



Frederick M. Maynard, MD

Ask Dr. Maynard

Send your questions for Dr. Maynard
to info@post-polio.org.

See other questions at
www.post-polio.org/edu/askdrmay.html.

Question: *My wife contracted polio at the age of eight. She experienced some paralysis on her right side, but with physical therapy and some bone grafts to strengthen her right leg, she made a good recovery. She is now 75 and has been experiencing some post-polio symptoms, notably general weakness, instability and some falls. She has had some difficulty swallowing her throughout her life but generally has functioned well until lately.*

Recently, she was hospitalized for pulmonary edema (probably due to worsening heart disease and atrial fibrillation). During her hospitalization, she was intubated for a relatively short period of time to assist in her oxygen while the fluid was drained from her lungs. After extubation, swallow studies indicated a worsening of her swallowing issues. We think this was likely due to the intubation trauma. She was sent home on a Level 3 Dysphagia diet, which we are dealing with, but her risk of aspiration into her lungs has definitely increased.

This is not really a question, but a cautionary tale that perhaps should be shared for post-polio sufferers like herself whose swallowing ability is impaired and which can be worsened if they are subjected to intubation for general anesthesia during operations, pneumonia, or other such hospitalizations. The downside of too much throat trauma and swallowing disfunction could result in a permanent feeding tube and significantly reduced quality of life. Fortunately, we are not there yet but may be facing some serious decisions in the future if her health deteriorates.

Dr. Maynard: Thank you for sharing your wife's story. I agree with your assertion that polio survivors with even mild swallowing problems are more at risk of significant and problematic dysphagia after intubation. Such a relationship would unfortunately be very difficult to 'prove' scientifically to the mainstream US medical community because of the many potentially confounding variables and the subsequent large number of subjects required. Ideally, a patient in your wife's acute condition of needing short-term respiratory support could have been successfully managed with non-invasive ventilation techniques, that is, without intubation. There are other complications of intubation also, such as voice problems and infections that can also be avoided with non-invasive techniques.

I am going to ask Dr. John Bach, who is an expert on this subject and has published extensively in PHI's *Ventilator-Assisted Living*, to recommend professional articles that a post-polio patient similar to your wife could potentially share with their physicians when they are facing similar cardio-pulmonary crises requiring external ventilatory support via intubation.

Dr. Bach: I agree it is common for dysphagia to be exacerbated by intubation, but it usually clears up after a few months. A modified barium swallow test or fiberoptic evaluation of swallowing (FEES) test can definitely show aspiration on swallowing or not. When aspiration is severe, the O2 saturation goes below 95% during meals, and the risk of pneumonia is great.

The other concern your wife's story raises is whether a post-polio patient's pulmonary edema has developed because they are hypoventilating during sleep. Carbon dioxide retention during sleep can lead to pulmonary edema, with or without other heart disease. If there is any history of morning headache, daytime drowsiness and/or fatigue, sleep study evaluations are indicated.

The following three articles could be given to a physician of a post-polio patient who has developed severe enough pulmonary edema to consider intubation treatment. They describe results of treatment for pulmonary edema with non-invasive ventilation.

Bello G, De Santis P, Antonelli M. Non-invasive ventilation in cardiogenic pulmonary edema. *Ann Transl Med.* 2018;6(18):355. doi:10.21037/atm.2018.04.39

Mehta S, Al-Hashim AH, Keenan SP. Noninvasive ventilation in patients with acute cardiogenic pulmonary edema. *Respir Care* 2009;54(2):186-195.
<http://www.rcjournal.com/contents/02.09/02.09.0186.pdf>

Agarwal R, Aggarwal AN, Gupta D, et al. Non-invasive ventilation in acute cardiogenic pulmonary edema. *Postgraduate Medical Journal.* 2005;81:637-643. doi: 10.1136/pgmj.2004.031229 ■

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