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## Catarrhal Pneumonia (Diagnosis).

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Bronchial pneumonia, rather than catarrhal or lobular, seems the better descriptive term of these cases now under consideration, even though it describes the lesion rather than the disease. It includes a number of quite distinct diseases, or infections, differing decidedly both in the etiological and clinical factors. It is distinctly the pneumonia of infancy, for under two years of age the majority of primary pneumonias are of this type, and throughout childhood nearly all secondary cases are of this class.

During the first year and after the third the pneumonias are clearly of their own distinctive type, either bronchial or lobar; between the beginning of the second and the close of the third both kinds may appear in the same lung or in the opposite lungs at the same time.

Neither the clinical symptom group nor the pathological process follows a regular order such as is found in lobar pneumonia, and the fact that bronchial pneumonia frequently exists without signs of consolidation at any period during the course of the disease is to be kept well in the foreground.

The object of this generalization is to emphasize the points that bronchial pneumonia is the usual form found in childhood under three years of age, and that it is really an extension of the inflammation of a preexisting bronchitis. The *diagnosis* will usually be established with the sudden oncome of continuous high fever, rapid respiration, cough, prostration and cyanosis. This symptom group under the above conditions almost invariably means a bronchial

pneumonia even of the physical signs are absent or negative. Frequently pneumonia cases are found without consolidation. Others are met with having areas of partial consolidation only, while still others have more or less complete consolidation. Protracted or persistent bronchopneumonia may gradually present all three stages in different parts of the same lung, or in parts of the opposite lungs.

Acute congestive pneumonia is the type of the disease which is found free of physical signs, although congestion may give rise to feeble breath sounds over the affected areas, and occasionally slight dulness or diminished resonance. If the mucous membrane of the bronchial tubes is involved coarse sonorous or fine sibilant rales may be present as the larger or smaller bronchials are involved, and later, posteriorly, fine moist rales may appear, these later are the first distinctively characteristic diagnostic signs of bronchial pneumonia. Later the respiratory murmur becomes changed over the areas affected, being feebler and higher pitched, while over the large tubes in other portions of the chest the coarse rales of bronchitis are found. In such cases the pneumonic condition is so scattered or diffused as not to give rise to diagnostic physical signs and the patient goes on to recovery without them.

It is the rule for the temperature to be high and remittent ; if it is not, or is only slightly above normal, it is apt to be misleading. If the respirations are rapid, and cough is present, which may be very slight, especially in infants, together with prostration and cyanosis, bronchopneumonia is almost a certainty. If the pneumonia follows a bronchitis and is primary, or is secondary to an infectious disease like whooping-cough, measles, diphtheria, ileo-colitis, grippe, etc., the lung invasion is characterized by a steadily increasing temperature, rapid respiration and pronounced prostration, and the physical signs may give no evidence of lung changes for twelve to twenty-four hours. It is astonishing how frequently high fever in children, associated with

indefinite symptoms, is due to unrevealed pneumonia, and in all obscure cases the chest should be thoroughly explored daily until the diagnosis is established. An infant's lung cannot be satisfactorily examined during sleep for the breathing is quiet and superficial and the breath sounds over a portion of lung completely consolidated may be heard feebly, or the lung may be silent. On making the child cry and breathe deeply bronchial breathing and rales will be distinctly heard.

When the areas of consolidation are more or less complete, and shade off into healthy tissue, the diagnosis is comparatively easy, and if the classical physical signs are present, the nature of the lesion is without a doubt.

*Differential Diagnosis.*—At the very outset *bronchitis* will be found to be a stumbling block and when severe cannot be positively diagnosed. It begins with high temperature of short duration, falling to 100° or 101° in one or two days. The prostration is less severe, as are all other symptoms excepting the cough, which is much more marked. When the bronchitis affects the smaller tubes, rales are heard both front and back and over both sides. If tuberculosis can be excluded a localized bronchitis will mean bronchopneumonia. Another good generalization will be that in cases of doubt the chances will favor bronchopneumonia rather than bronchitis.

*Tuberculosis* developing rapidly presents pulmonary signs and symptoms that may be identical with those of bronchopneumonia. The heredity, the more profound constitutional symptoms, anemia and wasting, preceding the local manifestations by days or weeks, and the more constant fever will assist in forming a diagnosis. At the same time there are cases of tuberculosis and bronchopneumonia which present so many symptoms in common that it becomes extremely difficult in some instances to differentiate the one from the other. In such a situation the guide will be on general lines; and if the infant or child has been previously healthy, with good environment, the disease beginning with acute symptoms,

the condition will be found to be bronchopneumonia and not tuberculosis in the great majority of cases, no matter how long the duration of the illness, how irregular the symptoms, or what the physical signs may be. After a first attack, or after repeated attacks, a chronic interstitial pneumonia may develop, or again a simple pneumonia may be followed by a tuberculosis.

*Atelectasis* is to be considered, especially in infants under six months, for during this period atelectasis and bronchopneumonia may be associated. The history in these cases will be helpful and if the infant in early life has been strong and healthful the congenital type may be discounted or excluded altogether, and if atelectasis is present it is due to collapse either from compression or obstruction.

When the congenital type does exist the physical signs are seldom helpful, but the history is, and will probably show a difficult birth resuscitation, a feeble crier, a subnormal temperature and a cyanosis disproportionate to the other symptoms.

*Malarial Fever.*—Bronchopneumonia having a remittent temperature is sometimes mistaken for the fever of malaria, the latter, however, is more distinctly intermittent than remittent in type. If the malaria should have added to it an active bronchitis or a pulmonary congestion, which is not unusual in a sharp malarial attack, the diagnostic problem becomes a difficult one. The history of exposure, the presence of an enlarged spleen and the discovery of the plasmodium in the blood will decide in favor of malaria.

*Lobar Pneumonia.*—When the well-known signs and symptoms are present—such as the sudden onset, with vomiting, convulsions, or chill ; rapid respiration, with the expiratory grunt or moan ; cough ; thoracic pain ; high temperature, 102 to 105° F.; marked prostration ; rapid oncome of a circumscribed consolidation in one lobe or portion of lobe, running a typical course with a five to eight-day crisis, the diagnosis is easy. But should the signs and

symptoms of broncho and lobar pneumonia blend, or vary in themselves, then a difficulty of no mean importance arises for the diagnostician.

Obscure and indefinite symptoms, with high fever in infants and children, point to pulmonary involvement and differentiation is desirable. Lobar pneumonia is nearly always a primary condition, occurring between the third and tenth year in children previously healthy; while bronchopneumonia in about sixty per cent. of the cases is a secondary condition in delicate and debilitated children under two and a half years, which present in primary cases the pneumococcus and in secondary the streptococcus or a mixed infection.

In lobar pneumonia, one lobe or part of lobe, most frequently the left base, is affected, the rales are heard early and during resolution, with no signs in the opposite lung. Consolidation begins early, on the second day, or even on the first, it is complete and the area is sharply defined. A rapid resolution takes place in three to eight days.

Bronchopneumonia has a more gradual onset, being especially insidious in secondary cases, runs an atypical course with fever continuing from three to five weeks, terminating rarely by crisis. Both lungs are affected, most frequently the lower lobes posteriorly. Rales are present in both lungs throughout the course of the disease. Consolidation if present is superficial, incomplete and shades off gradually. Resolution is slow and often incomplete, running from one to ten weeks, frequently becomes chronic and long lasting, or it relapses, or fresh attacks are frequent, while empyemia, chronic interstitial pneumonia, or tuberculosis may be found as sequelæ.

## ITS TREATMENT AND MANAGEMENT.

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Catarrhal pneumonia, bronchopneumonia and lung fever in childhood practically are about one and the same. Certainly when we take the medical treatment as well as the