especially the child's capacity to point the tip and raise it over the upper lip towards the nose. With very rare exceptions tongue-tie is not a cause of speech defects and snipping the fraenum is a useless and sometimes dangerous operation. The establishment of mental deficiency calls for repeated and usually expert observation and has already been considered.

Conclusion

Speech disorders are common in childhood and often cause considerable distress to both the child and his parents. Although the speech mechanism is not fully understood, its disorders can be tentatively placed in a limited number of broad groups which can be differentiated in the majority of cases by a careful history of the child's development and simple physical examination.

The accurate assessment of intelligence and hearing, and the treatment of the more severe disorders, will call for expert help, but a provisional diagnosis will often enable the practitioner to inform and reassure the parents, and to see that the child reaches the speech therapist at the optimum time.

ACUTE LARYNGO-TRACHEO-BRONCHITIS

BY

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The following case is worthy of record in view of its relative rarity, the difficulty of treatment, and the rapidity of the clinical course.

Case Report

A medical officer from an outlying unit telephoned requesting the admission of a child aged 18 months, son of a soldier, as a case of treatment-resisting bronchitis, stressing that he was not acutely ill. The child was admitted two hours later.

He had had measles three weeks previously, and since then had a loose cough with some anorexia and loss of weight. There had been one previous attack of bronchitis, at the age of 6 months, and he had been immunized against diphtheria. There was nothing relevant in the family history. He was brought into the hospital by his father, who stated that the child was quite happy.

On examination the patient was not ill. Laryngitis was noticeable when he cried. The temperature per rectum was 99.2° F. (37.3° C.), pulse 104, and respirations 24. The ears, heart, abdomen, and C.N.S. were all normal. There was much mucus in the nose; the tonsils were large, but looked fairly healthy; and pharyngitis was present, with a post-nasal drip. The tonsillar glands were palpable. Lungs: The percussion note was hyperresonant, and scattered high-pitched sibilant rhonchi were heard throughout both lungs during expiration. Bronchial breathing was heard over the spinous processes down to and including the fourth thoracic vertebra. An x-ray film of the chest was normal.

This was considered to be a case of asthmatic bronchitis with laryngitis; the child was therefore given "argyrol" and ephedrine nose drops and a stramonium and iodide mixture. Steam inhalations were not thought necessary, as the laryngitis was not severe.

At 3.30 p.m., three hours after admission, he suddenly became cyanosed and was pitifully frightened. On examination he had an obvious laryngeal obstruction, there was indrawing of the lower ribs on inspiration, the accessory muscles of respiration were in play, and large numbers of high-pitched sibilant rhonchi were heard throughout the lungs during expiration. Subcutaneous adrenaline gave marked relief and he was put in an oxygen tent. A diagnosis of laryngeal diphtheria was made, and he was given 30,000 units of antidiphtheria serum intravenously into the external jugular vein and 200,000 units of

penicillin intramuscularly six-hourly. The ear, nose, and throat surgeon was consulted, and it was agreed to perform a tracheotomy. Laryngoscopy revealed no diphtheritic membrane, and a swab was taken of the oedematous and hyperaemic larynx. A tracheal swab was also taken when the tracheotomy tube was established.

The child spent a restless night in the oxygen tent after an initial improvement from the tracheotomy which lasted only about two hours. The next morning the respirations were extremely embarrassed and he was obviously dying. On examination fine sticky crepitations were heard in both lungs and the right base showed signs of consolidation, with an impaired percussion note and diminished air entry. As the child was vomiting, sulphadiazine, 0.5 g. four-hourly, was given intramuscularly. His condition deteriorated, and he died 30 hours after admission. Laryngeal and tracheal swabs gave a pure growth of coagulase-positive, penicillin-resistant *Staph. aureus*, but no evidence of Klebs-Loeffler bacillus.

Post-mortem Findings.—The tracheotomy airway appeared clear; the larynx, trachea, and bronchi were grossly inflamed; and the lumina were filled with pus. Bronchopneumonia with areas of lobar consolidation was found in the right lung, with interstitial emphysema. The causative organism seems to have been *Staph. aureus*, which was isolated in pure culture from the patient before death and from the lungs post mortem. Death was due to bronchopneumonia following a fulminating laryngo-tracheo-bronchitis.

Histological Report.—In the base of the right lung there were obvious areas of atelectasis. Some of the bronchioles were blocked by inflammatory exudate. Only slight inflammatory changes were present in the adjacent alveoli. This picture was true of the left base and both apices. In the trachea and larynx there was almost complete replacement of the epithelial lining by an acute inflammatory exudate which extended to the submucous layer. Nothing abnormal was noted in other tissues. The picture was indicative of an acute laryngo-tracheo-bronchitis with atelectasis. Actual pneumonic changes were minimal.

Discussion

The signs, symptoms, and post-mortem findings make this in all respects a typical case when compared with the picture presented by Chevalier Jackson (1946) and Bonham-Carter (1949). There is one exception—namely, the clinical and post-mortem evidence of bronchial spasm.

Since this case, two others have been seen, one of which went into acute laryngo-tracheo-bronchitis straight from an attack of asthma. The other was identical with the case reported.

Banks (1949) stated that in his experience penicillin and sulphonamide therapy had no effect in this disease, suggesting that it may have a virus aetiology. In view of this statement, the experience with the above case, and the reports of penicillin-resistant *Staph. aureus* infections (Barber *et al.*, 1948, 1949), the second case was treated with streptomycin, with dramatic, rapid, and complete recovery. Penicillin and sulphonamide compounds were not given at all.

Unfortunately streptomycin, with its unwelcome side-effects, is not the ideal weapon. In view of the incidence of penicillin-resistant *Staph. aureus* infections in this department of the hospital, "aureomycin" was obtained for future use. A leading article in the *British Medical Journal* (1949) stressed the value of this antibiotic in penicillin-resistant *Staph. aureus* infections and the absence, so far as is known, of toxic effects.

The third case of acute laryngo-tracheo-bronchitis, in a 3-year-old child, was treated with aureomycin in 50-mg. doses six-hourly for six days. Once again recovery was dramatic, rapid, and complete. A similar result occurred in three cases of bronchopneumonia which were resisting penicillin therapy and then received aureomycin.

Moncrieff and Weller (1949) in a preliminary communication have given encouraging reports on the use of chloramphenicol in this disease.

It therefore seems that we are at the moment up against a disease which, be it virus in origin or not, kills by virtue of penicillin- and sulphonamide-resistant bacteria, and that the newer antibiotics may be the weapon for which we are seeking to combat it. This is of course true, as has been briefly mentioned, in cases of penicillin-resistant bronchopneumonia and bronchitis; but acute laryngo-tracheo-bronchitis has been stressed here because of the extreme rapidity of its course, and because if the patient is not treated promptly and energetically with a suitable antibiotic no second chance remains.

Summary

A case of acute laryngo-tracheo-bronchitis is described in its clinical course and pathology.

Treatment is discussed in view of the increasing incidence of penicillin-resistant bacteria.

It is stressed that, owing to the rapid and fatal course, the first line of treatment must be with one of the newer antibiotics.

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X-RAY EXAMINATION IN "PNEUMONIA"

BY

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Various opinions have been expressed on the advisability of radiographing cases of "pneumonia." Some people advocate x-raying every case; at the other extreme are those who believe that such a course is unnecessary and that in general practice the need arises only occasionally. This article has been written with the object of trying to assess the usefulness of radiography in cases of "pneumonia."

The term "pneumonia" has been used to describe a symptom-complex affecting the respiratory system. It consists of several, and sometimes all, of the following symptoms: malaise, fever, cough, pain in the chest, sputum, dyspnoea, and haemoptysis of small amount. The general picture of every patient in this series has been such that during the acute stage of the illness a diagnosis of pneumonia of bacterial origin, atypical pneumonia, or pneumonitis might have been justified from a consideration of the symptoms and physical signs alone. The diagnosis in these terms was made either by the general practitioner referring the patient or by the writer. Cases with the syndromes designated by the terms influenza, dry pleurisy, and pleurodynia have been excluded. Cases sent up correctly diagnosed as something other than "pneumonia"—e.g., pleural effusion, spontaneous pneumothorax, neoplasm, etc.—have been excluded whatever their symptoms. The

cases discussed were consecutive, and were selected because they showed an abnormality on radiography. All were followed up until a normal skiagram was obtained or a clear diagnosis of disease arrived at. With these criteria 228 cases, referred during 18 months, were selected.

The patients were all referred to, or a second opinion on them was sought from, this chest clinic, which is situated in a county town of about 60,000 people. The surrounding countryside and small towns augment the total number covered to over 140,000. The series is in no way unusual unless it be exceptional for a large percentage of the surrounding practitioners to be intent on diagnosing pulmonary tuberculosis early, and to be aware that this is better done by radiography than by the stethoscope.

Classification of Cases

The cases can be divided into three groups in accordance with when they were first seen. (1) Those referred during an acute illness suggestive of pneumonia, often after no response to the sulphonamides and penicillin. (2) Those referred specifically as having recently had pneumonia and as having failed to resolve normally, or because the practitioner wished to be assured of normality. (3) Those referred for an opinion as being suspected cases of pulmonary tuberculosis after an acute illness suggestive of pneumonia but variously diagnosed.

Table I shows the number in each group, and divides them into the age groups 0-14 and 15 upwards.

TABLE I

Age	Group 1	Group 2	Group 3	Total
0-14 ..	1	19	28	48
15+ ..	37	93	50	180
Total ..	38	112	78	228

In Group 1 there were 11 cases which resolved normally and 27 which either presented complications or were not pneumonia. In Group 2 the corresponding figures were 61 resolving normally and 51 others. In Group 3 the figures were 55 resolving normally and 23 others.

In Table II the abnormalities apparent on radiography are listed, and the number occurring in each group is shown.

TABLE II

Abnormality Found	Group 1	Group 2	Group 3	Total
Pulmonary tuberculosis ..	9	20	3	32
Delayed resolution ..	4	12	13	29
Empyema ..	4	2	1	7
Sterile serous effusion (non-tuberculous) ..	2	2	1	5
Tuberculous effusion ..	1	4	1	6
Bronchiectasis ..	2	8	1	11
New growth ..	2	1	1	4
Lung abscess ..	1	0	0	1
Spontaneous pneumothorax ..	1	0	0	1
Cardiac ..	0	2	1	3
Cough fracture ..	0	0	1	1
Death (post-operative pneumonia)	1	0	0	1
Total ..	27	51	23	101

Out of the 228 cases referred with the symptom-complex of "pneumonia," 127 resolved normally and were classed by the writer as pneumonia, atypical pneumonia, or pneumonitis. Out of the other 101 cases one, a patient with post-operative pneumonia, died; 29 ultimately resolved completely, but with varying periods of delay, and 12 others suffered direct complications of their pneumonia. In a further 19 a second condition as well as pneumonia was present, being brought to light by radiological examination. This group included three cases of known phthisis.