A Clinical Lecture ON SOME NOSE AND THROAT DISEASES OF CHILDHOOD.

DELIVERED IN THE ROYAL HOSPITAL FOR SICK CHILDREN,
EDINBURGH.

By DOUGLAS GUTHRIE, M.D., F.R.C.S. EDIN.,
INTERIM SURGEON TO THE EAR AND THROAT DEPARTMENT, ROYAL
HOSPITAL FOR SICK CHILDREN, EDINBURGH.

Adenoids and Enlarged Tonsils.

LIGHTNING diagnosis is seldom a satisfactory proceeding, but here is a patient whom one is tempted to label at once without further examination. Look at the little girl and note her open mouth, her projecting upper lip, her narrow pinched nostrils and her vacant look. There you have an excellent illustration of the so-called adenoid facies.

The facial expressions of disease were carefully studied by the physicians of last century, but, like the "temperaments," they nowadays receive scant attention. Facial appearances are still worth studying, especially in children, but I would warn you that the adenoid facies is not invariably diagnostic of adenoids. A few weeks ago a boy of 7 was sent to the department to have adenoids removed. Although he had the adenoid facies, I found neither adenoids nor enlarged tonsils. He had, however, a crumpled and deflected nasal septum, obstructing both nostrils, the legacy of a previous injury. Some of you may have seen in Dundas Ward the expressionless child with open mouth and protruding tongue. That child originally came to the throat department. She has no adenoids, but is an example of the Mongol type of idiot. On the other hand, very many children suffering from adenoids show not the least trace of their complaint on their faces.

A certain amount of adenoid tissue is present in the nasopharynx of every child, and between the ages of 2 and 10 it is very liable to hypertrophy. Over 90 per cent. of the children brought to the ear and throat department here are sufferers from adenoids, and the frequency of adenoids among children of school age has been estimated by various authorities at 30 to 40 per cent. The symptoms are very varied. The mother tells you that the child cannot breathe properly, that he snores at night, that his speech is "thick" and muffled, that he continually suffers from colds, that he complains of earache, or that he is backward at school. Epistaxis is also a common symptom.

Many of those children also suffer from enlarged tonsils. If you find the tonsils enlarged there is no need to put your finger into the nasopharynx. Adenoids are certainly present in such a case. You may, however, have large adenoids with tonsils of normal size.

A flow of white gummy mucus from behind the soft palate is often a sign of adenoids, and if you are fortunate you may catch a glimpse of the growths in a post-nasal mirror. By attention to those points one may avoid the disagreeable procedure of palpating the nasopharynx, for which no child will ever forgive its doctor.

On the subject of enlarged tonsils little need be said, but it may be well to remind you of their remote effects. In every child suffering from enlarged tonsils the tonsillar gland is palpable behind the angle of the jaw. This is a significant fact, and the important point to remember is that the tonsils and associated adenoids should be removed before the tubercle bacillus gains admission to the gland through the diseased tonsil. Never forget, therefore, to attend to the tonsils in all cases of enlarged cervical glands.

There is another common disease of childhood which should always lead one to examine the tonsils and that is rheumatism. Some time ago I removed the tonsils of a small boy who was having repeated attacks of "growing pains." One tonsil contained a small abscess the size of a pea. There have been no further attacks of pain since the operation, and I could multiply instances of this nature.

How, then, is the operation to be performed? I beg of you to study the method carefully, for one so often sees cases in which tonsils and adenoids have been incompletely removed. After a thorough operation there is no such thing as recurrence.

Nowadays we prefer to "enucleate" the entire tonsil in its capsule, using a guillotine, of which there are many suitable patterns on the market, and then to clear out the adenoids by means of a curette with a square opening, such as StClair Thomson's. Delstanché's or Gottstein's curettes, which have a triangular opening, are not nearly so effective.

A guillotine which I frequently use when it is important to minimize hæmorrhage is Elphick's hæmostatic guillotine. It is furnished with a crushing blade, which clamps the vessels before the cutting blade is driven home. If complete hæmostasis is desired the clamp may be left on the tonsil stump for several minutes, but, of course, in that case C.E. mixture should be given, as ethyl chloride anaesthesia will not allow sufficient time.

I may summarize as follows the main points in the tonsil and adenoid operation:

Having administered ethyl chloride, introduce the guillotine with its upper surface towards the tonsil, thread it over the tonsil, and dig the point of the instrument well in behind the tonsil, then lever the tonsil forwards so as to produce a swelling on the palate; press upon this swelling with your left thumb, thus forcing the tonsil through the ring of the guillotine. Lastly, drive home the blade and withdraw the guillotine with its lower surface, carrying the tonsil, uppermost.

After removing the tonsils, hook the curette well up behind the palate and shave off the adenoids with a downward sweep.

Foreign Bodies in the Air Passages.

A child was brought here by her mother, who thought she had adenoids. For six months the little girl had been suffering from nasal obstruction and attacks of coughing and sneezing. Observing that the discharge and obstruction were unilateral, I suspected a foreign body, and with some difficulty removed a boot button from the left nostril. Such cases are not uncommon, and the tolerance of the nasal mucosa is rather remarkable. Last year, in France, I removed a fragment of shrapnel from the nasal cavity of a soldier, who had been wounded eighteen months before. It was embedded in the middle turbinal, and the man was unaware of its existence.

When we come to consider the question of foreign bodies in the lower reaches of the respiratory tract—the larynx, trachea, and bronchi—we find that we are dealing with conditions of a much more serious nature.

A great stimulus was given to the study of the subject by the introduction of direct methods of examination. By means of Bruning's and Jackson's tubes we may now inspect the entire tracheo-bronchial tree, and the procedure has been further facilitated by the introduction, by Killian, of suspension-laryngoscopy. The manipulations, however, are difficult, and demand much patience and long practice.

The situations in the air passages in which foreign bodies are most commonly found are the larynx and the right bronchus.

As regards the larynx, it is well to bear in mind that there may be no history of foreign body, but the child may be thought to be suffering from diphtheria or simple laryngitis. This was the case with a boy aged 9, who was admitted to this hospital some months ago. He was kept under observation for a few days, during which time he suffered from dyspnoea, hoarseness, and pain in the larynx. The x-ray photograph showed a distinct shadow in the laryngeal region opposite the fifth cervical vertebra. Direct laryngoscopy was then attempted, and the foreign body, which lay just below the vocal cords, grasped with long forceps; but it was found to be so very firmly impacted that it could only be slightly displaced. Unfortunately, this displacement caused complete obstruction of the airway, and tracheotomy had to be performed. The tracheotomy wound was enlarged and the cricoid cartilage divided, so that the foreign body, which turned out to be a sharp-edged piece of meat bone, could be easily withdrawn. The boy was very ill for several days, but eventually made a good recovery.

When a foreign body passes the larynx it usually lodges in the right bronchus, which, as you may remember, is not only wider than the left bronchus but lies in a more direct line with the trachea.

Bronchoscopy is by no means an easy operation, but if the foreign body be allowed to remain it will almost

certainly set up septic bronchitis and abscess of the lung. Should the direct method be unavailable, tracheotomy had better be performed, as this operation has been proved to have a favourable influence on the mortality rate. Not infrequently the foreign body is coughed out through the tracheotomy wound.

Occasionally children are brought to the hospital who are said to have swallowed some foreign body, usually a coin, and radiography reveals its presence in the oesophagus. There may be no symptoms, as the oesophagus is a very tolerant structure. As a rule, the body is impacted at the entrance to the oesophagus, in the post-cricoid region.

The instrument known as the coin-catcher may be used in removal, or, better still, the more modern and scientific method of oesophagoscopy. It is a much easier proceeding than bronchoscopy.

Laryngeal Diseases in Children.

In conclusion, I wish to direct attention to a few practical points regarding diseases of the larynx in small children. These diseases are difficult to diagnose, and are often a source of much anxiety not only to the parents but to the medical attendant.

The child's larynx is a smaller structure than might be supposed, and its cartilages are very soft. Hence stenosis and suffocation are more liable to occur in children than in adults. Laryngoscopy is more difficult, though in the ordinary routine examination of the throat with a tongue-depressor one often sees the epiglottis in small patients. I have had to allay the fears of more than one anxious mother who thought her child's epiglottis was something pathological. The inferior turbinal bone in the nose is a similar offender, and on three occasions in my experience it has been diagnosed as polypus. Nasal polypus is very rare in childhood.

You may be called out one night to see a child who has suddenly developed a "croupy" cough, accompanied by choking and shortness of breath of a very alarming nature. I need not enlarge on this condition, which is so fully described in textbooks under the various names of "laryngitis stridulosa," "croup," or "spasmodic laryngitis."

The nervous spasm occurring in rickety infants, and known as laryngismus stridulus, is quite a different disorder. The spasm and cyanosis are quite transient, and attacks may come on at any time during the day or night. Treatment should be directed towards the underlying condition.

In both of those diseases remember that adenoids are frequently an important factor in the etiology.

Another laryngeal affection of infancy is congenital laryngeal stridor. It commences at birth or shortly after birth, and consists of a crowing or croaking sound accompanying each respiration. The sound varies in intensity and diminishes during sleep. Thanks to direct laryngoscopy, we now know that the larynx in those cases is backward in its development. The epiglottis is sharply folded upon itself and the arytenoids are closely approximated so that the upper aperture of the larynx is narrowed. No treatment is required, as the condition tends to disappear during the second year of life.

Lastly, I shall merely mention papilloma of the larynx, which must be borne in mind as a possible cause of laryngeal obstruction in children. Its diagnosis is beset with difficulty, tracheotomy is often necessary, and the growths are very liable to recur after removal.

MR. W. B. SMITH, Federal chemist, Kansas, recently reported that court plaster which is being sold throughout the State is full of tetanus bacilli. This report led to the arrest of five Germans. Samples of the plaster are being examined by the United States Department of Justice.

A SOCIETY for American fellowship in French universities has been formed for the purpose of bringing to the notice of American students the extensive facilities offered by French institutions and to induce them to seek there the opportunities for further study which they have hitherto been led to believe were to be found only in Germany. Ten or more graduate fellowships for American students are to be established in French universities to be awarded as the result of competition and to be held for two years. The society has published a book entitled *Science and Learning in France*.

COMBINED VACCINATION WITH MULTIPLE VACCINES (QUADRUPLE, QUINTUPLE, AND SEXTUPLE).

BY

ALDO CASTELLANI, M.D., M.R.C.P.,
LIEUT.-COLONEL ROYAL ITALIAN MEDICAL SERVICE (NAVY),
MEMBER INTERALLIED SANITARY COMMISSION;

AND

FRANK TAYLOR, M.D., M.R.C.P., F.R.C.S., D.P.H.,
LECTURER ON BACTERIOLOGY, UNIVERSITY OF LONDON,
KING'S COLLEGE; PATHOLOGIST, ROYAL WESTMINSTER
OPHTHALMIC HOSPITAL.

THE advantage of using the method of combined vaccinations, introduced by one of us (C.) long ago, is at the present time recognized. The triple vaccine—typhoid + paratyphoid A + paratyphoid B—for instance, prepared and used by one of us since 1905, has recently been adopted in all the allied armies, thanks especially to the work of Dreyer, Walker, Gibson, Bassett-Smith, Cumming and Cummins, Widal, Chantemesse, Vincent, Sergeant, Nègre, Rho, Conte, Porcelli, and others. There are, however, other combined vaccines which will be found useful, and it is on these vaccines—containing, some of them, four, five, and six species of germs—we desire to make some remarks based on a certain amount of experimental work we have carried out.

TETRAVACCINE No. 1 (T.A.B.C.).

Technique of Preparation.—The growth of twenty-four hours typhoid agar cultures is washed off with sterile 0.85 per cent. salt solution to which 0.5 per cent. carbolic acid has been added; the emulsion so obtained is stored at room temperature for twenty-four hours and then standardized.

In some rare cases, when the emulsion is very thick, twenty-four hours may not be sufficient for the small amount of carbolic present to sterilize it completely; the germs, however, will be non-motile, easily counted, and the addition of carbolic salt solution necessary to standardize the vaccine will quickly kill the germs. To standardize the emulsion the bacilli are counted by using a Thoma-Zeiss apparatus, and sufficient carbolic salt solution is added to reduce the number of germs to 2,000 million per cubic centimetre. The standardized emulsion is tested some hours later for sterility. The same procedure is carried out with twenty-four hours old agar cultures of paratyphoid A and paratyphoid B, these two emulsions being standardized to contain 1,000 million organisms per cubic centimetre. The above procedure is also carried out with cholera cultures, the emulsion of which, however, is standardized to contain 8,000 million germs per cubic centimetre. The four standardized emulsions (when found sterile) are mixed together in equal proportions, and the vaccine will therefore contain per cubic centimetre:

Typhoid	...	...	...	500 million
Paratyphoid A	...	...	...	250 "
Paratyphoid B	...	...	...	250 "
Cholera	...	...	...	2,000 "

This mixture, which must be tested for sterility, is the combined vaccine. Of this mixture $\frac{1}{2}$ c.cm. is given under the skin of the arm the first time, and the same, or double the amount, a week later.

Blood Examination of Rabbits Inoculated with Tetravaccine No. 1 (T.A.B.C.).

With the assistance of Mendelson, Porcelli, and others we have carried out experiments on seven rabbits, each of which had received two injections of the tetravaccine, at a week's interval.

The doses given varied between 0.2 c.cm. and 1 c.cm.; the production of agglutinins was investigated in all the seven rabbits, and bacteriolysins in three. The amount of antibodies produced did not seem to be in proportion to the amount of vaccine inoculated; this confirmed the old observation made by one of us, that when immunization is obtained by one injection the production of antibodies is not in proportion to the amount of vaccine injected. Provided a sufficient minimum quantity be given, the same amount of agglutinins, bacteriolysins, etc., will be produced whether one, five, or ten times that minimum dose be given.