

Problem List

1. Birth record abnormalities (DOB 2/4/1999).

- a. Maternal fever during labor.
- b. Apgar scores 1 at one minute, 7 at five minutes, and 8 at 10 minutes. The first score was apparently caused by maternal opiate administration during labor as baby perked up after receiving Narcan. Is this the first clue of possible problematic kidney function for Kassidy?
- c. Abnormalities in red blood cell size, shape, and color. Possible bone marrow failure?
- d. Anemia present on two sets of blood counts.
- e. Cephalohematoma present as newborn.
- f. Short hospital stay, discharged less than 36 hours after birth.

2. Health issues/injuries.

- a. Fever significant enough to prompt ER visit as an infant while in the care of grandmother at age of approximately 1 year.
- b. Significant accidental fall from cab of pick-up truck approximately two weeks before death. Kassidy landed on her head in full view of her baby sitter. This resulted in two large bumps on back of head, nausea and vomiting, and periods of staring off into space immediately following the fall with increasing symptoms of seizures and lethargy up until her death.
- c. Several other incidents at the home of the babysitter that were not closely examined for contributing to the bruising and/or possibility of abuse at the hands of the babysitter. Some reported incidents that occurred in Jeff Marshall's care include Kassidy drinking Windex, the babysitter's dog knocking her down, and the babysitter tripping and/or stepping on her. Jeff Marshall and Kassidy's maternal aunt even attempted to cover facial bruising on Kassidy by applying foundation to her face when they brought her out in public on one occasion. In the last 24 hours of Kassidy's life, Chad was alone with her for approximately 30 minutes, while he was driving along busy roads during a period of high traffic between Kittery, Maine and Dover, New Hampshire. Jeff Marshall was alone with Kassidy for 6 hours and 10 minutes in the 24 hours leading up to her death. If Chad struck Kassidy while driving as proposed by the State while she was in the seat directly behind the driver's seat, how did Chad manage to strike the left side of her face and abdomen where the majority of the bruising is evident? If he pulled over on the side of the busy road to physically abuse an already ailing, barely conscious and lethargic child, where are the witnesses who say they saw him pulled over?
- d. Significant hair thinning/hair loss. Perhaps one of the biggest outward indicators that something was systemically wrong with Kassidy. One possible cause of such hair loss is hypocalcemia which could be explained by hypoparathyroidism that could be further supported by the failure to find parathyroid glands at autopsy. Absent or hypertrophied parathyroid glands are a common finding in individuals with DiGeorge syndrome.

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- e. Bruising caused by Chad's alleged abusive handling of the child. This allegation does not take into account that if the child developed a bleeding disorder acutely, such as idiopathic thrombocytopenic purpura, then even non-abusive, appropriate contact would cause bruising.
- f. Trampoline use with children and adults older than Cassidy. This has been proven to be extremely dangerous to young, otherwise healthy toddlers. The combination of adults and/or older children using a trampoline with a smaller child is a known culprit in causing proximal tibial fractures. This injury is widely known as a trampoline fracture. It is well known that Chad purchased a trampoline for his son's birthday in July, 2000, and it is well known by many that Cassidy enjoyed jumping with older children and adults on multiple occasions over the course of the summer.
- g. Symptoms of acute illness for the two weeks leading up to Cassidy's death including nausea, vomiting, dehydration, extreme tiredness, cold-like symptoms, periods of staring off into space (absence seizures?), and for the last 24 hours lack of appetite. She also displayed evidence of significant dehydration with very dry, cracked, and bleeding lips. Urine in the bladder at the time of death was very minimal and the diaper that Cassidy is wearing while EMS attends to her on the front porch of Jeff Marshall's home is dry.

3. Issues with the Autopsy.

- a. The problem with fat emboli as cause of Cassidy's death. The medical examiner theorized that the fat emboli found in the lungs and kidneys at autopsy were the result of massive soft tissue injury. There are major problems with this theory. First of all, the fat emboli were noted only in the lungs and kidneys and there was no brain involvement which would most likely have been present if the fat emboli occurred before death and was significant enough to cause death. Secondly, fat embolism syndrome from massive soft tissue injury has been shown to occur within hours of the injury and is extremely rare. Fat emboli resulting from fractures typically occur within a 24 hour time period and are even rarer in children as they have very little fat in their marrow. Assuming Cassidy is an exception to the rule, and she did have a fulminant form of fat emboli syndrome, the clinical course would have led to cor pulmonale and there would be evidence of right ventricle dilatation which the medical examiner explicitly stated was not present. However, she also stated that hypertrophy was not present at autopsy, but by her own measurements, there was indeed significant right ventricular wall hypertrophy (please see below). Right ventricular wall hypertrophy is present with cor pulmonale when there is a chronic lung problem as the initiating factor. Alternative explanations for cause of the fat emboli in Cassidy could be from the use of two intraosseous catheters by emergency personnel and the administration of CPR which have been demonstrated to cause fat emboli.
- b. Significant right ventricular wall hypertrophy with slightly increased heart weight. Cassidy's left ventricular wall measured 0.2 cm and her right ventricular wall measured 0.8 cm, the right being four times thicker than normal. Normal heart weight (N) = approximately 56 gm; Cassidy's heart weight (K) = 62 gm. This diseased heart would have caused for ineffective pumping, increasing the risk for blood clots and heart failure. The medical examiner did not note any other abnormalities that could have been the cause for this hypertrophy, as there

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most definitely would have been such as a septal wall defect, valvular abnormality, or anomaly of the great vessels arising from the heart. Right ventricular walls do not thicken without a cause.

- c. Increased lung weights. (N = left lung approximately 75 gm and right lung approximately 80 gm; K = right lung 123 gm and left lung 107 gm.)
- d. Underweight kidneys at autopsy with moderate-to-severe congestion that would logically cause for them to be heavier than their non-congested state. (N = left and right kidneys approximately 44 gm; K = right 35 gm and left 37 gm.) Is this indicative of renal dysfunction influencing bone fragility (renal osteodystrophy) and fractures resulting from normal childhood play and accidental falls?
- e. Underweight spleen that is congested (N = 30 to 33 gm; K = 25 gm). Again, congestion would be cause for increased weight so here we can reason that the spleen weighed even less before developing congestion in this organ. Problems with the spleen are common in individuals with coagulopathies.
- f. Underweight thymus with normal structures described. No evidence of involution or shrinkage noted in autopsy report. Cassidy's thymus weighed 11 gm at autopsy. A normal thymus for children ages 9 to 24 months old range from 19.97 to 37.72 gm with the average being 26 gm. Cassidy's thymus was approximately half the size considered to be normal and healthy. This finding in connection with the heart abnormality is concerning for a genetic anomaly such as 22q11.2 deletion
- g. Brain weight within normal limits (N = approximately 1059 gm; K = 1055 gm) with marked cerebral edema. Perhaps markedly low baseline brain weight before hemorrhage and edema at time of death? Low brain weights/size are a common finding in individuals with DiGeorge.
- h. No observations of contusions of the brain or axonal tearing noted as would be expected with trauma to the head.
- i. Presence of lines of Zahn as well as bone fragments in subdural blood clot. Lines of Zahn most commonly seen in clots that originate in the heart and only occasionally in clots that originate in arteries. They are the telltale sign that an embolism was formed within the vascular system. They are NOT a common finding in a subdural hematoma, which is blood pooling outside of the vascular system. No pressurized blood flow is present, which without this, lines of Zahn cannot form. No fracture was seen in the skull at autopsy. Are the bone fragments present in the subdural blood clot from another location in the body? Could it be that the clot formed in the heart, broke loose and perhaps through a septal wall defect (a hole), traveled to the left side of the heart and became lodged within one of the vessels within the head, leading to hemorrhagic stroke?
- j. Lines of Zahn again seen in the blood clot in the root of the mesentery. Again, this could be indicative of clot formation in the heart which then traveled to the mesenteric artery, causing infarct of the small bowel, leading to congestion and edema, serosal hemorrhage, and leakage of blood into the abdominal cavity as the blood and fluid buildup is forced out of the

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walls of the small bowel in a seeping sort of fashion. This is a common finding in patients with sepsis, coagulation disorders, and cardiac failure. The amount of blood measured in the abdominal cavity is VERY minimal and in the medical examiner's words, "The root of the mesentery is diffusely hemorrhagic, not distinctly associated with a single vessel and with no distinct laceration." Could this be mesenteric ischemia and not blunt force trauma? Let's say it was blunt force trauma delivered the night before Kassidy's death. We know that Kassidy was walking on the morning of her death, eating, and moving her bowels. All of these would have been extremely painful (if not impossible) for this precious little girl if she had trauma to her bowel.

- k. Extensive bruising. Physical abuse or underlying disease? If the bruising is indeed inflicted by an adult, where are the marks from grabbing on the extremities or bruising of the forearms that would indicate protective posturing? Where are the distinct hand prints or marks from items such as brushes, spoons, belts that are commonly found in individuals who have been physically abused? Why is the bruising most extensive on the child's face and not hidden under the clothing? We have an accounting of Kassidy falling face first on a paved driveway the evening before her death. This could explain the bulk of the bruising on her face observed at the time of death. Also present are many areas of petechiae such as on the soles of both feet, single focal points on other areas of the body, in the inner eyelids, and on the anterior surface of the thymus. Petechial spots are a red flag for coagulopathy. Could Kassidy have developed idiopathic thrombocytopenic purpura leading to extensive bleeding and bruising? Idiopathic thrombocytopenic purpura occurs 200 times more often in individuals with DiGeorge syndrome and often follows a seemingly insignificant viral illness (of which Kassidy displayed symptoms in the weeks leading up to her death). Kassidy also had a hemorrhagic blister of her buccal mucosa – another common symptom of a coagulopathy.
- l. Several debated fractures. Osteopenia is a common comorbidity of DiGeorge syndrome and also can result from renal failure (renal osteodystrophy). Could the multiple fractures reported at autopsy (the very existence of which were debated by doctors on x-ray films), be the result of an adventurous child with a skeletal makeup that was not capable of absorbing routine falls along with parents who were unaware of the dangers of trampoline use and a few accidents that were indeed innocent? We know that bone disease can cause fractures from very minor traumas. Assuming the fractures did exist, how did this child carry on in front of many witnesses, both publically and at home, in normal childhood activities without displaying the expected signs of pain or visible deformity? It can be noted throughout the testimonies that Kassidy did not show any signs of excruciating pain with excessive crying, refusing to walk, profound altered gait, favoring of any limbs, warmth or swelling of the skin overlying the fracture sites, etc. Yet the fractures were of varying ages according to the autopsy report, which should have caused noticeable symptoms at some point. The only reported symptom that may have suggested fracture is when Jeff Marshall accidentally stepped on Kassidy and she had an altered gait for a couple of days following the incident. This symptom spontaneously resolved.
- m. Obvious signs of dehydration, refuting Dr. Greenwald's claim that Kassidy was healthy at time of death. Kassidy had a 10% decrease in weight as compared to her last doctor's appointment only two months prior to her death. This 10% does not factor in the expected weight gain for a healthy child. There is nothing to suggest in medical records or witness

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testimony that Cassidy's eating habits had declined or that she should signs of under nourishment. If indeed Cassidy was a healthy toddler, her weight would be consistent with the 50th percentile measurements or greater that she regularly presented with at well-child visits with her pediatricians and the orthopedic specialist. Dr. Greenwald commented that Cassidy was well-developed and well-nourished, so we can deduce she was not showing signs of malnutrition or failure to thrive. **Kassidy's weight at time of death should have been around 25 lbs, assuming she maintained her lifelong average in the 50th percentile or greater. Her actual weight at autopsy is recorded as 22.2 lbs which is 1.1 lbs lighter than her well-child checkup three months before. Supposing Cassidy remained on track, her healthy weight at 21 months old would be 25 lbs. It is not unreasonable to conclude that considering all things, Cassidy's weight at death was reduced by 2.8 lbs, placing her at a total weight loss of 11.2%, placing her in the severely dehydrated range.** This is NOT the picture of a healthy toddler in her normal state of health as Dr. Greenwald claimed.

- n. Apparent clubbing of fingers in autopsy photos. Symptom of congenital heart disease?
- o. Significant sacral dimple photographed at autopsy. More prevalent in individuals with congenital heart disease.
- p. Facial features of low-set ears, short forehead, slightly non-prominent chin (micrognathia), and almond-shaped eyes that are consistent with 22q11.2 deletion syndrome.

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