in first vertex position, with a left hand and left foot also presenting; he suspected twins. The child he delivered by forceps—no twin was present.

Dystocia, in the progress of a labour without disproportionate factors, or even, as in Sir Francis Champneys's case, with a normal pelvis and a small child, emphasizes the untoward function of extended legs as splints, on the accepted teaching of M. Tarnier.

FIG. 8.—Delay in the pelvic cavity due to extended legs. Amputation of the leg.

It is no small obstetrical advantage, from an anatomical demonstration of the foetal attitude, to realize clearly what others have clinically proved and stated—that there is nothing beyond possibly a slight degree of dystocia inherently attributable to the primary breech or vertex presentation with extended legs. The paper by Griffith and Lea, and the discussion that followed at the London Obstetrical Society, impressed the need of a wider appreciation of disproportionate labour factors and pelvic contraction in breech mechanism and management. We cannot adhere too rigidly to the anatomical attributes of the primary attitude of the breech with extended legs if we wish to eliminate extended legs from too large a share in impacted breech causation—for example, when there is also a large child or a contracted pelvis.

To return again to the anatomical features (Fig. 2) of breech with extended legs, admitting that the extended

FIG. 9.—Birth of the breech.

FIG. 10.—Breech with extended legs.

legs diminish latero-flexion of the trunk during labour, attention must be paid to the part played by foetal spinal flexion: when the foetal hips and pelvis are flexed and raised the lumbar spine is also flexed and brought down. This is an item of importance in the mechanism of labour. Spinal flexion interferes with or delays rotation in all cases, but more especially so in sacro-posterior cases where the bitrochanteric diameter is across the outlet and the extended legs are held, rigidly packed, at the back of the

pubis, whilst the puffy genital tumour is protruding or visible at the vulva.

Under general anaesthesia traction on the groin beyond a mild or moderate force is dangerous: traction alone, like other endeavours, may be too cramped and too partial in its purpose; with average labour factors before him, the obstetrician by hand can partly undo the spinal flexion, and in sacro-posterior cases axially rotate the foetal breech

FIG. 11.—Diagram showing position of child in (a) L.S.A.; (b) R.S.A.

into a sacro-anterior position for spontaneous or mildly aided expulsion.

Without selective effort, but with an ample sufficiency for comparison, I collected at random five textbook illustrations. These illustrations do not reproduce the relations of the primary foetal attitude with extended legs; they are consistent only with the secondary extension of the legs compiled from original or borrowed reconstruction of anatomical relations gathered from clinical observation at labour attendances. These reconstructions have to be checked or controlled by the actual demonstration of anatomical facts.

The trend of modern evidence has been to increase by earlier, more thorough, and more exact clinical recognition the number of cases of primary extension of the legs. Hence the relations of the primary attitude of the foetus with extended legs illustrated to-day become increasingly important facts in obstetrical applied anatomy.

In my own practice and experience these relative facts have been proved and re-proved.

ACUTE BRONCHITIS: SOME UNUSUAL ASPECTS.

BY

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CATCHING cold and having a cough are so frequently associated that we seldom stop to inquire whether they are the simple events they appear to be. Colds are known to be excited by exposure to alternating temperatures, bad atmospheric conditions, inhalation of dust, etc., whilst the infective agent of the disease may be one of many micro-organisms or a mixture of several. There is always the possibility of a head-cold or naso-pharyngeal catarrh descending into the deeper respiratory tracts and giving rise to bronchitis, and while this may affect people of all ages it is at the extremes of life its effects are most severely felt. There may be an idiosyncrasy to the malady or an acquired susceptibility to the influence of certain micro-organisms compared with others.

In the commoner types of bronchitis the trachea and large bronchi are mainly affected. The mucous membrane is reddened, the capillaries engorged, and the surface covered with exudation; the epithelial lining degenerates and the cells are thrown off in the expectoration, which, at first scanty, ultimately becomes muco-purulent. It is difficult to state what takes place when the bronchi are invaded by micro-organisms other than that the mucous membrane in its reaction throws off an increased secretion accompanied by cellular proliferation which may become purulent, also that any organisms present may acquire pathogenic

properties which in the earliest stage they did not possess. I have not alluded to the initial stage of the malady, when the bronchial mucous membrane is dry and secretion scanty; cough is then troublesome and frequently accompanied by a sense of substernal uneasiness or of pain; once secretion is established, and the expectoration has become plentiful, the severity of the cough usually abates and to some extent the patient is relieved.

Along with a medical friend I have had the opportunity of observing on several occasions an elderly man who has been the subject of an unusual type of bronchitis. His personal history is good: eleven years ago he passed successfully through a sharp attack of pneumonia. In this, his first attack, pneumococci, influenzal bacilli, and streptococci were found in the sputum. The crisis was reached on the seventh day, and as the convalescence was uninterrupted the patient was back to work by the fourth week. Six years afterwards he had influenzal pneumonia, ushered in like the previous seizure by a rigor, and, although he was severely attacked, recovery in due course was complete. In April, 1923, there was the history of a similar but slighter attack, in which cough at first was dry and hard and the patient complained of a good deal of pain in the front of the chest. Loss of sleep was a marked feature even before cough became a disturbing element. As the illness progressed the cough assumed a paroxysmal character, attended by extremely severe pain in the chest, and by gasping, mainly due to constriction of the chest wall and to a difficulty of dislodging sputum unusually viscid, but never rusty-coloured nor tinged with blood. All through this attack the pulse never rose above 80; on one occasion only did the temperature reach 100° F., usually it was 97.2° in the evening and 96.2° in the morning, with a pulse rate of 72. The physical signs in the chest were those simply of bronchitis; there was never anything to indicate that the alveolar structure of the lung was involved. From the unusual severity of the cough it was clear that a considerable strain was being thrown upon the right side of the heart, but all through the illness, which on this occasion lasted ten days, there were never any signs of collapse nor of heart failure. The urine remained free from albumin.

The points of interest in this illness were the low temperature without signs of physical depression, also the gelatinous character of the expectoration. This at times was dislodged with the greatest difficulty and was attended by a considerable amount of pain, both in the chest wall and abdominal muscles: the individual sputa projected into a glass receiver became so intimately interfused with each other that the expectoration appeared as a clear, richly yellow-coloured jelly, as if stained by picric acid; in fact, so much was this the case that, when handed over to Dr. Slade, bacteriologist to the Royal Victoria Infirmary, he was of the opinion, before examining it, that the rich yellow canary colour was due to picric acid. It was only after a culture was made that the colour was found to be due to a micro-organism, *Sarcina flava*. Pneumococci were also present, to which circumstance may have been due the peculiar jelly-like viscosity of the expectoration. The patient made a good recovery and remained well until December, 1923, when, a wave of influenza having passed over the district, he was suddenly seized with a cold in the head, accompanied by frequent sneezing and nasal catarrh, and, although these were treated by antiseptic sprays and inhalations, by the third day the catarrh had descended into the chest and given rise to bronchitis. Previous to the development of cough the patient was the subject of toxæmia; he seemed to be sickening for an illness, for he complained of frequent yawning and a sense of extreme tiredness, of waves of chilliness passing through his body, a notable disinclination to work, and marked insomnia; the appetite was impaired, but otherwise the ordinary functions were practically normal. When cough developed it was shortly followed by the expectoration characteristic of bronchitis. The sputum was never rusty. The temperature never rose above 100° F., the pulse remained about 80, and the urine normal. The physical signs in the chest were those of bronchitis. On bacteriological examination of the sputum Dr. Slade found it swarming with pneumococci, and when a culture was made the growth was almost entirely

pneumococcal, although a few *Micrococci catarrhales* were also present. Fortunately the pneumococci had not penetrated the epithelial lining of the respiratory organs, and yet the pronounced toxæmia which prevailed suggested that toxins of some kind or other had been absorbed.

Another unusual feature of the illness was that during the decline of symptoms, when neither the temperature, sense of physical weakness, nor cough was such as to oblige the patient further to remain indoors, there would come on, when he was out walking, gradually, yet quickly running to a climax, severe difficulty of breathing due to bronchial spasm, the movements of the chest being sufficiently restrained to prevent air getting into the lungs except in minor quantities. The patient felt as if the lungs could not be expanded, and to this was added a sense as if the ribs could not become elevated. So far as could be seen there was nothing of an asthmatic nature about the seizure nor anything suggestive of angina, for there was neither precordial pain, sense of impending dissolution, pallor of face, nor obligation to remain standing, but only a feeling of distress owing to the difficulty of transporting air into the lungs. In three or four minutes each attack gradually but entirely passed away without the patient expectorating as in asthma. The attacks of dyspnoea, which were three in number, never came on during the night.

The recurring attacks of bronchitis during the last two years not only indicated an increasing susceptibility on the part of the patient to microbic infection, but, along with the bacteriological examination, suggested that he was probably a pneumococcus carrier; and that, while as a prelude to the illnesses the micro-organisms became somewhat virulent, the individual had not been able to produce antibodies in sufficient quantity to confer upon himself protection; also that, while absorption of toxins played an important part in the later illnesses, the alveolar structure of the lung was spared, for the brunt of the microbic invasion was borne by the bronchial mucous membrane.

The blood was examined: the red corpuscles were normal in shape and number, there was no leucocytosis, polymorphs predominated and the lymphocytes were rather fewer than usual. In order to cope with the increasing susceptibility just mentioned, the employment of an autogenous vaccine as a prophylactic, mostly pneumococcal, was suggested; it was tried and the result so far has been successful. Since then I have seen several medical practitioners who, as a consequence of influenza, have exhibited a similar susceptibility, and many of them have determined that on the outbreak of another influenzal epidemic they will resort to such measures as those to which I have alluded as a prophylactic.

What the nature of the interaction is which takes place in disease between micro-organisms and tissue cells is still largely a matter of speculation, but it is more than probable that in certain circumstances the surface tension of the tissue cells becomes lowered, whereby micro-organisms which had been lying external to the cells break through the barrier and become intracellular so that disease follows.

So long as the microbes remain extracellular, persons harbouring them must be considered microbe carriers, and as in this relationship the micro-organisms do little harm few, if any, symptoms develop, even although it is probable that antibodies are not produced. As a consequence of atmospheric conditions or of infection, micro-organisms other than those of which these persons are carriers may fix themselves upon the naso-respiratory mucous membrane and, giving rise to a type of catarrh peculiarly their own, the catarrh descends into the bronchi. To what extent chemo-therapy will explain such an illness as I have described I am not prepared to say. Chemo-therapy regards disease as largely a question of altered electrical conditions existing between plasma, leucocytes, and tissue cells and those created by micro-organisms. It is believed that some Gram-negative microbes are capable of lowering the surface tension of animal cells, whereby their own passage into the interior of the cells is effected. Here in their new habitat toxins along with antitoxins are formed—and the individual, till then a microbe carrier, commences to suffer from a form of disease specific to the micro-organisms concerned.