

PARASPINAL HEMORRHAGE FROM WHOOPING COUGH

A CASE DEMONSTRATION

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Whooping cough or pertussis is a noninvasive, highly communicable bacterial respiratory illness. It occurs at all ages but is most common and most severe in infants and young children. The etiologic agent of the syndrome is usually *Bordetella pertussis*. Whooping cough is estimated to cause 600,000 to 1 million deaths yearly in infants from areas where pertussis immunization is not practiced (1-5). *Bordetella pertussis* is a gram-negative coccobacillus. An estimated 5 to 10 percent of clinical whooping cough is caused by *B. parapertussis*. The animal pathogen *B. bronchiseptica* is responsible for a minor percentage of cases.

In nonimmune households, the attack rate is 80-90 percent. Transmission is by droplet infection. Carriers of *B. pertussis* are found infrequently, but persons previously immunized have been shown during outbreaks of disease to excrete the organism in the absence of clinical symptoms or in the presence of mild or atypical illness.

The incidence of whooping cough is fallen after the 1940's, when immunization of young children became standard practice. Neither immunization against pertussis nor natural disease provides lifelong protection. In the case of immunization, an attack rate greater than 50 percent has been reported when the interval after immunization exceeds 12 years. Adolescents and adults represent a large reservoir of susceptibles who can transmit the disease to unimmunized infants.

Lesions caused by *B. pertussis* are found principally in the bronchi and bronchioles, but changes are also seen in the nasopharynx, larynx, and trachea. Masses of bacteria and mucopurulent exudate are intertwined with the cilia of the columnar epithelium. There is necrosis of the midzonal and basilar epithelium with infiltration of polymorphonuclear leukocytes and macrophages. The most frequent findings in the lung are bronchopneumonia, interstitial pneumonitis, and numerous small areas of atelectasis. The brain can show edema and scattered petechiae at autopsy.

Whooping cough begins with symptoms indistinguishable from those of a mild viral upper respiratory infection. Sneezing is frequent, conjunctivae are injected, and a nocturnal cough appears. The temperature may be slightly elevated.

Seven to 14 days after onset, the cough becomes more frequent, then paroxysmal. In a typical paroxysm there is a series of 15 to 20 short coughs of increasing intensity, and then a deep inspiration, making the "whoop". A tenacious mucous plug is usually expelled, and vomiting frequently follows. Paroxysms may occur as often as every half hour and are accompanied by signs of increased venous pressure, including deeply engorged conjunctivae, periorbital edema, petechial hemorrhages, particularly about the forehead, and epistaxis. The chest roentgenogram sometimes reveals hilar and mediastinal nodal enlargement.

This 2 months-old boy developed thoracic paraspinal hemorrhage due to severe cough in the course of the disease-whooping cough. Figure I showed a sharp border paraspinal mass at mid and lower thoracic level. Bony structures appeared intact.

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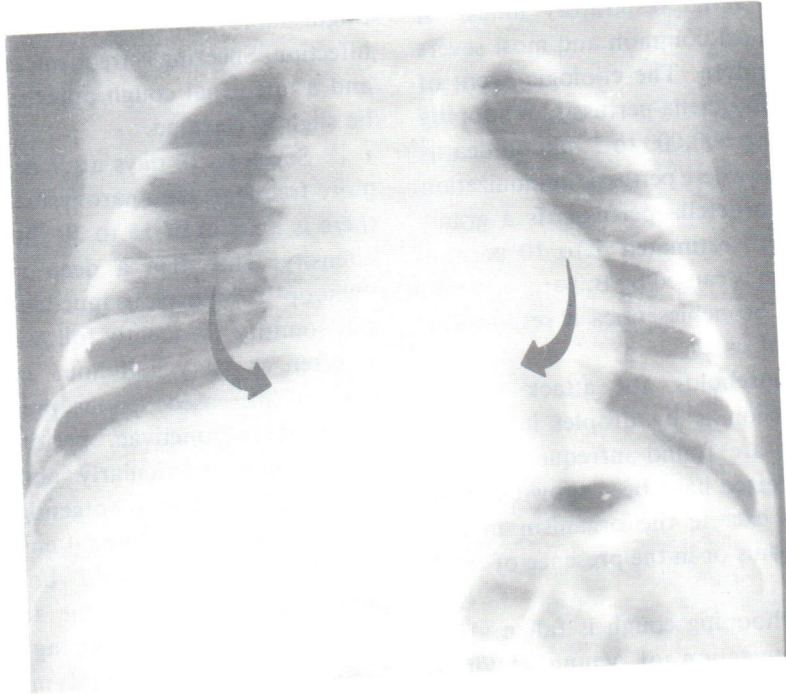


Fig. 1 Bilateral paraspinal hemorrhage in the 2 months-old boy, demonstrated by plain chest film.