PROGRESS IN PEDIATRICS

REVIEW OF LITERATURE ON RESPIRATORY DISEASES *

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Reviewing the literature on respiratory diseases one comes to the inevitable conclusion that, with the exception of pneumonia, very little work of a progressive nature has been done. Laryngologists have added to our knowledge of the presence of foreign bodies in the lungs, but otherwise no addition has been made to this wide and important field.

PNEUMONIA

Mitchell¹ summarizes the results of his studies on ninety cases of pneumonia, eleven of which were of the bronchopneumonic variety and none secondary or terminal, with the following conclusions:

1. The so-called fixed types of pneumococci are of infrequent occurrence in infants and children as compared with adults, and the mortality with these types is lower.

The pneumococci without definite agglutination reactions (Type 4) are of more frequent occurrence in infants and children (74.4 per cent.).

3. Type 4 pneumococcus often causes as severe a type of infection as the fixed types and seems to be the cause most frequently in bronchopneumonia.

4. Complications are more frequent with the Type 4 infection.

The work on the allergic skin reactions with the type strains of pneumococci has proved that little help may be had from this field in helping to differentiate the type strains. Steinfeld and Kolmer² were able to get a reaction in 30 per cent. of a series of cases of lobar pneumonia following the intradermal injection of washed and heat killed pneumococci. True reactions were not observed among normal persons or those suffering with various chronic diseases. The presence of pneumococci in the upper air passages apparently

* Submitted for publication Dec. 5, 1918.

1. Mitchell, A. G.: The Types of Pneumococci in Infants and Children, *Pennsylvania M. J.*, **20**:344, 1917.

2. Steinfeld E., and Kolmer, J. A.: Allergic Skin Reactions in Pneumonia to Type Strains of Pneumococci. *J. Infect. Dis.*, **20**:344, 1917. Prophylaxis of Lobar Pneumonia. *Ibid.*, **22**:220, 1918.

does not sensitize, in so far as this condition is detectable by skin tests.

All reactions occurred after the crisis or after the infection had been present over a long period. There was no constant relation between the reaction to the protein of various types of pneumococci and the types found in the sputum. It is probable that the allergic reactions to pneumococcus protein are of a more general character than the agglutination reactions.

These two authors² in a further study contribute to the problem of the prophylaxis of pneumonia and draw the following conclusions: Experiments *in vitro* have shown the high pneumococidal activity of varying dilutions of ethylhydrocuprein hydrochlorid, quinin bisulphate and other cinchona compounds in liquor thymolis for Type 1 and Type 4 pneumocci in the sputum of convalescents from lobar pneumonia and the mouth secretions from normal persons. As recent investigations in the epidemiology of lobar pneumonia have indicated that frequently the disease is transmitted by specific virulent types of pneumococci from a recovered person who still harbors in the mouth secretions the organisms responsible for the disease, or from a healthy carrier of pathogenic pneumococci, it is suggested that the systematic use by the patient and those in close contact with the disease of a mouth wash of 1 to 10,000 ethylhydrocuprein or quinin bisulphate 1 to 10 in liquor thymolis, may serve to destroy or inhibit the multiplication of the disease producing pneumococci and thereby aid in the prophylaxis of lobar pneumonia.

The value of ethylhydrocuprein in the treatment of lobar pneumonia has been investigated by Moore and Chesney.³ The evidence submitted by them goes to show that ethylhydrocuprein (optochin) fulfills at least some of the requirements of a chemotherapeutic agent in the treatment of acute lobar pneumonia, its chief drawback being the possibility that it may, in some instances, exert a toxic action on the eye. The drug, even in great dilution, possesses a marked bactericidal action on pneumococci *in vitro* in the presence of human blood serum and whole blood.

In the second place, so far as may be judged from the present study, which comprises too few cases from which to draw final conclusions, it is capable of being absorbed from the gastro-intestinal tract into the blood stream in such amounts that a certain degree of pneumococidal power may be maintained there for several days, provided the following conditions are fulfilled:

1. The amount of the drug given for each kilogram of body weight per twenty-four hours should be at least 0.024 gm. (amounts

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3. Moore, H. F., and Chesney, A. M.: The Study of Ethylhydrocuprein (Optochin) in Acute Lobar Pneumonia. *Arch. Int. Med.*, **19**:611, 1917.

smaller than this, as low as 0.02 gm., may be sufficient to produce bactericidal action in the serum, but they cannot be relied on to do so).

2. The size and spacing of the individual doses must be suitably arranged.

Measham⁴ outlines the following method for the treatment of bronchopneumonia: The child's chest is enveloped in a light gamgee jacket and over this a pair of woolen combinations are worn. The bed is placed free from drafts, and not more than the usual amount of bed clothes is used. A fire is kept burning constantly and the window always open. The child is encouraged to take frequent sips of cold water, but no medicine is given by mouth. A subcutaneous injection of quinin hydrochlorid is given morning and evening. A solution is prepared in which 1 grain of the quinin salt is dissolved in 10 minims of water, the dosage of which is as follows: for a child under 6 months, 5 minims; for a child under 1 year, 10 minims; for a child under 2 years, 15 minims; for a child over 2 years, 20 minims. The treatment is easy to carry out and the hypodermic method has obvious advantages in dealing with small patients. It is not claimed that the use of the drug is original.

Fussell⁵ enumerates six essential points which are applicable to practically every case of croupous pneumonia:

1. Early recognition of the cases, making allowances for the difficulty in diagnosing pneumonia early, nevertheless suspicious symptoms and signs are sufficient to put the case on whatever routine treatment is decided on. This prevents, at times, early exhaustion.

2. Rest. This must be absolute, mental as well as physical.

3. Fresh air. To the writer, the usual directions to keep the temperature of the room between 60 and 70 F. is a mistake. The temperature of the room should be that of the outside air. Protect the patient, and neither cold, drafts nor dampness will harm him.

4. Food. This should be of a character that does not readily undergo fermentation. Reduce food as distention ensues.

5. Constant watchfulness. See the patient twice a day, and always be in a position to hear from the nurse during the day.

6. The administration of the proper drugs at the proper time.

Treatment of Special Symptoms.—Fever: With a temperature range between 103 and 105 F., sponges and baths are not necessary, as it seems that that temperature for nine days is no more harmful than the disturbance which their administration involves. Cold may

4. Measham, J. E.: Notes on the Treatment of Bronchopneumonia in Children. Practitioner, London, **98**:581, 1917.

5. Fussell, H.: The Treatment of Croupous Pneumonia by Other Than Specific Methods. Pennsylvania M. J., **20**:351, 1917.

be applied to the head or the affected side of the chest. Coal tar antipyretics should never be used.

Delirium: This is best combated by fresh air and abundance of liquid. Morphin, in the violently delirious, is better than strapping.

Abdominal distention: Liquid food; give pituitary extract or eserine hydrochlorid hypodermatically; use turpentine stupes or a rectal tube.

Cohn and Jamieson⁶ draw the following conclusions from an interesting study of 105 cases, none apparently, however, in children:

1. Digitalis acts during the febrile period of pneumonia.
2. It produces a beneficial, possibly a life-saving, effect in cases of auricular irregularity.
3. Whatever beneficial action it has on the normally beating, non-febrile heart may be expected from its use in the febrile heart of pneumonia.

UNRESOLVED PNEUMONIA

Hess⁷ grouped twenty-two cases discharged as such, though later this diagnosis, in some cases, was proved wrong. Of the eighteen patients he was able to follow during periods ranging from two months to four years, ten are living. These are divided into three groups, according to their present state of health:

Group 1. Five patients, who are in good health.

Group 2. Two patients, whose health is fair; one is still anemic after five years and one still showing dulness after five and a half months.

Group 3. Three patients are in poor health; one developed an empyema after leaving the hospital, with a slow convalescence; one is in a sanatorium for tuberculosis, while the other is still running an afternoon elevation of temperature and shows some dulness.

Group 4. Eight cases. All patients died.

Group 5. Four patients not found.

Hess's conclusions are as follows:

1. Tuberculosis is frequently a complicating, if not a primary, factor in many of the fatal cases and unquestionably a factor in delayed resolution of recovered cases.
2. Empyema, especially of the intralobular type, must be excluded in all cases.
3. Rare etiologic factors, as syphilis, foreign body, metastatic and primary new growths, while uncommon, must not be overlooked.

6. Cohn, A. E., and Jamieson, R. A.: The Action of Digitalis in Pneumonia. *J. Exper. Med.* **25**:65, 1917.

7. Hess, J. H.: Unresolved Pneumonias, What Becomes of Them? *Arch. Pediat.*, **34**:686, 1917.

4. The diagnosis of nontuberculous interstitial pneumonia should always be made with great caution and only after exclusion of all other conditions causing similar physical findings.

COMPLICATIONS OF PNEUMONIA

British writers have reported some interesting complications in pneumonia. Ashby⁸ presented a boy of 2 years who had a right upper lobar pneumonia. Two days before the crisis he became slightly delirious, but after the crisis instead of the usual sleep coming on he became more acutely delirious. After thirty-six hours of the acute delirium he showed slight improvement and two and a half days after the crisis became quite rational. The condition was quite distinct from the so-called cerebral pneumonia, in that he had no convulsions and the delirium became more acute after the crisis.

The following points of interest follow Tivey's⁹ observation of a female child of 21 months, who had a left lower lobar pneumonia, and developed a distinct pericardial rub two days after the beginning of the illness, with death nine hours later: (1) the severe onset of the pneumonia with most acute symptoms, which largely abated in twenty-four hours; (2) the emphatic character of the friction rub; (3) the quickly fatal effect of the heart complication. The heart on previous examination showed no abnormalities.

Parkinson¹⁰ presented a boy of 14 who had had a right lower lobe consolidation. After four days of illness the signs of consolidation were quite evident and that evening the temperature rose to 110 F. Relays of iced towels were applied to the chest and abdomen while the arms and legs were sprayed with cold water. In about an hour the temperature had fallen to 104 F. During the period of hyperpyrexia the boy was neither comatose nor delirious and his breathing not especially embarrassed. Several hours later his temperature rose again to 109.5 F. and was again lowered by the same method, except that no iced towels were placed over the precordium. After this fall the temperature never rose above 105 F. Crisis occurred on the ninth day, and for the following week was subnormal, getting as low as 95 F. During the fever the pulse varied between 100 and 120 until the last two days, when it was about 90. At the crisis it fell between 60 and 70 and in two days fell to 44. It was then perfectly regular and it was possible to demonstrate by

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8. Ashby, H. T.: A Case of Acute Delirium in Pneumonia. *Brit. J. Child. Dis.*, **14**:111, 1917.

9. Tivey, E. A.: A Case of Pericarditis Complicating Pneumonia in an Infant. *Med. J. of Australia*, **4**:227, 1917.

10. Parkinson, J. P.: Acute Pneumonia with Hyperpyrexia Followed by Heart Block. *Brit. J. Child. Dis.*, **14**: 1917.

a paper flag on the neck that the rate of the beat of the auricle was twice that of the ventricle. After two days, this two to one heart block altered, the pulse became more rapid and irregular, or rather intermittent, some auricular impulses still being blocked, but more coming through. The pulse now varied between 50 and 60. This condition gradually lessened and after another week the pulse became almost regular and the rate normal. This case was of interest because of the presence of two rare complications—hyperpyrexia and heart block. The former was stated to occur in 0.4 per cent. of cases of acute pneumonia, but was much more common in bronchopneumonia. Heart block after acute pneumonia was mentioned by Mackenzie, but he considered it very uncommon, and the experience of most pediatricists confirms this.

Comby,¹¹ in commenting on the necropsy findings of a right massive pneumonia in a 5-year-old girl, could scarcely conceive that as massive and solid a hepatization could take place in forty-eight hours. While this type is well known in adult life, it is the exception in childhood and its occurrence gives a grave prognosis.

Drew,¹² discussing the cause of death in acute pneumonia, pleads for the more frequent draining of the spinal canal. The poison, he is inclined to think, is absorbed by the nerve centers under pressure, and since it is known that intraspinal pressure is frequently if not always increased in acute pneumonia, it seems a rational procedure to allay the toxic symptoms by spinal tapping. The frequent complication of meningitis in fatal cases offers further support for this contention.

Valentine,¹³ studying cases of common colds with no known exposure to pneumonia, found Type I organism predominating. This to her strongly suggests that it was the etiologic factor in these colds. If this is so, common colds must be looked on as a possible source of contagion in the development of pneumonia (lobar) due to Type I *Pneumococcus*.

EMPHYEMA

Richter¹⁶ refers particularly to certain fundamental principles involved in determining how much to aspirate and when to stop aspirating. The simplest form of treatment is aspiration in a rational

11. Comby, J.: Pneumonia—Fulminating of Right Lung in a Girl of Five. Arch. de méd. d. enf., **20**:25, 1917.

12. Drew, H. V.: The Cause of Death in Acute Pneumonia. Brit. M. J., **1**:581, 1917.

13. Valentine, E.: Common Colds as a Possible Source of Contagion for Lobar Pneumonia. J. Exper. M., **27**:27, 1918.

16. Richter, H. M.: Interrupted and Continuous Aspiration in Simple Empyema. Arch. Pediat., **34**:696, 1917.

manner. To empty completely a pleural effusion of any size is essentially wrong. Given a pleura containing a pint of pus, not more than half the amount should be removed. Forty-eight hours later, perhaps, the greater part of what was left should be removed, and so on, until the pleura is well emptied in the course of three to six aspirations. It is not absolutely necessary to remove all. If the bacterial findings are satisfactory, the remaining fluid will clear up, though, he believes, with more deformity if too much is left. The removal of comparatively small amounts of pus disturbs mechanical conditions only slightly, reduces pressure because it reduces tension, no compensatory serous effusion is produced and the general condition is favorably influenced. After a second or third aspiration it is sometimes found that the temperature will suddenly rise and every evidence of increased intoxication will develop. This phenomenon is commonly looked on either as an evidence that the infection is not within our control, or that reinfection has occurred from repeated punctures. Neither assumption is necessarily correct. Obviously there is an increased activity of the infective process, but the mechanism of its production is different from that commonly assumed. The bacteria in pus are distinctly less active than those in the walls of the abscess. In the case of empyema, bacteria in the pus are practically killed before those in the pleural wall. The aspiration of too much pus produces, as already stated, further serous exudate which carries with it bacteria from the deeper tissues, which are still actively pathogenic, and it is from this source that we light up our pleural infection.

Layne,¹⁷ on the contrary, admits of nothing but surgical treatment. He also complains as to the lack of data on the incidence of this complication in childhood. Hamilton¹⁸ likewise takes the stand that all empyemas should be operated on except some of the cold abscesses and the interlobar collections of sterile pus. Anatomic and physiologic differences in the child make the physical findings less typical than in adults.

Roth¹⁹ claims to have solved the question of drainage in empyema by providing constant drainage with an intermittent self-regulating suction apparatus. It empties the chest quickly, facilitates the early expansion of the impaired lung, prevents excoriation of the skin, helps the function of the sound lung and makes minor thoracotomy

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17. Layne, P. C.: *Empyema in Childhood. Its Diagnosis and Treatment.* Kentucky M. J., **15**:370, 1917.

18. Hamilton, H. B.: *Empyema in Children.* Nebraska State M. J., **3**:41, 1918.

19. Roth, I. R.: *A New Bed Device for Facilitating the Drainage of Empyema Thoracis.* J. A. M. A., **70**:1455, 1918.

usually sufficient. It is simple, sanitary and applicable to a child of any age.

Caillé²⁰ calls attention to the infrequency of fatalities following puncture of the thorax, but deems it wise to call attention to the fact that the introduction of a needle into a highly congested lung is attended with some risk, especially when cardiac or respiratory failure is present. Two cases are cited, one a child of 2 years, the other an infant of 6 weeks. In both cases hemorrhage from the mouth and death ensued a few minutes after the introduction of the needle.

THYMUS

Benjamin and Lange,²¹ examining 225 children routinely, found nineteen with undisputed signs of thymic enlargement (8.47 per cent.). They claim the diagnosis is usually simple. The chief complaint is cough, as a rule paroxysmal. The prodromal symptoms of a cold are usually lacking. The coughing spells come on during the night in an apparently healthy child. Only on further cross examination is the information elicited that there is occasionally cyanosis and a tendency to choke. Most of the children are well developed and nourished. The lymphatic glands, other than the posterior cervical group, showed no hypertrophy, as a rule. The lungs were, generally, peculiarly free from râles.

The "Threshold method" of percussion was always employed. In this, the percussion is begun well out in the chest with such light strokes that when the ear is within a few inches of the area under percussion only the faintest resonance is heard. When sound disappears, dulness begins.

All cases showing enlarged thymus by physical examination, or in which there were suggestive symptoms, were submitted to Roentgen ray treatment, if in addition they showed positive plate findings. The treatment has proved most satisfactory.

Attention is called by the writers to the small number of cases of this apparently common illness which are reported; to the fact that the condition is of enough importance to warrant attention, and that early diagnosis and prompt treatment may eliminate most of the sudden deaths among infants and young children.

Friedlander²² agrees in every particular with the foregoing statements and adds a needed warning about the necessity of care, both in the taking of the plate and the use of the ray in treatment.

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20. Caillé, A.: Hemoptysis Following Exploratory Puncture of the Chest. *Arch. Pediat.*, **35**:524, 1918.

21. Benjamin, J. E., and Lange, S.: Report of Nineteen Cases of Hyperplasia of the Thymus Gland. *Arch. Pediat.*, **2**:70, 1918.

22. Friedlander, A.: Enlargement of the Thymus Treated by the Roentgen Ray. *AM. J. DIS. CHILD.*, **14**:40, 1917.

ASTHMA

Webster²³ records twenty-eight cases of asthma divided into three groups: (1) those due to anaphylaxis-hay-fever—food poisoning; (2) those due to intrathoracic disease, particularly enlarged glands; (3) those due to a disturbance of the general metabolism. Three were in the first, four in the second and twenty-one in the third group. In five the first attack occurred during the first year of life, in twelve during the second, in six during the third, in five after the third year and all before the fifth year. In the treatment of the third group the essential thing is the diet. Reduce the fats and sugars in the proportion of the severity of the attacks or their resistance to treatment. He regards the iodids with more favor than either the salicylates or sodium bicarbonate.

PHYSIOLOGY

No more interesting or worth while study of auscultatory phenomena has been made than that contained in the tenth report of the Henry Phipps Institute. Some of the subjects are presented by Montgomery²⁴ in a separate paper in which he offers explanations for auscultatory findings over the lungs and applies these principles to chest conditions.

Solid Lung.—This is the simplest clinical condition we have to study. In tracing the sound in the bronchi through the solid lung to the periphery of the chest, we find the factor of diffusion of sound everywhere operative. The activities of this factor are very much limited within the bronchi, because the bronchial walls, to a great extent, reflect the vibrations back into the interior of the bronchi, this reflective action in the small bronchi being even more powerful when the lung is solid than when it is normal. Once the vibrations have entered the bronchial walls, however, their further course is entirely pursued through tissue with its associated fluids, the solid lung and chest all forming, practically, a good single conducting medium which offers very little obstruction to the passage of the vibrations, so that nearly all the sound intensity that is lost en route from bronchus to periphery is due to diffusion. In no other common clinical condition do we find so little tendency to reduction of sound from reflection as when dealing with solid lung, and even the degree of diffusion is not greater than that ordinarily encountered. The voice sounds are therefore relatively loud, or, as we commonly express it, are increased in intensity over a solid lung.

23. Webster, F. P.: Asthma in Children. J. Maine M. A., 7:225, 1917.

24. Montgomery, C. M.: The Main Factors Affecting the Intensity of Sounds as They Pass from the Interior of the Lungs to the Periphery of the Chest. Am. J. Med. Sc., 153:583, 1917.

Pleural Effusion with Diminished or Absent Voice Resonance.—The explanations for this phenomenon, when not entirely erroneous, have been either obscure or incomplete. The abnormal conditions encountered in a simple case are the presence of fluid within the pleural cavity and a more or less relaxed lung. The clinical fact that the vocal resonance above a pleural effusion is frequently increased indicates that the sound escapes from the relaxed lung to the adjacent tissues with more intensity than in the normal case. The evidence indicates that the sounds pass between the relaxed lung and fluid with about an equal intensity to that found in the passage of sounds between relaxed lung and tissue. Therefore, in these cases presenting an increased resonance above an effusion, we conclude that the vibrations entering the fluids are louder than those entering the chest wall of an individual with the lung in a normal state. Any loss of sound, then, except as noted below, encountered over a pleural effusion, must take place after the vibrations have entered the fluid. We have already seen that tissue alone, and fluid alone, and even the combination of the two, offer very little impediment to the passage of sounds. The loss of sound encountered over an effusion may be traced largely to diffusion, the result of the greater distance occurring between the lung and the chest wall overlying the fluid, as compared to the close approximation of the lung and the chest wall in the normal state. The sounds become weak for the same reasons that they do over the liver, because of diffusion and not reflection. The diminished vocal resonance is also due partly to the diminished caliber of the bronchi.

Pleural Effusion with Increased Vocal Resonance.—The explanations offered to account for the increased vocal resonance sometimes met with over a pleural effusion are few and for the most part unsatisfactory. In some cases this is due to the fact that the fluid adjoins a lung which is solid. The lung may be solid, due to the absence of air in the vesicles, as when it assumes the fetal type after a prolonged collapse; or it may be solid because of inflammatory or other products in the vesicles. It is important that no air remain in the pulmonary parenchyma. When the solid lung is separated from the chest wall by fluid, there is very little reflection or other form of obstruction to the passage of vibrations on their way to the periphery of the chest after they have entered the bronchial wall. If, then, the diffusion is limited, the conditions are very much the same as solid lung unassociated with fluid. Whatever the degree of diffusion due to separation of lung from chest wall, and other factors, the conditions are very much the same as though tissue replaced fluid. The explanation is entirely satisfactory when the solid lung is separated from the chest wall only a short distance, but it is well known

that very large effusions on either side of the chest separating the lung a great distance from the chest wall and thereby greatly increasing the diffusion between the lung and chest wall, may furnish striking examples of increased vocal resonance. In some such cases it seems likely that some vibrations are received at the periphery, coming straight across through the fluid from the trachea. The physical conditions are certainly favorable for this; that is, the fluid may be present in the upper part of the pleural cavity, so that in this course of the vibrations from the trachea to the chest wall no air intervenes, but only tissue and fluid.

Peabody and Wentworth²⁵ have established a standard "vital capacity" of the lungs. When compared to the proper standard this capacity rarely falls below 90 per cent., although it may rise considerably above the normal. This they claim to be of positive value in giving quantitative information as to the tendency to dyspnea, and thus, indirectly, as to the clinical condition and the reserve power of the patient. In various circumstances in which mechanical conditions interfere with the movements of the lungs the tendency to dyspnea corresponds closely to the decrease of the vital capacity. In diseases in which dyspnea is not a prominent symptom the vital capacity is usually within the normal limits.

FOREIGN BODIES IN THE LUNGS

Jackson²⁶ believes that the asthmatic wheeze elicited by oral auscultation is a distinct addition to our diagnostic means in cases of foreign bodies in the trachea and bronchi. This sound is a wheeze heard by placing the ear in front of the patient's mouth during expiration. It is like the wheezing of an asthmatic patient but drier. It is caused by the vibrations of air passing through the bronchus. It is of more value directly as to the recent occurrence of the case and is often more marked after coughing out all secretions. Jackson feels that we have a sign which promises to be of great value in many cases in which the foreign body is not opaque to the ray.

Walters²⁷ draws a lesson from a case which bears repetition; that is, pay attention to the statements a patient makes. A 9 year old boy swallowed a bone. Shortly after, he developed a hacking cough and the family physician's diagnosis of tuberculosis was confirmed over and over again by any number of eminent physicians during the next eleven years. Ordinary plates revealed nothing and not until stereo-

25. Peabody, F. W., and Wentworth, J. A.: Clinical Studies on the Respiration. *Arch. Int. Med.*, **20**:443, 1917.

26. Jackson, C.: New Diagnostic Sign of Foreign Body in the Trachea or Bronchi. The Asthmatoïd Wheeze. *Am. J. M. Sc.*, **166**:625, 1918.

27. Walters, P. R.: Foreign Body in Lung Removed After Eleven Years. *California State M. J.*, **16**:42, 1918.

scopic plates were made was the foreign body located. This was successfully removed and the boy is well on the way to a permanent recovery.

Eves²⁸ protests against the blind methods of pushing old probangs down the esophagus for the dislodgment of a foreign body, which he says are still followed.

BACTERIOLOGY

Mathers,²⁹ as a result of a study of sixty-one cases of respiratory infection which closely resembled in its clinico-anatomic manifestations and epidemiology so-called true influenza, found the influenza bacillus in only one instance. On the other hand, virulent hemolytic streptococci similar to those associated with septic sore throats of the epidemic type were found in the nose, throat and pharynx of forty-six patients, and in the blood in three cases of this epidemic disease. The predominance in the discharges from the nose, throat and pharynx of patients suffering from this epidemic respiratory infection of a virulent hemolytic streptococcus not usually found in the normal mouth, the absence of the influenza bacillus and the character of the associated pathologic changes, suggested that this disease was caused by a virulent hemolytic streptococcus.

MISCELLANEOUS

Chapin³⁰ reports the results of a combined study of physical signs and roentgenograms on ninety-seven cases, viewed from the standpoint of the lungs. In all but twenty-three there was substantial agreement. As examples of the latter, five gave roentgenographic evidence of lobar pneumonia which was not detectable by physical signs; two gave physical signs which were not confirmed by the roentgen ray; three showed physical signs of bronchopneumonia not disclosed by the ray, and two failed to show the presence of fluid in the pleural cavity where it was shown by the plate.

A desire for a more accurate means of diagnosis in croup led to the adoption at the Willard Parker Hospital of the laryngeal speculum, because it was felt that many of the croup cases were not diphtheria. The advantages claimed by Gover³¹ for the direct examination method are: (1) in deciding as to the administration of antitoxin in a

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28. Eves, C. C.: Removal of Foreign Bodies by Direct Bronchoscopy and Esophagoscopy. *Pennsylvania M. J.*, **20**:687, 1917.

29. Mathers, G.: The Bacteriology of Acute Respiratory Infections Usually Called Influenza. *J. Infect. Dis.*, **21**:1, 1917.

30. Chapin, H. D.: A Comparison Between Clinical and Roentgen Findings in Diseases of the Chest. *J. A. M. A.*, **70**:1357, 1918.

31. Gover, R. W.: Direct Laryngoscopy in One Hundred and Eighty-Nine Cases of Croup. *Arch. Pediat.*, **35**:281, 1918.

case that presents no membrane in the fauces; (2) the necessity of establishing quarantine; (3) to avoid mistaking a foreign body in the larynx for croup; (4) as to the necessity of intubation,*one may wait with safety for much more marked symptoms of obstruction in a catarrhal croup than in one of a membranous type.

Pisek³² reports a case of chylothorax in a 9 weeks infant, the youngest on record, which when last seen was in good condition.

The Bureau of Child Hygiene of the Department of Health of the City of New York and the New York State Commission on Ventilation³³ conducted jointly an interesting inquiry into the possible relationship between respiratory diseases among schoolchildren and classroom ventilation.

During the late fall, winter and spring, 5,533 children in seventy-six class rooms and twelve schools were kept under observation. As a result of this study the following conclusions were drawn:

In the closed window, mechanically ventilated type of classroom, kept at a temperature of about 68 F., the rate of absences from respiratory diseases was 32 per cent. higher than in the naturally ventilated type with open windows, kept at the same temperature; and about 40 per cent. higher than in the open window naturally ventilated type kept at a temperature of about 50 F.

Children in closed class rooms with closed windows and mechanical ventilation are more subject to respiratory diseases, severe enough to keep them from school, than are children in the class rooms which are kept at the same or lower temperature and ventilated wholly by open windows. This is equally true of respiratory diseases not severe enough to keep them from school.

The relative humidity of class rooms, whether ventilated naturally or by mechanical means, is not a causative factor in the incidence of respiratory diseases among school children.

Ellis³⁴ adds a case in a boy of 8 years to eighteen cases of what appear to be certain cases of absence of one lung. The condition is rare. Therenim found only two cases among over 30,000 necropsies in a foundling asylum in Petrograd.

The clinical findings were as follows: chest expansion fair but diminished on the left side; over the left side of the chest, posteriorly, except at the apex, there was dullness extending to the midaxillary line; tubular breath sounds heard posteriorly as far as the midline

32. Pisek, G. R.: Report of a Case of Chylothorax. *Arch. Pediat.*, **34**:929, 1917.

33. Baker, S. J.: Class Room Ventilation and Respiratory Diseases Among Schoolchildren. *Am. J. Pub. Health*, **8**:19, 1918.

34. Ellis, A. G.: Congenital Absence of One Lung. *Am. J. Med. Sc.*, **154**:33, 1917.

of the left side; right lung showed no dulness. The apex of the heart was displaced to the left as far as the midaxillary line, the right border being 2 inches to the left of the sternum. A blowing systolic murmur was present, heard best at the apex and transmitted to the left. The heart sounds were heard well over the area of dulness posteriorly. A provisional diagnosis of acute articular rheumatism and endocarditis was made.

The necropsy notes bearing on the condition reported were as follows: diaphragm at the fifth space on each side; the left lung is absent; the right lung extends well beyond the costochondral junction, the large pericardial sac occupying the remainder of the thorax; the left branch of the pulmonary artery and the left pulmonary veins were absent.

The immediate cause of death was vegetative valvulitis with hydropericardium. Of the nineteen cases collected, thirteen were of the left, six of the right. Interference with the blood supply in early embryonic life is supposed to be the cause in all cases.

In an infant welfare station M. La Ferle³⁵ kept groups of infants under observation for periods of about three months, seeing them weekly. She decided that one half of them suffered at least once from a respiratory infection, with at least temporary loss of weight.

NEW GROWTHS

Two cases of sarcoma of the anterior mediastinum were reported by Guidi.³⁶ In both cases there was no tendency to extension into the posterior mediastinum. The diagnosis was made chiefly on the rapid extension of the mass, the secondary glandular involvement of the neck and axilla, and finally, the undue prominence of the sternum.

Parkinson³⁷ reports a case of primary sarcoma of the lung in a 5-year-old boy. Orthopnea and much dyspnea were the principal symptoms, while dulness of the entire left chest and marked limitation of respiratory movement were the chief physical signs when first seen. At necropsy the entire left lung was a mass of soft, friable, hemorrhagic, small round cell sarcoma.

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35. La Ferle, M.: Respiratory Infections in Infants Attending a Welfare Station. *Pediatrics*, **25**:469, 1917.

36. Guidi, G.: Two Cases of Primary Tumor of the Mediastinum. *Riv. di clin. pediat.*, **15**:113, 1917.

37. Parkinson, J. P.: Primary Sarcoma of the Lung. *Brit. J. Child. Dis.*, **15**:28, 1918.