

November 17, 2022

Daniel,

I have reviewed the reports and photographs you forwarded to me. Below is my response to the questions the family asked in their email to you. I have also attached my CV.

Introduction:

Looking at the representative pictures of Elijah's very large and hard/compacted stools, it is apparent that he had an ongoing problem with retentive constipation. Retentive constipation is a form of constipation that occurs from failure to pass stool on a regular (typically daily) basis. It is very common among toddlers who choose to retain stool rather than letting it pass and has no specific connection with child abuse (reference Vriesman et al Prevalence of Suspected Child Abuse in Children with Constipation: a case-control study. *BMJ Paediatrics Open* 2022;6:e001338. doi: 10.1136/bmjpo-2021-001338). The rectum accommodates the retained stool, resulting in dilation. The dilated rectum is less efficient in signaling the need to stool so stool retention perpetuates itself, leading to chronic constipation.

Questions:

1. Is the rectum full of feces?

The appearance of the stool in the diaper- large, hard, dry and compacted- is evidence of retentive constipation. Based on what I described in the introduction, I would expect his rectum to be chronically full of stool. There is no evidence from the photographs that the stool in the rectum has been displaced or pushed to the side as one would expect with repeated anal penetration immediately prior to death.

2. Would stool leakage occur at death if someone is constipated?

I have no experience with constipation and stool leakage at death. However, I would reason through it this way. There is a muscle in the anus that, when contracted, prevents involuntary loss of stool. It is this muscle that toddlers keep contracted so they don't have to stool (leading to retentive constipation). When someone dies, that muscle contraction would relax, leading to involuntary stool loss, independent of the consistency of the stool.

3. Could he have died exerting himself to stool?

There are no propulsive bowel contractions while we are sleeping, which is why we don't have bowel movements at night when we are sleeping. If his event occurred while he was sleeping, it could not be from trying to push out stool.

4. Could limited oxygen intake from pneumonia have caused this?

The pneumonia described on autopsy was very limited and localized. The lung has excess capacity for oxygenation to avoid this very problem. It would require pneumonia involving an entire lung before one would see a decrease in oxygenation. Consequently, decreased oxygenation from pneumonia is not an explanation.

5. How do you explain the dilated rectum?

The introduction gives a description of how the dilation occurs. The rectum is a muscle and accommodates to whatever is left in it. If large amounts of stool are left in it, it will be dilated. Removing the stool does not result in immediate resolution of the dilation. It would take months to years of daily stooling before the rectal muscle would regain its normal tone and return to a normal size.

6. What is the significance of no scar tissue around the anus?

Scarring takes place when a normal tissue is repeatedly traumatized. Initially, the body replaces the damaged area with normal tissue. After repeated injury, however, the body lays down tougher fiber tissue instead. We call that fiber tissue a scar. The absence of any scar speaks against repeated anal trauma, either from passing very large and hard stools or from sodomy.

7. How can there be lacerations without bleeding?

The terms used here are very important. Fissures, small tears caused by passage of large, hard stools, are common among toddlers with constipation. Fissures may or may not give visible bleeding. A laceration, on the other hand, implies a much greater degree of tearing and a deeper wound. Bleeding would be expected with a laceration. I infer from the second opinion autopsies that those Pathologists did not think lacerations were present.

8. Could anything else play a role in causing constipation?

In a word, "No". A large stool mass in the rectum, compressing veins in that area, would cause venous congestion. Consequently, venous congestion from retentive constipation could be an expected finding, although, while people are living we don't routinely see evidence for it. It is true that venous congestion can lead to hemorrhoids but that process takes decades to develop. That level of venous congestion and hemorrhoids would be unheard of in a 14-month-old.

9. Does mother's addictive history, prenatally or postnatally, have a role in this?

Addiction problems for the mother does not lead to constipation problems for her children. There is no correlation.

10. Could the baby have died shortly after being put down for the night and was not yet asleep?
That is possible but it would be difficult to validate that from the stool evidence alone. The white paste in the stomach is most likely casein, the acid-precipitable protein in milk (including goat milk). Presuming he had a bottle of milk prior to going to bed, and knowing that the stomach is usually fully empty by 2-4 hours after ingestion, it could be that he died in that 2-4 hour window.
11. Could he possibly have died from a vagal response?
I'm not sure how that would work. If you have a vagal response from pushing to stool, it is possible that you would pass out from decreased blood flow to the brain, but after you passed out the pushing would stop, blood flow would return to normal and you would regain consciousness.
12. Would Dr. Grunow be comfortable forwarding his CV?
I will attach a CV.
13. We think Dr. Grunow is saying that the evidence indicates the earmarks of retentive constipation. Would Dr. Grunow be comfortable concluding with a summary of his opinion regarding if he believes it is unlikely that the baby was being sexually abused or penetrated by anything, particularly at the time of death...

In my opinion, the evidence presented indicates this toddler had a common problem with functional constipation. There is no evidence to suggest he was penetrated by anything, much less on a repeated basis or to the point that it resulted in his demise.

John E. Grunow M.D.