

1 **ALBERT CHU,**
2 having been first duly sworn, testified as follows:

3 **DIRECT EXAMINATION**

4 BY MS. THOMAS:

5 Q. Sir, will you, please, introduce yourself to
6 the jury?

7 A. My name is Albert Chu. I'm the assistant
8 medical examiner at the Harris County Institute of
9 Forensic Sciences.

10 Q. And how long have you worked there?

11 A. Since 2005.

12 Q. Tell us what you do in your line of work?

13 A. My job is to investigate any sudden, unexpected
14 or violent deaths that occur within Harris County.

15 Q. Can you give us the benefit of your educational
16 background, training for the job that you do?

17 A. I went to college at Johns Hopkins University
18 in Baltimore, Maryland. I also got a Master's degree
19 from that same institution. I went to medical school at
20 State University of New York in Buffalo, New York. I
21 then did a residency training program in anatomic and
22 clinical pathology at The Hospital at the University of
23 Pennsylvania in Philadelphia, Pennsylvania. I then did
24 a fellowship in forensic pathology at the office of the
25 chief medical examiner for the State of Maryland in

1 Baltimore, Maryland.

2 Q. I want to take you back to June 4th of 2011.
3 Sir, on that occasion did you have the opportunity to
4 conduct an autopsy on Betsabeth Sandoval in Medical
5 Legal No. 11, dash, 1630?

6 A. Yes.

7 Q. And are autopsies documented in a business
8 record format?

9 A. Yes.

10 MS. THOMAS: May I approach the witness?

11 THE COURT: You may.

12 Q. (BY MS. THOMAS) I'm holding State's Exhibit
13 No. 113. Is that a business record document of the
14 autopsy you're here to talk about?

15 A. Yes, this is a copy of Betsabeth Sandoval's
16 autopsy report with an attached toxicology report,
17 neuropathology report and a anthropology report.

18 Q. Thank you. Doctor, as an assistant medical
19 examiner, are you a custodian of records for these
20 documents?

21 A. Yes.

22 Q. And can you tell us whether or not this
23 document was created at or near the time the autopsy was
24 performed?

25 A. Yes, it was.

1 Q. And is the information contained in here
2 through all the sections of your office added to this
3 document by somebody with personal knowledge of the
4 information?

5 A. Yes.

6 Q. And it is your regular business to keep these
7 in the business record format?

8 A. Yes.

9 MS. THOMAS: I'll offer State's 113 and
10 tender for objection?

11 (State's Exhibit No. 113 offered.)

12 MR. GONZALEZ: I've read it all, Your
13 Honor. No objections at all.

14 THE COURT: State's Exhibit No. 113 is
15 admitted.

16 (State's Exhibit No. 113 admitted.)

17 Q. (BY MS. THOMAS) And during an autopsy, are
18 photographs taken to preserve each stage of the autopsy?

19 A. Yes.

20 Q. I'd like to show you several photographs
21 beginning with State's Exhibit 114 through and including
22 State's Exhibit 161. Would you, please, take a look at
23 those and tell if you recognize them?

24 A. These are photographs of Betsabeth Sandoval
25 taken -- well, 114 was taken at the time she first

1 arrived at our office; and the remainder of them are
2 photographs from our autopsy.

3 Q. So, do they fairly and accurately depict the
4 autopsy or, at least, parts of the autopsy?

5 A. Yes.

6 Q. Now, in the autopsy, do you actually conduct an
7 internal and an external examination?

8 A. Yes.

9 Q. For purposes of this court hearing here, the
10 documents 114 through and including 161, are those only
11 external photographs?

12 A. Yes.

13 MS. THOMAS: Your Honor, at this time, I'll
14 offer State's Exhibits 114 through and including 161 and
15 tender.

16 (State's Exhibit Nos. 114 through 161
17 offered.)

18 MR. GONZALEZ: No objections, Your Honor.

19 THE COURT: All right. State's
20 Exhibits 114 through 161 are admitted without objection.

21 (State's Exhibit Nos. 114 through 161
22 admitted.)

23 Q. (BY MS. THOMAS) And, Dr. Chu, just so I -- so
24 that we can get all the preliminaries done, I'm holding
25 here State's Exhibits 207, 208 and 215; do you recognize

1 each of these?

2 A. Yes.

3 Q. Are these actually blown-up pages from the
4 autopsy report contained in 113?

5 A. Yes.

6 MS. THOMAS: Your Honor, I'd offer State's
7 215, 207, 208.

8 (State's Exhibit Nos. 207, 208 and 215
9 offered.)

10 MR. GONZALEZ: No objections.

11 THE COURT: 215, 207 and 208 are admitted
12 without objection.

13 (State's Exhibit Nos. 207, 208 and 215
14 admitted.)

15 Q. (BY MS. THOMAS) Dr. Chu, how old was the
16 decedent, Betsabeth Sandoval, at the time of autopsy?

17 A. She was four years old.

18 Q. This being a child, an instance of a child
19 death, is it common or is it often the case that the
20 Medical Examiner's Office will make an attempt to
21 require all known medical records regarding that child
22 during the lifetime of the child?

23 A. That would be common.

24 Q. And to your recollection, did that happen in
25 this case?

1 A. Yes.

2 Q. So tell us how one goes about performing an
3 autopsy as you did in this case?

4 A. An autopsy, I think as was mentioned earlier,
5 consists of an external and internal examination. The
6 external examination is a part where I look on the
7 outside of the body for any evidence of illness or
8 injury. Once that's completed, I then look on the
9 inside of the body, the internal examination portion,
10 again, looking, checking the internal organs for any
11 evidence of illness or injury.

12 Q. And during an autopsy such as this, do you
13 commonly shave the head of the person?

14 A. In cases of suspected blunt head trauma, yes,
15 or other head injuries that are located in the scalp
16 region, yes, I will shave the hair. This allows me to
17 visualize the injuries, get a better idea what they look
18 like once the hair is removed.

19 Q. You mentioned several pieces of this autopsy
20 report. For example, you mentioned an anthropology
21 report, what is that briefly?

22 A. An anthropologist is someone who specializes in
23 the study of bones, the skeletal system. In cases where
24 a decedent has some kind of trauma to their bone, like a
25 fracture, that kind of thing, we have inhouse

1 anthropologists; and I would consult with her or one of
2 her staff because their area of expertise is, again, the
3 skeletal system, the bone, so they can tell me things
4 about injuries or abnormalities that I see to the bones
5 that can be helpful.

6 Q. How about the microscopy, what is that section
7 of the autopsy?

8 A. So as part of the routine examination, in
9 addition to doing the autopsy, which is the external and
10 internal examination, I will also look at samples of
11 tissues from the body underneath the microscope. And
12 this can be useful for a number of reasons. It can help
13 me identify disease processes that might not be apparent
14 to the naked eye. It can also help in characterizing
15 injuries that I see during the autopsy.

16 Q. And, at least, in this case can the microscopy
17 portion of the autopsy help detect the presence of an
18 inflammatory response at the site of the injuries?

19 A. Yes.

20 Q. And why is that?

21 A. So the reason why in certain cases like this
22 one, I will look at microscopic samples of the injuries,
23 it can be helpful in determining or getting estimate of
24 how old the injuries are. When the body sustains an
25 injury, if the person survives, your body will attempt

1 to heal that injury. And that process is something that
2 can be observed underneath the microscope. So,
3 depending on what I see underneath the microscope when I
4 look at one of these injuries, it can help give me an
5 idea of how old that injury was. Was it something that
6 happened at the time of death, or did it happen hours
7 earlier or days earlier?

8 Q. And you mentioned neuropathology, briefly, sir,
9 what is that portion of the autopsy?

10 A. So, a neuropathologist is a pathologist who
11 specializes in the examination of the brain and the
12 spinal cord. So, they kind of like the anthropologist
13 brings added expertise to the examination of the bone,
14 the neuropathologist brings added expertise to the
15 examination of the brain, spinal cord and other elements
16 of the nervous system. So, in certain cases, including
17 this one, I will consult with our neuropathologist for
18 examination of those particular tissues.

19 Q. And how about toxicology?

20 A. Toxicology refers to testing that's done on
21 fluids or tissues from the body, mostly looking for the
22 presence of any drugs or other substances that might be
23 in the person's system while they're dead or when they
24 die. It also includes sometimes analysis of the
25 person's electrolytes to look for any kind of

1 electrolyte abnormalities that might have been present
2 at the time the person is dead.

3 Q. So, you've told us already that you conducted
4 external and an internal examination; is that correct?

5 A. Yes.

6 Q. And these exhibits only contain photographs of
7 the external portion; is that right?

8 A. Yes.

9 Q. Can you just kind of walk us through the
10 process or the steps that you take to do the first, the
11 external and then go on to the internal?

12 A. When I begin the external examination, I look
13 at the body with any clothing or personal effects that
14 might come in with that person. So, if there's any
15 clothing, it gets photographed; but also I will document
16 it in my notes what the person is wearing, what kinds of
17 medical intervention they might have on them if they
18 made it to the hospital. Once that's done, any
19 clothing, other personal effects, medical intervention,
20 any of those things are removed. The body is cleaned.
21 And then I do a second round of examination where I look
22 at the body again with all the clothing removed, with
23 the body cleaned and looking for any evidence of illness
24 or injury. So, that's kind of the general sequence of
25 events for the external examination.

1 Q. All of that is photographed; is that correct?

2 A. Yes.

3 Q. And then internally, do you examine all the
4 body organs, the brain and so forth?

5 A. Yes.

6 Q. We're looking here at State's Exhibit No. 114,
7 can you tell us what we see here, Doctor?

8 A. This is a picture of Betsabeth Sandoval. This
9 is what we call our intake photo. So this photo is the
10 one that's taken before the autopsy even occurs. This
11 is when she first gets to our office and is checked in.

12 Q. And so I see what appears to be blue jeans and
13 some underpants, is that how she came to your office?

14 A. Yes.

15 Q. And is this a photograph of her as she was upon
16 opening that white bag that was surrounding her?

17 A. Yes.

18 Q. So can we assume that these items, the thing in
19 her mouth and that pad there on her chest and these
20 tags, are those all pursuant to medical intervention?

21 A. Yes.

22 Q. Look at 115, what are we seeing in State's 115?

23 A. This is a photograph from the initial stages of
24 Betsabeth Sandoval's autopsy. This is a picture of the
25 back of the upper half of her body prior to any removal

1 of clothing or medical intervention.

2 Q. And 116, is that the same backside of her just
3 pulled in a little more?

4 A. Yes, it's just a lower half of her body.

5 Q. Okay. Now, what do I have here in State's 117
6 and 118? You remember these fancy --

7 A. These are photographs of the front and back of
8 Betsabeth Sandoval after the clothing and medical
9 intervention had been removed.

10 Q. So two of your pictures have been joined
11 together to form one side front and back?

12 A. Yes.

13 Q. Do you weigh the body when it comes in?

14 A. Yes.

15 Q. And how much did the body of Betsabeth Sandoval
16 weigh?

17 A. She weighed 12.25 kilograms.

18 Q. And you probably don't have a calculator, but
19 can you give us an estimate as to what that translates
20 into pounds?

21 A. It's probably around 30 pounds or so.

22 Q. And do you guys or does your office diagram a
23 growth chart for the age of this child, the age and
24 weight?

25 A. Yes.

1 Q. And this is State's Exhibit 215. Is this the
2 page out of your autopsy report?

3 A. Yes.

4 MS. THOMAS: May I approach him?

5 THE COURT: Yes.

6 Q. (BY MS. THOMAS) Doctor, would you explain to
7 the jury what you see here on this exhibit?

8 A. This is a growth chart. It's the same kind of
9 chart that your pediatrician uses if you ever take a kid
10 to the pediatrician's office, which allows doctors to
11 plot out based on the child's age, their height and
12 their weight and it gives them, the doctors, an idea of
13 whether the child is growing appropriately.

14 So, there's two different things going on
15 here. This upper half refers to her, the body length.
16 The lower half is the weight. These lines represent
17 different percentiles of length and weight,
18 respectively. So, the center line here, this is 50th
19 percentile; and the horizontal axis is the age.

20 So, in this case since Betsabeth Sandoval
21 is four years old, I find the age, four; and then I can
22 plot out where she falls on the growth chart for both
23 her length and her weight. So, for both her length and
24 her weight, she's below the 5th percentile, which means
25 she's in the bottom 5 percent compared to all normal

1 children for both length and weight.

2 Q. So, Doctor, another way of saying that would it
3 be that 95 percent of all the other children are heavier
4 than Abby and taller than she is?

5 A. Yes, greater than 95 percent.

6 Q. Doctor, let's look at State's Exhibit No. 119;
7 what do we have here?

8 A. This is a picture of Betsabeth Sandoval's face.

9 Q. Can you tell us after you shaved her head
10 counting her scalp, how many contusions did Betsabeth
11 Sandoval have on her head?

12 A. She had 21 scalp and facial contusions or
13 bruises.

14 Q. Do those include the lacerations on the lips
15 and inside her mouth?

16 A. No.

17 Q. And I'll jump here to State's Exhibit 124; what
18 do we see here?

19 A. This a picture of the right side of Betsabeth
20 Sandoval's scalp after her hair has been shaved, and you
21 can see a number of contusions or bruises on her scalp.

22 Q. Is this one here behind her ear?

23 A. Yes.

24 Q. As well as here, here and here?

25 A. Yes.

1 Q. How about State's Exhibit 125?

2 A. This is a picture of the left side of Betsabeth
3 Sandoval's scalp. Again, after the hair has been
4 removed, and there are more bruises visible on her
5 scalp.

6 Q. And 126, what is the vantage point here, Dr.
7 Chu?

8 A. This is from directly above, this is the top of
9 Betsabeth's head. Again, after the hair has been shaved
10 and there are more contusions or bruises visible in this
11 view as well.

12 Q. And how about this one, it's 127?

13 A. This is the back of Betsabeth's head. Again,
14 after the hair had been shaved and you can see more
15 bruises on the back of her head.

16 Q. Doctor, what can you attribute as a cause of
17 these contusions?

18 A. These are due to impact either against by a
19 blunt object or against blunt surface.

20 Q. And, as a matter of fact, did you reach a
21 conclusion about the cause of death of Betsabeth
22 Sandoval?

23 A. Yes.

24 Q. What was that?

25 A. Complications of multiple blunt force injuries.

1 Q. How about the manner of death?

2 A. Homicide.

3 Q. Let's look at State's 120, tell us about the
4 injuries we see here?

5 A. This is a picture of Betsabeth's mouth. On her
6 upper lip, she has some abrasions or scrapes of the
7 skin. Beneath the right side of her lower lip is what I
8 call laceration or a tear of the skin.

9 Q. And is that also an injury there on her lip?

10 A. Yes, that's another abrasion or scrape of the
11 skin, a mucosa.

12 Q. Let's look at 121, is that a little different
13 than what we just saw in the previous exhibit?

14 A. Yes.

15 Q. How so?

16 A. This is a picture, again, of Betsabeth's mouth
17 but this time I've lifted up, pulled up her upper lip.
18 And what you can see right in the center is a healing
19 laceration or tear of her frenulum. The frenulum is the
20 thin membrane in the center of your -- you can feel it
21 with your tongue ahead of your teeth. It connects your
22 upper lip to your gums. So, she has a tear of that
23 little membrane.

24 Q. This right here where my finger is?

25 A. Yes.

1 Q. Doctor, according to pediatric medical
2 literature, when you see a torn frenulum like that on a
3 child, what is that specific for or can it be specific
4 for?

5 A. It can be caused by a blow to the mouth area or
6 forceful compression to that same area that results in
7 tearing of that thin membrane.

8 Q. Why would that happen to get hit in the mouth
9 suddenly for that to tear?

10 A. Again, and you can feel it in your mouth, it's
11 a pretty thin piece of tissue. It tears relatively
12 easy. If there is any kind of sheering force, it can
13 easily tear.

14 Q. Now, on that injury, did you have the
15 microscopy or did you perform that, the examination that
16 allows you to give us some idea of a timeframe for that
17 injury?

18 A. Yes.

19 Q. What can you tell us about that?

20 A. Based on my microscopic examination of that
21 injury, I would -- and, again, these are very broad
22 estimates. It looks like it's in the range of three to
23 five days old.

24 Q. And that's, I guess in layman's terms, based on
25 the progression of the healing process that you see

1 microscopically?

2 A. Yes.

3 Q. Let's look at State's Exhibit No. 122. Looks
4 like we're looking at the inside of the lower lip. What
5 can you tell us about that?

6 A. You can see there on the, this is a photo where
7 I pulled down her, Betsabeth's lower lip and she has
8 some tearing of the mucosal layer of the lower lip.

9 Q. Now, what is that item sticking out of her
10 mouth there?

11 A. That's an endotracheal tube or a breathing tube
12 placed there by the hospital staff before her death.

13 Q. Were you able to conduct microscopy on this?

14 A. Yes.

15 Q. And can you give us some ballpark in terms of
16 when that occurred?

17 A. Again, it appeared to be several days old,
18 similar age as the torn frenulum.

19 Q. This three to five-day range?

20 A. Yes, roughly.

21 Q. And could this inside the lip injury be
22 consistent with a blow to the face, the lower lip with
23 some blunt force object?

24 A. Yes.

25 Q. Because the lip being slammed into the teeth,

1 is that what might precipitate an injury like that?

2 A. Yes.

3 Q. Let's go to 123, what do you see here, Dr. Chu?

4 A. This a picture of Betsabeth Sandoval's mouth
5 and chin. You can see in addition to the injuries we
6 talked about earlier, she has some bruising on her chin
7 and another laceration on the, sort of, tip of her chin.

8 Q. If you look very, very closely, Dr. Chu, do you
9 see a faint line lighter than the rest of her skin
10 running along the tip of her chin?

11 A. Yes.

12 Q. What does that appear to be?

13 A. It appears to be a healed scar.

14 Q. So in 123 we have evidence of an old healed
15 injury and then a fresh chin injury; is that fair to
16 say?

17 A. I believe the fresher appearing injury is
18 actually also healing; but, yes, it's more recent than
19 the healed scar.

20 Q. But, I mean, they're two separate events; is
21 that fair to say?

22 A. Yes.

23 Q. So, can we just conclude that she has suffered
24 at least two traumatic events in that area of her body?

25 A. Yes.

1 Q. And, again, tell us, Doctor, what your
2 examination led you to in terms of timeframe on that
3 injury?

4 A. I sampled the more recent appearing injury on
5 her chin. Again, this looks to be at least three to
6 five days old.

7 Q. We don't have the pictures of the interior
8 skull of this, just chosen not to publish those, but
9 would you tell us some things about the internal brain.
10 Did you examine that?

11 A. Yes.

12 Q. Did you find any internal bleeding or any
13 hemorrhaging associated with the brain?

14 A. Yes, she did have a small amount of bleeding
15 over the surface of her brain as well as a bruised
16 portion of the brain called the cerebellum.

17 Q. And can you give the jury some ideas as to how
18 those kinds of hemorrhages can take place or occur
19 within a child's head like this?

20 A. These are due to blunt force trauma of the
21 head.

22 Q. Let's look at 124, again. This being one of
23 the right side of her head. Does it appear to you that
24 something has impacted or come into contact with her
25 head?

1 A. Yes.

2 Q. Are you able to say more than once on that side
3 of her head?

4 A. Yes.

5 Q. Can you tell us more than twice or three times?

6 A. Without knowing what the object or surface was
7 that caused these bruises, I can't give a precise
8 estimate of how many times her head was struck on this
9 side. My statement that it's more than once is simply
10 based on the fact that the bruises are on more than one
11 plain of her head.

12 Q. So either one really weirdly shaped item hit
13 her, or she was hit more than once; is that a fair
14 statement?

15 A. Yes.

16 Q. And whatever came into contact with her head,
17 would you agree with me that it was a blunt object,
18 whether she was struck against it or it struck her?

19 A. Yes.

20 Q. And were you able to perform microscopy on
21 these injuries to give us some idea of a timeframe?

22 A. Yes.

23 Q. And what did you find?

24 A. The majority of them, again, were in that sort
25 of same at least three- to five-day timeframe.

1 Q. I want to jump to State's Exhibit 128, what
2 portion of her head do we see here?

3 A. This is the left side of the back of her head
4 behind her left ear, which has been pulled back in this
5 photograph.

6 Q. Is that what is termed the left occipital?

7 A. Yes.

8 Q. And did -- were you able to microscopically
9 give us some idea of the age of that injury?

10 A. Yes.

11 Q. And what was your finding?

12 A. The bruising in this area appeared to be a
13 little bit more recent than the bruising on the rest of
14 her head. I would say within two to three days of her
15 death.

16 Q. Look at State's 125, have you already -- I
17 don't know if I asked you about the ageing, was there
18 any findings in terms of what an estimated age range
19 would be for the bruising we see on that side of her
20 head?

21 A. All the other bruising other than the one I
22 just mentioned that I said was two to three days are all
23 slightly older. Again, at least three to five days old.
24 And this refers to all of the remainder of the bruising
25 on her scalp, so that includes what you see in this

1 photograph.

2 Q. When we saw the bruises on her face, did you
3 attempt to or determine an age range on the facial
4 bruising?

5 A. No.

6 Q. Why wouldn't you do that?

7 A. The reason is that to get microscopic --
8 samples for microscopic analysis of these injuries, I
9 have to actually cut into the skin because cutting into
10 the face would interfere with funeral viewing, we avoid
11 doing that.

12 Q. Okay. We spoke about this case outside the
13 courtroom a long time ago, did we not?

14 A. Yes.

15 Q. And I don't know if you remember a discussion
16 about a certain wooden stick that was found in this
17 case; do you recall that?

18 A. Vaguely.

19 Q. Okay. You had a few other cases since then, I
20 guess. Looking at 128 by comparison, that's more recent
21 than the rest of the bruising we've seen so far. I'm
22 holding State's Exhibit 201, which is a broken length of
23 wood consistent with maybe a broom handle. Based on
24 what you see here and what I'm holding in my hand, is it
25 at least possibly consistent with this object striking

1 the left side of Betsabeth Sandoval's head?

2 MR. GONZALEZ: Objection as to speculation,
3 Your Honor.

4 THE COURT: You may answer if you know or
5 have an opinion.

6 A. It's consistent with that.

7 Q. (BY MS. THOMAS) And I want to ask you a
8 hypothetical. Just based on your expertise, if
9 hypothetically that stick had been wrapped in say an
10 adult-sized T-shirt and then used to strike the
11 Complainant, maybe on the portion of her head that has
12 hair, is it possible that the mark that would be left
13 would be somewhat disbursed by the fact that there's a
14 shirt around it and the hair that is intervening between
15 the scalp and the stick?

16 MR. GONZALEZ: Objection, calls for
17 speculation, Your Honor.

18 THE COURT: He may give an opinion if he
19 has one.

20 A. Yes, it would be consistent with that.

21 Q. (BY MS. THOMAS) Let's go to State 129, what
22 portion of her head are we looking at here?

23 A. This is, again, the picture of her scalp. I
24 believe it's the right ear with the ear, again, folded
25 this time downward a little bit, forward and downward.

1 Q. And, again, is it your testimony that with the
2 exception of State's Exhibit 128 that this injury would
3 join the others in that three- to five-day age range?

4 A. I did not sample this particular injury, the
5 one above the right ear, so I don't know.

6 Q. Do you have any notation on either side of her
7 head, near or slightly above her ear that there is a
8 scar, a healed injury?

9 A. Yes, on the right, what I call the superior
10 right scalp, it just means the right side of her scalp,
11 sort of up high there were four well-healed scars
12 measuring up to 1.1 centimeters, which is maybe about a
13 half an inch or so.

14 Q. Not very good at this. I'll find it and come
15 back to it. Thank you, Doctor.

16 Let's look at State's Exhibit No. 130, did
17 you note that injury that is below the right side of her
18 bottom lip.

19 A. Yes.

20 Q. What are you able to tell us about that?

21 A. Again, this is another laceration or skin tear.

22 Q. Once again, is that consistent with some blunt
23 force striking this child in the face?

24 A. Yes.

25 Q. State's Exhibit 131, how many contusions are

1 you able to count just in that one picture alone?

2 A. She has at least, I mean, in this picture I
3 think you can see at least four or five mostly on her
4 left cheek and also one on the left side of her chin and
5 maybe up around her left eye.

6 Q. And once again, unless we have some really
7 weird looking object that she was struck with at once,
8 would you say that is consistent with at least four
9 separate blows to her face?

10 A. Again, without knowing the shape of the object,
11 it's hard to say. If it's a simply shaped object then,
12 yes.

13 Q. Could a hand possibly create that kind of an
14 injury?

15 A. Yes.

16 Q. Tell us about the examination front and back of
17 just her torso, not including her extremities. Don't
18 count anything on her arms or legs, but just from her
19 lower waist up, how many bruises or contusions did you
20 note?

21 A. I counted greater than 20 upper torso.

22 Q. So, the jury has those elongated, pieced
23 together items, we're not talking about the arms or the
24 legs, yet; is that right?

25 A. Yes.

1 Q. From the neck down; is that right?

2 A. Yes.

3 Q. State's Exhibit No. 132, would this be -- is
4 that the right side of her chest?

5 A. Yes.

6 Q. Okay. Tell us what we're looking at here?

7 A. This is a picture of Betsabeth Sandoval's right
8 arm as well as a portion of the right side of her chest.

9 Q. Dr. Chu, earlier in this case there was mention
10 of a term called lividity. Can you explain to the jury
11 what lividity is?

12 A. Lividity refers to something that happens after
13 death. Once the heart stops beating and a person is
14 dead, blood inside the body will settle based on
15 gravity, and it's something we can actually see at the
16 time of autopsy or anyone after death. You can actually
17 see the effects of the blood pooling in the body and it
18 looks, it has purple discoloration.

19 Q. We see here on State's 132 some pretty purplish
20 discoloration. And this is just her right arm, but is
21 it fair to say that you examined all four of her limbs?

22 A. Yes.

23 Q. And you did so internally as well, you went
24 inside; is that right?

25 A. Yes.

1 Q. Is anything you see on any four of her
2 extremities associated with lividity?

3 A. She has some lividity, but most of what I saw
4 was actual bruising or contusions.

5 Q. So, if this is her right side -- if you would
6 touch your screen next door to you there, show us where
7 you see a contusion and show us how far it extends?

8 A. (Indicating.)

9 Q. All of that we see is bruising; is that right?

10 A. Yes.

11 Q. And you know the process, the microscopy
12 process, that you've used to determine an approximate
13 age, how useful is that to us looking at a bruise this
14 size?

15 A. It's, it kind of limits its usefulness because
16 of the extent of the bruising. It's hard to judge if
17 there have been multiple blows over time in the same
18 area because all I can see microscopically is evidence
19 of the oldest injury. It's hard to piece out any acute,
20 more acute injury that happened on top of that older
21 injury. So, it's hard for me to say if this is all from
22 something that happened three to five days ago, or if
23 it's something that happened -- a combination of things
24 that happened say three to five days ago, two days ago,
25 one day ago and at the time of death. So, it's the best

1 I can do is give an idea of the oldest portion or oldest
2 component of the injury, but it's not so helpful in
3 identifying additional possible impacts to that area.

4 Q. And here did you, again, reach a three- to
5 five-day broad timeframe?

6 A. Yes.

7 Q. But if I understood what you just said, by
8 doing so you are not ruling out that other injuries
9 could have occurred on top of an injury that might be
10 three to five days old?

11 A. Yes.

12 Q. An injury could have happened to her 10 minutes
13 before she died, and you wouldn't be able to distinguish
14 it from the older injury; is that right?

15 A. Yes.

16 Q. Are you able to tell us anything about whether
17 this was all one big violent impact or whether it was
18 several over time, are you at all able to comment on
19 that?

20 A. No.

21 Q. So, with all this discussion we've had up to
22 here, Dr. Chu, are you ruling out that someone may or
23 may not have assaulted her on the very day she died?

24 A. No.

25 Q. Are you ruling out that someone may have even

1 assaulted her within the hour of her death?

2 A. No.

3 Q. And is that because of this concept that we've
4 now learned the overlapping of injury to the same place
5 over and over?

6 A. Yes.

7 Q. Like at State's Exhibit No. 152, what part of
8 the body are we looking at here?

9 A. This is a picture of Betsabeth Sandoval's back.

10 Q. Would you describe for us the findings that you
11 have for this part of the autopsy?

12 A. You can see an area of bruising on the back of
13 the left shoulder that extends down the back of the left
14 arm (indicating), over here. And then on her back, she
15 has a number of additional smaller bruises right here,
16 here, here.

17 Q. And then State's Exhibit 153, is that a closer
18 view of the same left or left shoulder that we saw in
19 the corner of the last exhibit?

20 A. Yes.

21 Q. How many bruises can you identify in that
22 region?

23 A. Well, there's this larger area that, again,
24 extends down her right arm and maybe some other smaller
25 ones.

1 Q. And, again, are those consistent with some
2 blunt force?

3 A. Yes.

4 Q. What is that little discoloration on the top of
5 her shoulder?

6 A. It looks like it's some kind of healing injury.

7 Q. Like maybe a scab?

8 A. Maybe something on its way to becoming a scar,
9 an older injury.

10 Q. All right. Let's see while we're still on the
11 backside, State's 154, we're still on the back of the
12 left arm but a little further down; is that accurate?

13 A. Yes.

14 Q. Do you note an abrasion right here?

15 A. Yes, she has a cluster of abrasions or skin
16 scrapes right there on the back of her left arm.

17 Q. Let's look at State's Exhibit 156, what aspect
18 of the body are we viewing in this exhibit?

19 A. This is a picture of the front of Betsabeth
20 Sandoval, from the lower abdomen to below the knees.

21 Q. Do you see the two above her private area, the
22 two markings, I don't know if they -- what are those?
23 What is this, and what is that?

24 A. Those are more bruises.

25 Q. And are we still talking about blunt force?

1 A. Yes.

2 Q. Are you able to tell us, for example, whether a
3 finger or the end of a, I guess, a smaller object made
4 contact with her skin?

5 A. I can't tell what caused those.

6 Q. Is it possible or could be consistent that
7 somebody may have, like, pinched her?

8 A. It's possible.

9 Q. Let's go down to the lower area. Dr. Chu, tell
10 us about your findings on the sacral region or the
11 buttocks that's depicted there on the long diagram, I
12 believe it's going to be 118?

13 A. She had pretty extensive bruising over her
14 buttocks and sacral region. Sacral region is just that
15 area just above where the buttocks are.

16 Q. And based upon what you saw there, are those
17 injuries at all consistent with a child of this height
18 and weight falling on her backside say from a standing
19 or running position?

20 A. No.

21 Q. Say falling off a little child's toy bicycle
22 with training wheels?

23 A. No.

24 Q. With jumping off say the, say, back of a couch
25 or some piece of furniture?

1 A. No.

2 Q. Again, are we talking about blunt force trauma?

3 A. Yes.

4 Q. Are you able to tell us is this another one of
5 those parts of her autopsy that is undeterminable in
6 terms of how many blows she may or may not have received
7 at that one place?

8 A. Yes, because almost her entire buttocks were
9 covered in bruises, it's impossible to say if it all
10 happened all at once or if it was something that
11 happened in the preceding few days. I think
12 microscopically those injuries also -- the oldest one
13 was at least three to five days old, but I can't rule
14 out some more recent injuries in that same area.

15 Q. And did you cut into that tissue as well during
16 the course of the autopsy?

17 A. Yes.

18 Q. Did you find something else in addition to what
19 you just told us about?

20 A. Yes.

21 Q. What did you see?

22 A. What I found in looking at the soft tissue
23 beneath the bruising on her buttocks was that there is
24 an extensive tearing of the subcutaneous or the
25 connected tissue that's underneath the skin, extensive

1 tearing and hemorrhage of those tissues underneath those
2 areas of bruising. And it's actually for that reason
3 that I say it's not consistent with a simple fall from a
4 standing position because that can result in bruising,
5 but it's not going to give you extensive tearing and
6 hemorrhage of the tissue underneath the skin.

7 Q. And, in fact, do you give a term to that injury
8 as avulsion pocket?

9 A. Yes.

10 Q. What does that mean?

11 A. Avulsion just basically means tearing of the
12 soft tissue. Pocket, meaning because the tissue is torn
13 sort of formed a cavity or pocket where blood has
14 accumulated.

15 Q. In other words, could you characterize that as
16 liquefaction of soft tissue?

17 A. Yes, in part.

18 Q. Like being beat to a pulp?

19 A. Maybe.

20 Q. So when a -- when you find something like that
21 pocket, does that mean that the blood in that region is
22 not circulating anymore?

23 A. Yes.

24 Q. Is the blood able to continue to deliver oxygen
25 to the rest of the structures at least in that part of

1 the body?

2 A. No.

3 Q. Is that tissue dying? Is it actually dying or
4 dead tissue?

5 A. Yes, it would be dead tissue in that area.

6 Q. And, again, the oldest part of that region, in
7 terms of an age range, are we still in that three to
8 five days?

9 A. At least three to five days, yes.

10 Q. And we don't have pictures of the internal
11 organs, but can you tell us about whether or not you
12 found injuries to the internal organ?

13 A. Yes, I did. She had a bruise of her small
14 intestine, a bruise of the mesentery, which is the
15 supporting structure of the intestines. She had some
16 hemorrhage in her left adrenal gland and fractures of
17 her shoulder blades.

18 Q. Both her shoulder blades were broken at some
19 point?

20 A. Yes.

21 Q. And let's talk about this intestinal contusion.
22 Would that be consistent with some sort of blunt force
23 trauma being exerted against this child?

24 A. Yes.

25 Q. And how is it that you can actually bruise your

1 intestine being struck on the outside?

2 A. Well, you know, there's no -- unlike the chest
3 where there's a rib cage that protects the heart or
4 lungs. Well, the abdomen there's nothing at least in
5 the front to protect your internal organs there. So the
6 intestines are in the abdomen, so a blow to that area
7 can result in bruising to any of your abdominal organs
8 including the intestine.

9 Q. Now, with respect to that injury, did you find
10 microscopically any healing response?

11 A. Yes, I found some initial -- I found the injury
12 to be in the initial stages of healing. It probably
13 occurred within a day of Betsabeth Sandoval's death.

14 Q. How about the mesentery, what can you tell us
15 about that contusion? And what is a mesentery?

16 A. The mesentery, again, is the supporting
17 structure of the intestines. Your intestines are not
18 free-floating tubes like you might see in a zombie movie
19 or something, they're actually attached via the
20 mesentery which carries blood vessels, connected tissue,
21 lymphatics back and forth to and from your intestines.
22 And so it's mostly fat and connected tissue. So, that's
23 what the mesentery is. Again, it's a structure in the
24 abdomen, so it's susceptible to injury just like the
25 intestines; any kind of blunt force applied to the

1 abdomen can also result in a bruise to the mesentery.

2 So, she had a mesentery contusion or
3 bruise. Microscopically, this looked to be an older
4 injury. Again, at least three to five days old and
5 probably older because there was some scar tissue
6 formation there as well.

7 Q. Let's move on to and regarding the shoulder
8 blades. I believe you mentioned the anthropology
9 picture of the autopsy, that would have been done by Dr.
10 Love?

11 A. Yes, she's the one who -- our anthropologist is
12 the one who identified and analyzed the fractures of the
13 shoulder blades.

14 Q. And so let's talk a little bit about the
15 extremities in looking at the two long front and back
16 exhibits there before the jury. I noticed in the report
17 a notation that says, confluent, near-circumferential
18 contusions of the upper and lower extremities both arms
19 and both legs. That's a mouthful. What did I just say?

20 A. Confluent means overlapping, basically.
21 Circumferential means it wraps all the way around, the
22 circumference or all around the limb. So, she had
23 overlapping bruises that went all the way around both
24 her arms, forearms and her leg s.

25 Q. And are you able to tell us whether any or some

1 or all of this occurred all at once or in different
2 stages? What else can you tell us, if anything?

3 A. I did look at these underneath the microscope,
4 look for evidence of healing, and majority of it
5 appeared, again, to be at least three to five days old.
6 Again, because of the extent of the bruising, I could
7 not rule out more recent impacts or force applied to
8 those areas.

9 Q. Looking at the extremities here in State's
10 Exhibit 133, what do we see here?

11 A. This is a picture of Betsabeth Sandoval's right
12 wrist and hand. And you can see the bruising that
13 basically involves the entire, some of her forearm as
14 well. There's a little bit of sparing right here, but
15 the rest of it is completely covered with bruises.

16 THE COURT: Ms. Thomas, I'm going to
17 interrupt you right now. I think there is some
18 additional testimony with this witness, is that correct,
19 on direct?

20 MS. THOMAS: Yes, ma'am.

21 THE COURT: Ladies and gentlemen, we're
22 going to go ahead and recess for lunch at this time. If
23 you'll step back to the jury room, Deputy Kaminski will
24 escort you to lunch.

25 THE BAILIFF: Rise for the jury.

1 (Jury exits courtroom.)

2 THE COURT: Be seated. We'll be in recess
3 until 2:00.

4 (A recess was taken.)

5 (Remainder of testimony and closing
6 arguments taken by Renee Reagan.)

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