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20 November 2025

Our Ref: MG/SP.G.YOUNG
Your Ref:

Dear Lady Young and Ms Mooney,

MISS GAIA YOUNG (DECEASED)

I have a received a letter from Lady Young dated 6 November 2025 and clearly there is a compelling consideration that this could have been a fatal metabolic encephalopathy. The evidence for OTC in an adult lady aged 25 is quite complex and I will attach an extensive review which I am allowed to send to you from the United States subscription service.

What one has to accept here is that there has to be a differential diagnosis. I have already said in my report that I am not a genetic expert. If I do see anything that has the slightest flavour of genetics, I would always refer, possibly having done some basic investigation.

In view of the further comments by Lady Young, I note the liver function tests on 17 July 2021. As I understand it, and I have already emphasised that the genetics and adult presentation of OTC would not be an area of my expertise (I am not sure who would be, other than knowing about the condition). As I have always understood that the ammonia and glutamine elevations are caused by liver impairment and one might expect under that circumstance that the liver function tests would be abnormal.

Clearly if an ammonia level had been carried out and found to be elevated, then there would have needed to be some significant discussion on primary and secondary causes.

I think Lady Young may have misunderstood what I said by the autopsy report not adding very much. What it demonstrated was that Gaia had cerebral oedema which generates a raised pressure syndrome and is ultimately the tragic cause of passing. I agree that it is a secondary event that goes without saying, but it does not tell us why the brain should have reacted as it did and in such an acute way.

There are two ways of giving an opinion. In civil law, as Lady Young no doubt is aware, when giving expert opinion for the High Court in civil matters, this would be on a balance of probabilities basis, which means that the opinion is a diagnosis on a 51:49 basis.

The alternative consideration is on a scientific basis, which requires a 95% level of certainty.

OTC usually presents at a young age. It is x-linked; hence it is more common in men. Why it did not have any kind of presentation beforehand is unclear. The Herschman paper which I have now attached, is a true one off situation, hence the reason for the case report.

Having now revisited the whole situation again, it is intriguing that Gaia had been out exercising on her bike and then spent time in the sun according to the notes. Clearly something then goes astray, such that she needs to go and lie down followed by profuse vomiting.

The literature on exercise induced encephalopathy (which I suspect has to be a genetic predisposition) does actually include hyponatremia, and that it can generate a posterior vertebral encephalopathy syndrome, though I do not perceive that was the observation on the MRI scans.

This does mean that there is a differential diagnosis. Whether or not this by itself should be regarded as a metabolic encephalopathy which can cause cerebral oedema, or whether Lady Young in her analysis is correct, I do not think can be identified in a truly scientific way, requiring as I have said a 95% level of certainty.

I regret I do not know if fixed brain tissue (and I am sorry if that is an emotive comment) has any way of being analysed from a metabolic perspective. I suspect not, and again this is not my area of expertise.

My final comment to Lady Young, is that over the years I have come across a number of situations where a clever diagnosis has been considered (even by myself) and invariably it is just too clever as it turns out not to be correct once all the tests have been undertaken. This is the reason why I have attempted to be particularly cautious.

If there is any learning process, then quite simply no one should ever go into a casualty department unaccompanied or have restrictions on who should attend with them. I hope that this is going to be one of the conclusions that might just emerge from the far too lengthy COVID enquiry, which I suspect was going to be so diluted in opinion and far too late in the offing that no one is going to take much notice.

Second, that if there is unexplained unconsciousness then there does need to be a guideline to cover uncommon situations.

For instance, it is well known that sodium valproate in high doses, an anti-epilepsy drug, can cause a hyperammonia syndrome. Even though I have treated literally vast numbers of patients over the years with this medication, I have actually never seen anyone with this particular complication, which just demonstrates the rarity of what one is dealing with here.

In conclusion, on a balance of probabilities basis, that is 51:49, this could well have been an isolated example of an adult OTC deficiency encephalopathy with cerebral oedema. There is

however a lot of evidence such as the normal liver function tests and no other clues that make that diagnosis far more difficult from a scientific perspective. In the same way this could have been an exercise induced encephalopathy and hyponatremia syndrome brought about by the combination of exercise, heat and then vomiting for whatever reason, though the vomiting may have been secondary due to the encephalopathy.

Lady Young is quite right that there are lessons to be learnt here. The problems with all the guidelines and protocols that are being published is that there are just so many of them, that they lose significance. It then depends of course on whoever is the receiving doctor or healthcare practitioner seeing a sick person in casualty, that they should go to a computerised system to give all the clues as to what ought to be undertaken. The difficulty for the managing doctors in this situation of course was the original report that the CT brain scan was normal.

When I lecture on the philosophy of healthcare and to some extent life as well, I point out what is known as flat earth thinking. What I mean by this is that if there is a view that the earth is flat, then everything that follows is common sense. What of course is the mistake is the erroneous primary thought that the earth is flat. In this situation the flat earth element is that the brain scan was normal, and this then distorts all thinking thereafter.

I certainly do not want to cause Lady Young any more distress than the family have already experienced. I do not think it is possible to be any more dogmatic here, but the lessons are exactly as I have said, one, an algorithm for people who present with unexplained loss of consciousness, to make sure everything rare is done, and then the second, and I think much more important point on numbers of people, is that no one should be unaccompanied in a casualty or acute medical setting, as often they are not able to give a proper history, and without that, people can be misled as happened here.

With kind regards

Yours sincerely

Sent unseen and unsigned to avoid delay

Michael Gross MA MD FRCP
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