

Date: Sat, 13 Oct 2001 12:53:28 -0400  
From: "Leduc, James W." <jwl3@cdc.gov>  
To: "Matthew S. Meselson" <msm@wjh.harvard.edu>  
Cc: "Ashford, David" <dba4@cdc.gov>, "Leduc, James W." <jwl3@cdc.gov>  
Subject: RE: Stevens' anthrax

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Matt, thanks for your valuable thoughts. I spoke very briefly with Dave Ashford about this-literally a short hallway chat as we each were running to different meetings-and he thought that this was unlikely. In addition, emerging results appear to more clearly support the alternative hypothesis.

best regards, Jim

-----Original Message-----

From: Matthew S. Meselson [mailto:msm@wjh.harvard.edu]  
Sent: Thursday, October 11, 2001 8:25 PM  
To: James LEDUC  
Cc: Joshua LEDERBERG; Dr. Richard GARWIN; Richard FALKENRATH; Don MAHLEY; Dr. Robert MIKULAK; Matthew S. Meselson  
Subject: Stevens' anthrax

Dear Jim,

Further to my earlier emails, here are some more specific thoughts:

Could all of the the nasal and environmental isolates have come from anthrax cells shed by Stevens? If nasal or tracheal exudates contain B. anthracis, a few nasal positives among fellow employees could arise from inhalation of droplets or aerosol from sneezes or coughs or from finger contact with contaminated surfaces and subsequent nose-finger contact. Environmental positives could arise by direct deposition from Stevens' sneezes, coughs or his exudate-contaminated fingers.

So far as I know, nasal and tracheal exudates of inhalation anthrax patients have never been examined for the presence of B. anthracis. Do we know if there were pneumonia-like lesions anywhere in the air spaces of Steven's respiratory system? A good many from Sverdlovsk did. Not finding lesions at autopsy would not exclude their presence. If there were such lesions, one would expect vegetative cells to be present in nasal and tracheal exudates.

The fact that anthrax is not contagious person-to-person is not inconsistent with the possibility of nasal and tracheal shedding of vegetative cells or spores:

First, vegetative cells may be quite susceptible to killing by macrophages and other bodily defenses and may therefore be essentially non-infectious. I may have a reference bearing on this.

Second, vegetative cells deposited with exudate material would be impossible to aerosolize and therefore not likely to cause infection. The same would apply to spores that may form on exposure to oxygen. Does anyone know if vegetative cells can sporulate when in exudate exposed to air?).

A finding of anthrax in Stevens' home would strongly suggest that Stevens was indeed shedding B. anthracis. Otherwise we would have to believe that the workplace and the Stevens residence were independently exposed. That that would seem extremely unlikely. It is therefore important to search for B. anthracis in the Stevens home and any other place he may have frequented while ill. Air filters, fan blade edges, bedding, unwashed handkerchiefs, etc, should be thoroughly examined.

If Stevens was shedding B. anthracis, his exposure was not necessarily at his workplace but could have been anywhere else he had been during the days or perhaps few weeks before he fell ill.

This would not rule out either foul play or accidental exposure but it would broaden the possibilities for where Stevens' exposure took place. If accidental, it could have been from a natural source or from a facility working with virulent anthrax somewhere near where Stevens had been in Florida or on his trip. If there is such a facility, DNA sequence information could be decisive.

All good wishes,

Matt.

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