



BRUISES: A Closer Look

Center for Child Protection
Santa Clara Valley Medical Center

Child Safety First

BRUISE: DEFINITIONS

Bruise:

A collection of blood beneath the skin, caused by the oozing of blood from the surrounding blood vessels.

Ecchymoses:

Flat bruises, like black eyes or “shiners”.

Hematomas:

Local swellings that include blood clot, often within an organ or tissue space. “Goose eggs” are hematomas.

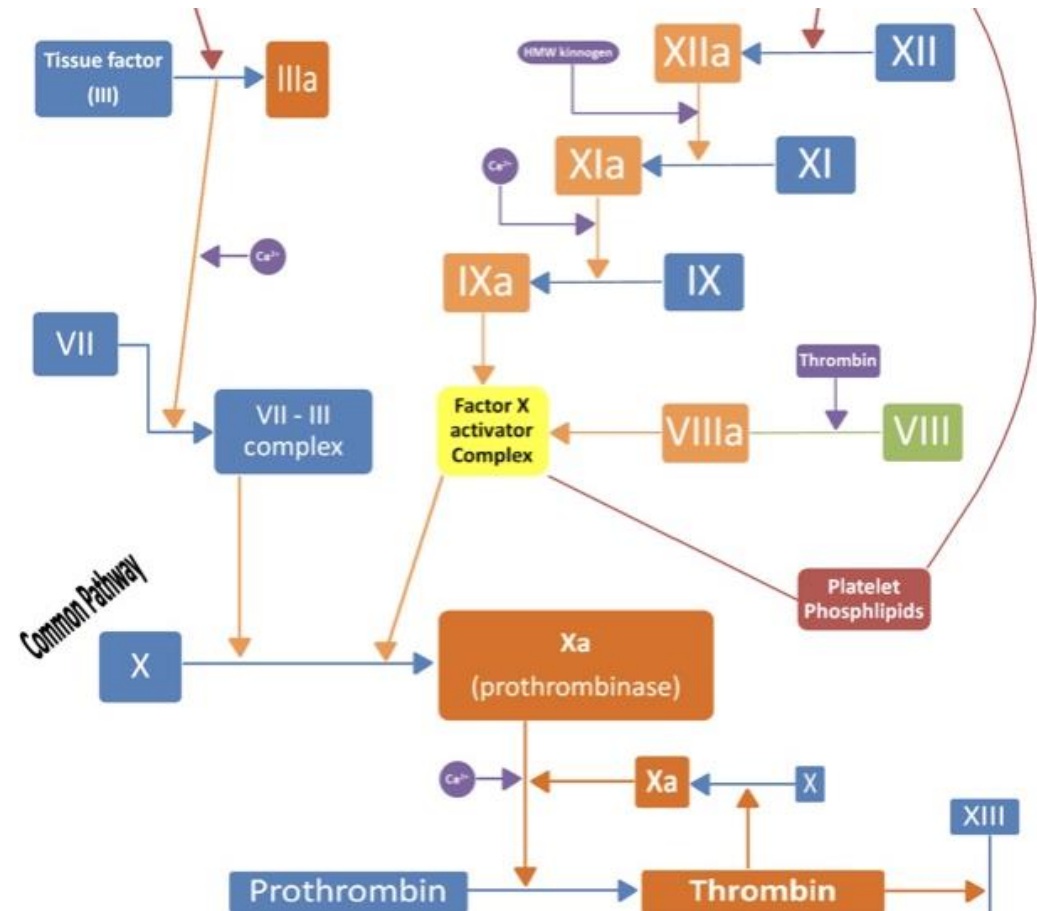
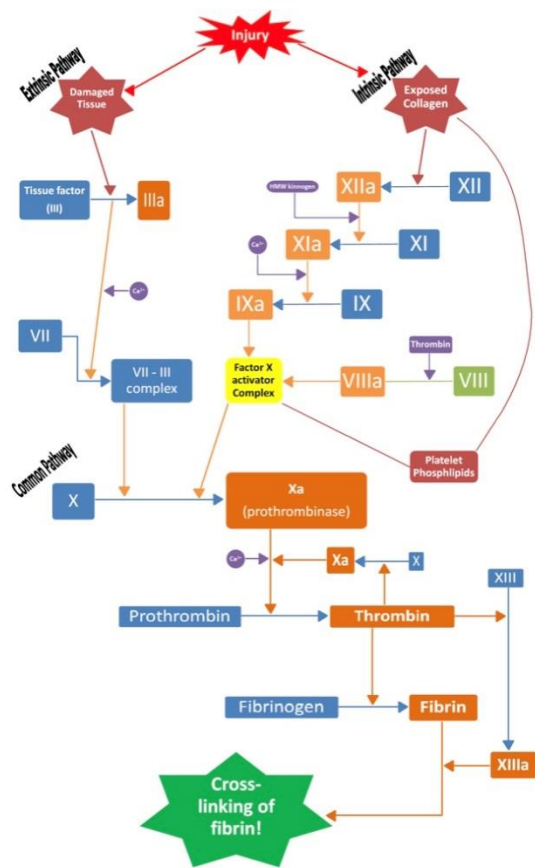
Some bruises include flat as well as raised areas.

WHAT CAUSES A BRUISE?

THE CLOTTING CASCADE

YOU
GOT
THIS?

JUST
KIDDING



WHAT CAUSES A BRUISE?

Medical diagnoses–

Associated with the clotting cascade, including:

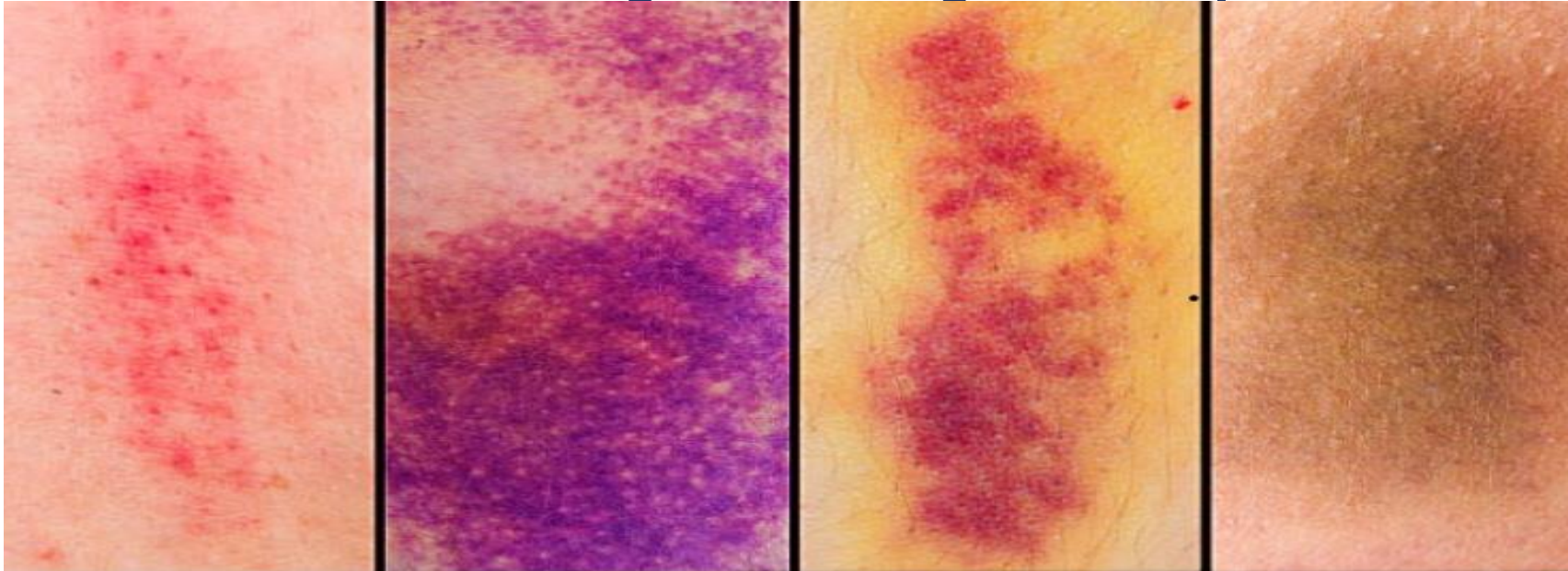
- Platelet problems, including quantity and function
- Blood disorders, including hemophilia, leukemia
- Side effects of medications, such as heparin use

Accidental bruises: bumps and falls

Inflicted injuries: child abuse, sibling conflict

LIFE CYCLE OF A BRUISE

Hemoglobin, the iron-rich protein that carries oxygen in blood, breaks down as bruises age: creating distinct patterns of color.



1) Abrasion, directly after injury: typically red
2) 1 to 2 days: purple, black, and blue

3) 5 to 10 days: green and/or yellow
4) 10 to 14 days: brown or yellow-brown

WHERE IS THE BRUISE?

The TEN-4 Rule:

These injuries are more likely to represent child abuse:

**Bruises to the Torso Ears or Neck in a child < 4 years old
or ANY bruise in a non-mobile infant < 4 months**

Mary Clyde Pierce, MD et al, *Pediatrics* 2010: 125 (1) 67-74

Most expand the second category to include:

any injury in a child that is not mobile, including older children with developmental delay or other mobility issues.

PATTERN INJURIES:

Pattern of bruising consistent with use of paddle, electrical cord, or intense spanking.



ACCIDENTAL BRUISES

Knees, shins, and other exposed surfaces



OTHER SKIN FINDINGS

COMMONLY MISTAKEN FOR INFLICTED INJURIES

Birthmarks:

1) Congenital dermal melanocytosis:

Typically flat and blue-grey in color.

Common: lower back or buttocks. Sometimes arms and legs.

Irregular in shape, wavy borders, different sizes.

2) Strawberry hemangioma or nevus:

Typically red in color, composed of blood vessels.

May cause concern because may develop after birth.

Most common on the face, scalp, and torso.

BIRTHMARKS: IMAGES



← **Congenital Dermal Melanocytosis:**

Classic blue-grey nevi distributed over back and buttocks.

Strawberry Hemangioma → Flat and raised areas



BITE MARKS

Bite marks are commonly associated with abuse.

Bite marks in very young children are typically punitive.

Bite marks may be associated with sexual abuse, especially when sucking marks or defensive injuries are present also.

Alternatively, the bite marks may be inflicted by siblings or other children, with poor or no supervision—in preschool, for example.

Determining whether the “biter” was an adult or a child—parent, sibling, or someone else—is difficult, and should be assessed **in collaboration with a forensic dentist or similar expert.**

BITE MARKS



A REVIEW: WHEN TO WORRY

Many medical diagnoses and medications are associated with easy bruising or increased bruising. Accidental bruises are very common in exposed areas, like arms and legs, especially elbows and shins.

WHEN TO WORRY:

- 1) Bruises in **TEN-4 locations: Torso (chest/ back) Ears Neck, less than 4 Years**
- 2) Bruises in **non-mobile** infant or child at any age
- 3) Caregiver's story doesn't match the injury!
- 4) Multiple bruises in different locations in different stages of healing
- 5) Pattern bruises are very concerning for child physical abuse
- 6) Other skin injuries including burns and bite marks:
Again, the story should match the injury.

If you are concerned, ask a child abuse pediatrician!

COME VISIT US AT SPARK!

Our Goal: To provide exceptional and comprehensive medical and dental care to all children in foster care in Santa Clara County.

Please call us: (408) 977-4504

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