degree of toxæmia. Mild cases showed normal, or slightly subnormal, readings. The chart of a girl, aged three and a half years, showed the marked depression of blood pressure due to the diphtheria toxin. It also shows a marked rise above normal during a period of severe albuminuria. As practically all the cases of diphtheria in the Edinburgh City Hospital were by routine practice put upon strychnine and alcohol on admission the fall of blood pressure due to the toxic condition was to a large extent annulled. In cases which did not receive any such stimulation a fall was in every case noted until this treatment was commenced. During the routine administration of such stimulants over long periods the blood pressure response to any single dose was apparently absent, or in any case was much less marked than that following the first few doses given to the patient; but in these circumstances, if the routine order were suspended for one or two periods, the blood pressure was noticed to be affected. This constant blood pressure level, as maintained by the use of strychnine at regular intervals, seems to represent the ideal to be aimed at in the stimulant treatment of toxic conditions such as diphtheria.

4. *Effect produced by the administration of antitoxin in diphtheria.*—If careful observations be made⁵ it will be found that in a good proportion of cases there is a rise of temperature of one or two degrees coming on four or five hours after injection; this phenomenon is transient, lasts a few hours, and is not generally seen on the ordinary chart when the temperature is recorded but twice daily. The pulse is also accelerated at the same time, usually out of proportion to the temperature.

At the Edinburgh City Hospital I carefully examined 18 cases of diphtheria to which antitoxin in varying doses was administered. In 15 (or about 90 per cent.) of these a rise of temperature was noted, the maximum being about from three to four hours after the administration. This rise did not seem to be dependent on the amount of anti-diphtheritic serum given or on the age of the patient. The average rise was about 1° F. and the pulse was usually correspondingly accelerated—viz., by six or eight beats per minute. The pulse pressure in almost every case was found either reduced or the same. In a good proportion of the cases this fall took place within a quarter of an hour of the administration and had passed off within an hour. Three or four hours later the blood-pressure was either the same as before administration or slightly raised. The effect is evidently one of temporary depression and permanent stimulation.

5. *Typhoid fever.*—In typhoid fever the blood pressure is always considerably lowered,⁶ the diminution progressing steadily the longer the duration of the case; and it only rises again on the establishment of convalescence or on the occurrence of some acute inflammatory complication (pneumonia, peritonitis, &c.). Potain states that in general this fall is from three to four or even five centimetres of mercury and is neither proportionate to that of the temperature nor to the frequency of the pulse. In the defervescence the pressure at times falls suddenly, then during the convalescence gradually rises again to the normal.

Crile,⁷ after observation of 115 cases with the Riva-Rocci apparatus, states that the average pressure in the first week of the disease was 118 millimetres; in the second, 106; in the third, 104; in the fourth, 96; in the fifth, 98; and the normal was gradually regained as convalescence ensued. Perforation and peritonitis usually elevate the pressure and in many cases the rise has been definitely observed. Briggs records the control. No rise in blood pressure was found in a case where the symptoms pointed to perforation but where none was found on exploration.

Carrière and Dancourt⁸ gave the results of a study of 41 cases of typhoid fever in children. They found increased tension the day before or even several days before a hæmorrhage. It was also found frequently to accompany congestion, especially of the lungs. Pericarditis also caused an augmentation. Myocarditis did not necessarily seem to lead to lowering of the tension; on the contrary, the opposite was often seen. It would thus appear that arterial pressure is able to reveal the onset of complications and, taken with the pulse, temperature, and general aspect of the patient, is of considerable use in prognosis.

In the case of a girl, aged four years, admitted to the Edinburgh City Hospital as one of scarlet fever, the temperature curve was found to be somewhat irregular. The blood-pressure, which was being recorded by me in the series of cases of scarlet fever already referred to, was found to be markedly subnormal and as this was not to be expected in a simple scarlet fever with no very exaggerated symptoms suspicion of typhoid fever was aroused. Widal's test proved positive on first examination and on several later occasions. The value of the estimation of the blood pressure is here exhibited in the diagnosis of a somewhat doubtful case.

Neyoor, Travancore, South India.

A CASE OF INTUSSUSCEPTION IN AN INFANT THREE MONTHS OLD; ENTERECTOMY; RECOVERY.¹

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THE reasons for bringing the following case before this society are the unusually early age of the patient for operation and certainly for it to be followed by recovery; secondly, the absence of shock naturally expected after so severe an operation; and thirdly, to stimulate early diagnosis with immediate bold surgical procedure.

The patient, a girl, aged three months, was apparently perfectly healthy up to 11.30 P.M. on Oct. 20th, 1905, when she was suddenly seized with severe spasms of abdominal pain and vomiting of milk drawn from the mother's breast. The following day Dr. J. Reid was called and promptly diagnosed an intussusception and summoned me. We saw the case together at 5 P.M. and found the child quiet. She permitted palpation of the abdomen, when the sausage tumour was made out, and we saw her blood-stained napkins. The parents agreed to her instant removal to the Preston Infirmary and immediate operation. Within one hour, and 17 hours after the first onset, the child was under chloroform, having been wrapped in cotton-wool and placed upon an indiarubber hot-water bag. The elongated tumour was readily felt, mainly situated to the left of the middle line. With the assistance of Dr. J. E. Pellow, house surgeon, I cut down and reached the tumour. By a milking process we easily reduced it to the last four inches and then brought it outside the abdomen and found it dusky in colour and the serous covering commencing to split. We judged it dangerous to continue the forcible reduction and decided to excise the entire intussusception. After clamping the bowel the mass was excised, consisting of two and a half inches of the ileum, cæcum, appendix, and a small part of the ascending colon, seven inches in all. This in an adult would represent several feet in length. The ends were brought together with the help of a Mayo Robson bobbin. After cleansing, the bowel was returned and the abdominal wall was closed, the operation being completed within an hour.

The after history was uneventful; two and a half hours after the operation the mother suckled the infant and continued to do so every three hours. The child was slightly fretful and during the first three and a half days vomited small quantities of the milk but nevertheless took her feeds regularly and well. Raw beef juice was given on the third day. The bowels acted ten hours after the operation and again in nine hours, and afterwards three times in the 24 hours. On the fifth day the bobbin was passed. The temperature never rose above two degrees and was normal on the tenth day and remained so. The pulse rose to 152 in the first night but became normal on the fourth day. The infant looked remarkably well, certainly not presenting the aspect of one suffering from the shock naturally expected after so grave an operation. The wound was dressed on the eighth day and was quite healed. At the end of three weeks the little patient was discharged, having gained weight, being 13½ pounds and looking the picture of health. She remains in excellent health, not apparently suffering in any way from the operation, beyond a slight weakness of the abdominal wall.

If we remember, "There is no disease in which an infant

⁵ Ibid.

⁶ Cowan: *The Practitioner*, vol. ii., 1904, p. 227.

⁷ *Journal of the American Medical Association*, 1903, vol. xi., p. 1292.

⁸ Crile: *Blood Pressure in Surgery*, 1903, p. 400.

¹ A paper read before the Clinical Branch of the Preston Medical-Ethical Society on April 19th, 1906.

will be attacked so suddenly with the clinical symptoms of abdominal pain, combined with bloody discharges from the bowels" (Rotch), there ought to be little difficulty in arriving at a correct diagnosis. In my experience, failures in diagnosis have been mainly due to not giving sufficient weight to the sign of blood-stained mucus, "currant jelly," from the rectum. Bloody stools occurred in 97 per cent., in from two to ten hours, in the 144 cases reported by Clubbe. This physical sign arises from the congestion and swelling of the entering and returning layers of the intussusception which is well demonstrated in the illustration, strongly contrasting with the thinness of the intussusciens. Of course, this thickening of the two inner layers is the cause of the difficulty of reduction. In this case complete reduction by means of rectal injections would have been impossible. Sir Frederick Treves states: "I believe that limit (12 hours after the onset) will be proved by experience to err on the side of liberality." Fearing the difficulty of simple end-to-end stitching of the extremely thin and fragile gut of an infant only three months old, and that the strain afterwards upon the stitched part might be too great, we judged it wiser to use a Mayo Robson bobbin. Most surgeons agree with Moynihan² that the period of artificial aids in enterectomy is past when dealing with the gut in an adult, but I think that they would make an exception when operating upon an infant aged three months. The great factor in the success of this case was the comparatively short interval between the onset of the affection and the operation. Holt writes³: "All statistics show that the result depends more upon the time when the operation is done than upon any other single factor."

Remarks added later.—C. H. Fagge in "Intussusception in Infants"⁴ described the treatment of 19 cases where to

Intussusception split open. Ileum at the lower end of specimen and ascending colon in the upper part. Appendix to the left of the entering ileum. The thin sheath or intussusciens is well shown and the greatly thickened entering and returning layers. The entering ileum is cut completely across. The ileo-caecal valve is about an eighth of an inch below the level of the number 7. The mesentery is behind the section and not therefore shown in the illustration.

bring about reduction he used great force with very good results, apparently not fearing the splitting of the coats. After reading this paper the doubt occurred to me whether I had applied sufficient force before deciding upon enterectomy. More recently another intussusception came under my care in a boy, aged ten months, in whom it had been present for 13 hours. Acting upon Fagge's advice more force was applied and reduction was easily produced. In this latter case after reduction great thickening of the ileum at its junction with the caecum made me suspect a polypus, but more careful palpation revealed its true character. This operation only occupied 15 minutes and the boy made a quick recovery.

The interesting and highly successful series of 144 cases operated upon by Clubbe⁵ will encourage the use of rectal injections. He found them curative in early cases and useful in all cases where celiotomy is performed to reduce the length of the intussusception before the manipulation is applied in the abdomen. His series certainly marks an enormous advance upon the surgery of 12 years ago when Roughton could only find records of 16 successful laparotomies for intussusception in infants, and of 18 years ago when A. E. Barker published his first paper on the subject, in which he urged that laparotomy could not be performed too early in any case after irrigation had failed.

Preston.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

Exhibition of Cases.—Presidential Address.

THE first meeting of the Clinical Section of the Royal Society of Medicine was held on Oct. 11th, Sir THOMAS BARLOW, the President, being in the chair.

Mr. T. H. OPENSHAW showed a case of a boy with Congenital Absence of the Fibula. The patient was sent to him five years ago. Amputation had been advised. At that time the tibia was extremely curved outwards, making an angle of 110°. He resected cuneiformly and straightened the leg. A year later the patient was fitted with a Hessian's splint appliance which accurately fitted and enabled the patient to walk well. There was about four inches of shortening.

Mr. OPENSHAW also showed an infant whose right tibia was fractured in the centre; the lower end of the upper half projected forwards as a conical stump under a well-marked dimple of skin. The lower half ended also in a somewhat sharp extremity. The internal malleolus was absent. The fibula was enlarged and curved; there was a dimple over the upper end. The external malleolus was much enlarged. In the left leg the upper fifth only of the tibia was present. There was a deep depression over the centre of the upper part of the leg, corresponding with the edge of the fibula. The lower four-fifths of the tibia was absent. The fibula was much enlarged and curved. The external malleolus was very prominent. There were only four toes on the foot.

Mr. DOUGLAS DREW showed a case of Tuberculous Synovitis of the Knee-joint on which arthrectomy was performed on two occasions, a moveable joint resulting. The patient was a girl, aged seven years. She came under observation in February, 1903, with chronic synovitis; previously she had been under treatment at another hospital for some months. The joint was much distended by fluid but there was no limitation of movement. The case was treated on a splint and Scott's dressing was applied at intervals until September, 1904, but no permanent improvement resulted. On Sept. 24th, 1904, the knee-joint was opened by means of Kocher's external incision. Owing to the looseness of the ligaments from the distension it was found to be possible to dislocate completely the patella inwards over the internal condyle without dividing the ligamentum patellæ or chiselling away the tubercle of the tibia with the ligament attached. The synovial membrane which was studded over with miliary tubercle was dissected away, the inner part being rendered more accessible by dislocating the patella. This was completely removed, except for that part lying behind the crucial ligaments. Passive movements of the joint were commenced on the twelfth day after the operation. The case was shown before the Clinical Society early in 1905 and at that time appeared to be a complete cure. However, a few weeks later fluid reappeared in the joint and in spite of treatment on a splint it showed no signs of improvement. On May 16th, 1905, the joint was re-opened through the old incision and a small quantity of fluid escaped. The cavity was lined by a smooth, shining surface which was studded with minute tubercles. The synovial membrane, or what represented this structure (as the true synovial membrane had been removed at the first operation), was carefully dissected away. This was much more tedious to perform than at the first operation as the structure was so

² Abdominal Operations.

³ Diseases of Infancy.

⁴ Practitioner, December, 1906.

⁵ Diagnosis and Treatment of Intussusception, 1907.