



EPIDEMIOLOGY BULLETIN

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Infant Botulism in Virginia

Case history: On February 23, 1983, a six-week-old black female was admitted to a northern Virginia hospital with lethargy, hypotonia and failure to feed. She was afebrile. The baby was the second child of a middle-class couple. The term pregnancy was unremarkable except that delivery was by cesarean section. The infant was exclusively breast-fed and passed a normal number of soft stools per day. Three days prior to admission, she became constipated. On the day prior to admission, she ceased to handle secretions well, evidencing drooling and a poor suck. Following a sepsis workup, treatment was begun with ampicillin and gentamicin. Within 24 hours she went into cardiopulmonary arrest, was resuscitated and placed on mechanical ventilation. She was then transferred to a tertiary care hospital in the District of Columbia with a provisional diagnosis of infant botulism. The infant remained intubated for three weeks with gradual resolution of respiratory paralysis, hypotonia, and cranial nerve dysfunc-

tions. Electromyographic (EMG) studies were consistent with resolving infant botulism. Stool specimens were positive for *C. botulinum* toxin type B. The infant was discharged on March 25, 1983, and subsequently recovered completely.

Discussion

First described in 1976,¹ infant botulism is now recognized to be more frequent than foodborne botulism and wound botulism combined.² It has been reported in over thirty states. This represents the first reported case of infant botulism in Virginia.

Infant botulism results when ingested spores of *Clostridium botulinum* germinate and multiply in the intestine, producing botulin toxin which is then absorbed systemically. The syndrome presents as constipation for several days (due to paralysis of the intestinal wall³) followed by an acute flaccid paralysis, beginning with neuromuscular blockade of the cranial nerves and then extending symmetrically to involve the peripheral nervous system. If death does not occur





due to respiratory complications (2% of hospitalized cases⁴), there is eventual complete recovery, although it may take up to several months. Treatment is supportive; purges, antibiotics and antitoxins have not proven useful.³ Why this disease occurs only in children less than a year old is unknown,² although it presumably is related to the maturation of the intestinal wall.

This case had a typical clinical presentation. Two aspects are noteworthy. First, the child was initially treated with gentamicin. Aminoglycosides have been shown to inhibit neuromuscular transmission in experimental models and in patients with either myasthenia gravis or partial neuromuscular blockade by curare. There is suggestive evidence that the administration of an aminoglycoside, such as gentamicin, can potentiate the neuromuscular blockade caused by botulin toxin, leading to a rapid clinical deterioration.⁵ Since infant botulism can resemble sepsis,³ and since

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Botulism in Virginia

Foodborne botulism

Year	Toxin Type	Cases	Deaths	Food involved
1978	B	1 	0	Home-canned pickled beans
1976	B	1 	0	Home-canned food
1941	B	5 	4 	Home-canned corn

Wound botulism—None reported

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the initial treatment of sepsis frequently includes an aminoglycoside, the clinical differentiation between infant botulism and sepsis is important.

Second, the infant was exclusively breast-fed. It has been shown that significantly more hospitalized patients with infant botulism were primarily breast-fed during the month before illness than healthy controls. By contrast, infants whose sudden deaths have been attributed to *C. botulinum* were more likely than controls to have been formula-fed.² It is possible, therefore, that the breast feeding of this infant prevented a more lethal manifestation of this disease.

C. botulinum is an obligate anaerobe whose spores are found in soil.

Because it is ubiquitous, searches for specific sources of *C. botulinum* in individual cases of infant botulism have not proven productive, except that honey is occasionally implicated.² Apart from encouraging breast-feeding (a laudable public health measure, in any event), protective measures are not indicated. Cases of infant botulism are sporadic and there is no secondary transmission.

(Reported by Ben D. Wilmot, M.D., Alexandria, VA, Mhairi MacDonald, M.D., District of Columbia, and Brandon S. Centerwall, M.D., M.P.H., Division of Epidemiology, VDH)

References

1. Pickett J, Berg B, Chaplin E, et al.

Syndrome of botulism in infancy: clinical and electrophysiologic study. *N Engl J Med* 1976; 295: 770-2.

2. Arnon SS, Damus K, Chin J. Infant botulism: epidemiology and relation to sudden infant death syndrome. *Epidemiol Rev* 1981; 3: 45-66.
3. Brown LW. Infant botulism. *Adv Pediatr* 1981; 28: 141-57.
4. Pickett JB. Infant botulism—the first five years. *Muscle & Nerve* 1982; 5: S26-7.
5. L'Hommedie CL, Stough R, Brown LW, et al. Potentiation of neuromuscular weakness in infant botulism by aminoglycosides. *J Pediatr* 1979; 95: 1065-70.

Flu Surveillance—Virginia

Each year a special surveillance system is established for influenza. For this season, reports are being received weekly from the Naval Regional Medical Clinic in Portsmouth and 35 sentinel physicians who are located in Arlington County (7), the Charlottesville area (12), the Petersburg area (7), and Roanoke City (9).

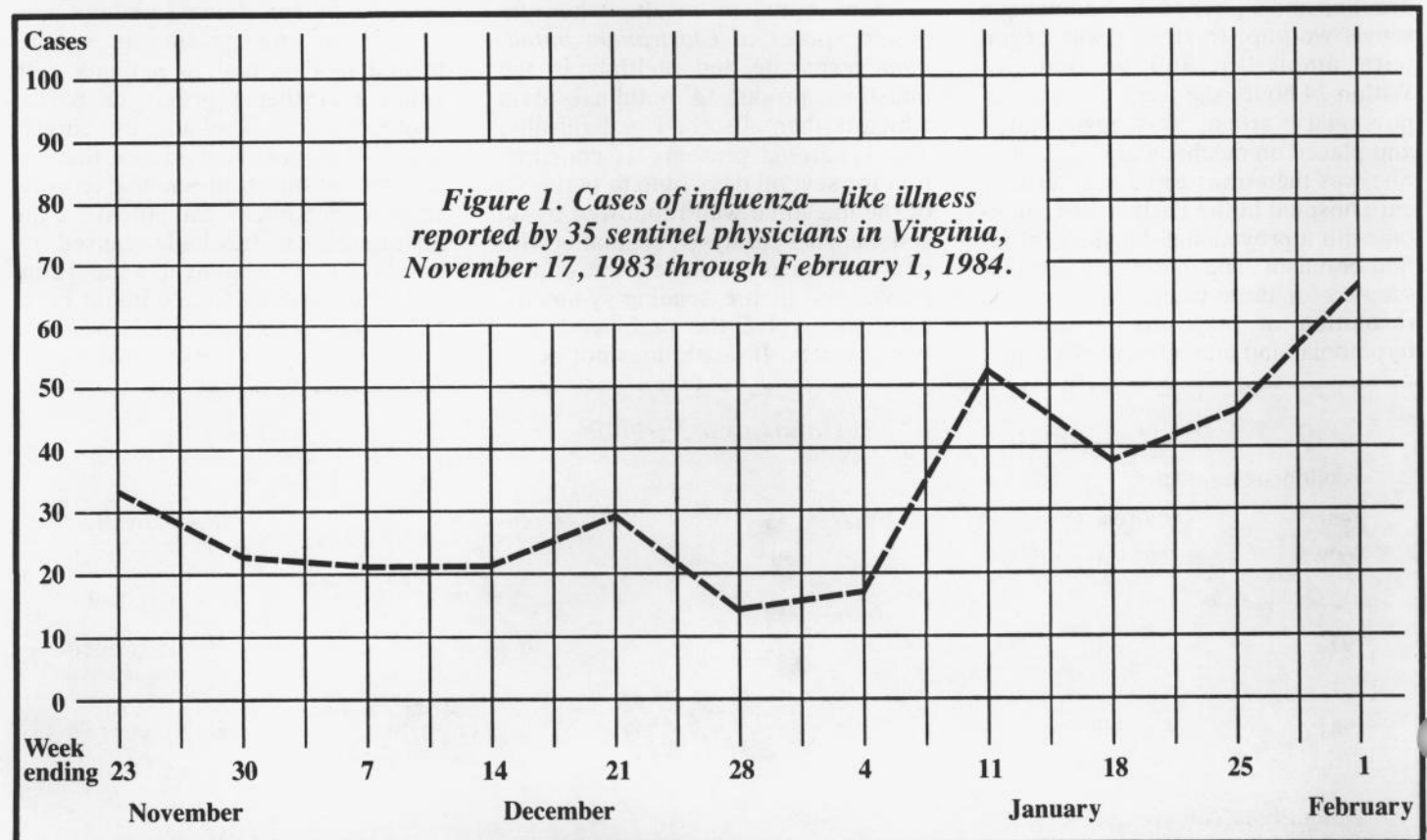
Reports from both the Naval Clinic

and the sentinel physicians (Figure 1) show a modest increase in the number of cases of influenza-like illness treated during the last three weeks of January. As of the end of January there has been one case of influenza confirmed by four-fold rise in antibody titer (to A/Philippines/82 [H3N2]) at the Consolidated Laboratory (DCLS). No cases have been

confirmed by virus isolation.

Influenza type A (H1N1) outbreaks were documented in January in nearby North Carolina and the District of Columbia. Elsewhere in the U.S., type A (H3N2) and type B influenza viruses have been isolated this season in addition to the type A (H1N1) virus.*

**MMWR* 1984; 33: 38-9.



Update

Influenza Activity—United States

Influenza type A(H1N1) virus has now been reported from sporadic cases or outbreaks in all regions of the country except the northwest Pacific states. In contrast, influenza B virus has been isolated primarily in the western half of the country, as well as in parts of the northeast. As previously indicated (1), in those regions where circulation of both viruses is occurring, mixed outbreaks have now been confirmed. In Texas, types A(H1N1) and B viruses have been isolated from students at four colleges where outbreaks have been occurring, and similar results have been reported

from at least one school outbreak each in Illinois and Wyoming. Other locations where approximately equivalent numbers of influenza types A(H1N1) and B viruses have been isolated from recent community activity include Honolulu, Hawaii, and Houston, Texas.

The elderly have been infrequently reported in this season's influenza outbreaks. In Utah County, Utah, a single influenza type B virus was isolated from an outbreak affecting eight of 79 residents in one nursing home late in January. Further laboratory studies are pending. In addition, no

consistent elevation of deaths attributed to pneumonia and influenza in the 121 reporting cities has been seen through the end of January. Influenza A(H3N2) virus remains generally dormant; however, during January, sporadic isolates were reported in Alaska, Arizona, Massachusetts, Minnesota, New Mexico, Pennsylvania, Tennessee, and Texas.

Reference

1. CDC. Update: influenza activity—United States. *MMWR* 1984; 33: 51-2.

Reprinted from *MMWR* 1984; 33: 78.

National Neonatal Herpes Simplex Virus Surveillance System Information Sheet

The Centers for Disease Control (CDC) of the U.S. Public Health Service, Department of Health and Human Services, is initiating a national neonatal herpes simplex virus (HSV) surveillance system. We want to identify every case of neonatal HSV infection occurring in infants born after September 30, 1983. We ask that health professionals report all cases of suspected or confirmed HSV infection that occur in infants within 30 days of life.

Criteria for a Case of Neonatal HSV Infection

Any of the following:

1. A positive culture for HSV from the infant.
2. Positive cytologic evidence from the infant.
3. Clinical course consistent with HSV infection.
4. Ill infant and mother diagnosed as having HSV infection at delivery.

To Report A Case

1. Call the Project Manager, Louise Ritz, collect at (301) 589-6760.
2. We ask that a form provided by CDC be completed for each case. At the discretion of the hospital, the form may be completed by either hospital personnel or a person from the contractor representing CDC.

For Further Information:

Please write or call collect the CDC contractor:

Louise Ritz
Birch and Davis Associates, Inc.
8905 Fairview Road, Suite 300
Silver Spring, MD 20910
(301) 589-6760 (Collect)

Raccoon Rabies Advances South

Two rabid raccoons have been reported recently from Louisa County, where raccoon rabies had not been previously reported. The first incident took place on January 27, 1984 approximately 4½ miles north of the town of Louisa. Three dogs were exposed and 5 people received post exposure prophylaxis. The second raccoon came from the same general area and exposed 1 dog during the second week of February.



Month: January, 1984

Disease	State					Regions				
	This Month	Last Month	Total to Date		Mean 5 Year To Date	This Month				
			1984	1983		N.W.	N.	S.W.	C.	E.
Measles	0	0	0	1	5	0	0	0	0	0
Mumps	1	2	1	5	9	0	1	0	0	0
Pertussis	4	1	4	1	1	3	0	0	1	0
Rubella	0	0	0	0	1	0	0	0	0	0
Meningitis—Aseptic	18	21	18	21	12	3	1	2	3	9
Other Bacterial	36	18	36	27	25	4	3	6	5	18
Hepatitis A (Infectious)	7	9	7	17	20	2	1	0	0	4
B (Serum)	42	36	42	46	38	3	10	6	13	10
Non-A, Non-B	9	9	9	6	*3	2	0	4	1	2
Salmonellosis	66	105	66	75	68	8	2	7	33	16
Shigellosis	41	77	41	13	16	0	2	0	2	37
Campylobacter Infections	24	39	24	39	*16	7	6	2	2	7
Tuberculosis	12	57	12	20	—	—	—	—	—	—
Syphilis (Primary & Secondary)	39	37	39	53	48	1	2	5	9	22
Gonorrhea	1,660	1,706	1,660	1,719	1,688	—	—	—	—	—
Rocky Mountain Spotted Fever	0	0	0	0	0	0	0	0	0	0
Rabies in Animals	13	35	13	52	15	5	8	0	0	0
Meningococcal Infections	5	4	5	7	7	0	0	3	2	0
Influenza	21	9	21	7	721	14	2	5	0	0
Toxic Shock Syndrome	0	2	0	0	1	0	0	0	0	0
Reyes Syndrome	0	0	0	1	1	0	0	0	0	0
Legionellosis	0	1	0	2	2	0	0	0	0	0
Kawasaki's Disease	0	3	0	4	3	0	0	0	0	0
Other:	—	—	—	—	—	—	—	—	—	—

Counties Reporting Animal Rabies: Alexandria 1 raccoon; Culpeper 1 raccoon; Fairfax 2 raccoons; Greene 1 raccoon; Loudoun 1 fox, 2 raccoons; Orange 2 raccoons, Page 1 skunk; Prince William 1 bat, 1 raccoon.

Occupational Illnesses: Occupational pneumoconiosis 8; Occupational hearing loss 7; Asbestosis 2; occupational dermatosis 1; Hypersensitivity pneumonitis 1; Mesothelioma 2; Carpal tunnel syndrome 10.

*4 year means

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