase birth injury risk by 3-4x), scalp electrode

### TABLE 1. Risk Factors for Birth Trauma and Associated Injury

<table>
<thead>
<tr>
<th>RISK FACTORS</th>
<th>RELATED INJURIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forceps delivery</td>
<td>Facial nerve injuries</td>
</tr>
<tr>
<td>Vacuum extraction</td>
<td>Depressed skull fracture, subgaleal hemorrhage</td>
</tr>
<tr>
<td>Forceps/vacuum/forceps + vacuum</td>
<td>Cephalohematoma, intracranial hemorrhage, shoulder dystocia, retinal hemorrhages</td>
</tr>
<tr>
<td>Breech presentation</td>
<td>Brachial plexus palsy, intracranial hemorrhage, gluteal lacerations, long bone fractures</td>
</tr>
<tr>
<td>Macrosomia</td>
<td>Shoulder dystocia, clavicle and rib fractures, cephalohematoma, caput succedaneum</td>
</tr>
<tr>
<td>Abnormal presentation (face, brow, transverse, compound)</td>
<td>Excessive bruising, retinal hemorrhage, lacerations</td>
</tr>
<tr>
<td>Prematurity</td>
<td>Bruising, intracranial and extracranial hemorrhage</td>
</tr>
<tr>
<td>Precipitous delivery</td>
<td>Bruising, intracranial and extracranial hemorrhage, retinal hemorrhage</td>
</tr>
</tbody>
</table>
Battering Ram – Head Injury

- Cephalohematoma – 1-2% of all deliveries
- Subgaleal hemorrhage – relatively rare; higher in vacuum; can be life-threatening with 40% blood volume lost – 14% mortality
- Extra-axial hemorrhage – 25-50% of newborns (Rooks 2008 and Looney 2007)

Sheikh, A. M. H. Public domain with credit.

COMMON SKIN LESIONS PRESENT AT BIRTH
Birth Injuries

- Common birth injuries include generalized bruising, iatrogenic bruising (forceps, electrodes, vacuum), subconjunctival hemorrhage
- Bruise mimics are also common
- Birth injuries should be documented
- Consider asking to see photos of the newborn if you are unsure

BRUISING – WHEN TO WORRY IN THE NEONATE
Mimic of abuse and demonstration of blanching

- If the lesion won’t blanch, it **could** be a bruise or something else
- Non-blanching ‘marks’
  - Bruise
  - Dyes (these wipe or wear off unless deep in the skin = tattoo)
  - Skin pigment
    - blue spots of infancy
    - Nevi (moles)
    - Post-inflammatory hyperpigmentation

Sick Neonates and Bruising

- Expected from medical procedures – extremely premature at highest risk from minor procedures
  - Needle/heel sticks
  - Petechiae from tourniquet
  - Tape
- Bruising in ANY location without a recent medical procedure in that location should raise concerns for abuse
- Bruises cannot be dated with accuracy!
Location Matters

- Bruises from handling (bumps) of a sick neonate are more likely over bony prominences.
- Unexpected or unusual locations include:
  - Palms
  - Soles or heel without a recent needle stick
  - Neck
  - Abdomen
  - Soft, padded areas - buttocks or cheeks
  - Ears

When to Worry

- Bruising is not expected in normal infants until they start to cruise.
- Sick neonates - bruise is in an unexpected location, not associated with medical treatments, or has a pattern.
- Patterns to know
  - Palms – from fingers ‘digging’ in when hand is squeezed
  - Squeezing bruises
  - Fingertip contusions or grabbing bruises
  - Bites
  - Pinch
EDUCATE CAREGIVERS AND PROFESSIONALS ABOUT SENTINEL INJURIES

Sentinel Injuries

• Bruising is not normal in healthy, young infants

• Sentinel injuries are unexpected, poorly explained, minor injury in a pre-cruising or young infant concerning for physical abuse
  – Bruise
  – Intra-oral injury such as a frenae injury
  – Subconjunctival hemorrhages

• Injuries other than abrasions are rare in pre-cruising, non-abused infants
• Often precede more serious abuse
Learn About Sentinel Injuries

• [http://uwm.edu/mcwp/sentinel-injuries/](http://uwm.edu/mcwp/sentinel-injuries/)
• 25-minute module developed in collaboration between CHW, Milwaukee Child Welfare Partnership, WI DCF, CANPB, and UWM Helen Bader School of Social Welfare

Consider Alternatives

• Does it blanch? If so, it is not a bruise!
• Skin erythema due to inflammation – blanches
• Injury from birth
• “Birthmarks”
  – Vascular
  – Benign blue spots of infancy (AKA “Mongolian” spots)
  – Café-au-lait
  – Other
• Other
Documentation

• Avoid words that minimize the injury or lack specificity
  – “Vascular staining”
  – “Bruise-like macules”
  – “Purple macules”
  – “Bruising/abrasion” – which is it?
  – “Bruising erythema”
• If it is a bruise, document that then take appropriate actions. Bruise = contusion

Additional References
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