On examination the old lady was very thin and dehydrated, with a dry coated tongue and distended abdomen, especially centrally. She tended to hold the abdomen tight and resented palpation, but no localized pain or mass was detected. Auscultation of the abdomen was inconclusive. Rectal examination was negative, and no herniae were present. All other systems were normal. The temperature was 99.6° F. (37.55° C.), pulse 86, respirations 22. A provisional diagnosis of acute intestinal obstruction was made, and the stomach emptied by a Ryle tube, while an intravenous infusion of saline and plasma was administered. Two further enemas failed to produce a result, and a laparotomy under thiopentone-cyclopropane anaesthesia was made a few hours after admission. A lower right paramedian incision revealed free foul pus in the peritoneum and a sticky exudate covering acutely inflamed dilated loops of bowel. The caecum was collapsed, and a perforated gangrenous appendix was lying in the ileac position, free from adhesions. The appendix was easily delivered and removed. The peritoneum was drained and the abdomen closed.

Post-operative treatment, including intravenous glucose-saline, with sulphadiazine 1 g. 4-hourly and 15,000 units of penicillin 3-hourly, brought about steady improvement, and the patient was discharged to the pensioners' home on the sixteenth day of the illness.

Discussion

Early symptoms were not noticed by the patient, and only when vomiting occurred (due to established peritonitis) was advice sought. The clinical picture strongly suggested intestinal obstruction, which no doubt was present in the nature of an ileus, but the cause was not diagnosed until the abdomen was opened. A white cell count before operation might have aroused sufficient suspicion of acute appendicitis to cause the preferable method of right iliac incision to be used. The remarkably uneventful recovery indicates that even advanced age should not deter the surgeon.

Summary

An account of acute appendicitis in the aged is given. The incidence is 1-2% of all cases of acute appendicitis, and the mortality is about 25-30%.

The pathology is a rapid development of gangrene, perforation, and peritonitis.

Clinical aspects are discussed, stressing the paucity of symptoms and signs in the first few days, and the similarity to acute intestinal obstruction and growth of the bowel in later cases.

The treatment is discussed (1) when there is a confident pre-operative diagnosis; (2) when acute appendicitis is merely suspected; and (3) when acute appendicitis is not diagnosed before operation.

An illustrative case at the advanced age of 85, with survival, is reported.

I wish to thank Mr. R. H. Franklin, consulting surgeon, for his advice and encouragement, and Dr. A. A. Cunningham, Medical Superintendent of Kingston County Hospital, for permission to publish this case.

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The Medical Officer of Health of Willesden, Dr. G. F. Buchan, has presented an interesting review of his 34 years' period of office with that borough. From the days when he toured his district in a horse-drawn carriage ("thereby adding greatly to the enjoyment of life and work") to the present time, every year has seen the extension, and sometimes the pioneering, of public health facilities. Comparing the five years 1907-11 with 1941-5, the death rate fell from 11.1 to 8.3, the infantile mortality rate from 100 to 50, and the maternal mortality rate from 3.8 to 1.7. A ringworm clinic was opened in 1912 and has greatly reduced the incidence of that disease; an eye clinic followed in 1914. Already in that year the falling birth rate was being critically examined from physical, social, and economic aspects. In 1917 a midwife and home-help service began for necessitous mothers confined at home. A scholarship scheme for training sanitary inspectors, the first of its kind, which was started in 1927, is very successful and has been copied by other local authorities. Of the three health centres the first was opened in 1916, the second in 1918, and the third in 1930, attendances rising from 18,089 in 1917 to 255,962 in 1938. Plans for the extension of the health services have been worked out, but they are necessarily tentative because of the priority of housing.

Medical Memoranda

New Albumin Blood Substitutes

Known blood substitutes (salts) do not yield good results when the patient has lost large quantities of blood or is in a condition of traumatic shock. It has long been considered necessary to add a colloidal component to the salt solution of every blood or plasma substitute to give it body when injected into the blood vessels. The manufacture of artificial colloidal media as substitutes for blood is still an urgent problem. The selection is limited by the presence of foreign albumins which are biologically active; the colloidal-albumin component of the blood substitute should therefore possess no anaphylactogenic or primary toxic properties.

In our work at the Blood Transfusion Institute we have made use of a solution for intravenous transfusion which we called "colloidal infusin"; it contains an albumin product obtained from the casein of cows' milk. Casein, of course, has both anaphylactogenic and toxic properties. We set about preparing an albumin product from casein which did not possess these properties and which could be used for internal injection in large quantities. A system of fractionation of natural casein was developed to remove the substances possessing primary toxic and anaphylactogenic properties. Practically, this consists in a special method of denaturation and a weak hydrolysis of the initial natural albumin with extraction by means of an organic diluent.

EXPERIMENTAL

Before recommending colloidal infusin to the clinics as a therapeutic medium for parenteral infusion and injections we studied it on animals. Experiments on the substitution and stimulation aspects of the solution were developed in accordance with the following plan: (1) Biological test for anaphylactogenic and primary toxic properties. (2) Substitution effect on dogs whose blood had been drained in quantities sufficient to cause death. (3) A study of the dynamics of the serum albumins in patients suffering from alimentary dystrophy and treated with frequent injections of colloidal infusin. (4) The effect of non-anaphylactogenic casein on the permeability of the blood vessels in patients suffering from alimentary dystrophy and in experimental animals.

Numerous experiments on rabbits showed the complete absence of toxic properties in colloidal infusin (4% concentration) after a single injection of a large quantity (up to 2 g. per kg. weight with internal application). Subsequent internal injections of this albumin at optimum times for anaphylaxis did not produce any reactive effect in the rabbits. The testing of the solution on guinea-pigs by the classic method of producing anaphylaxis also gave negative results.

CLINICAL APPLICATION

To-day we have behind us the experience of 700 clinical transfusions of colloidal infusin given to patients suffering from various ailments (burns, volvulus, alimentary dystrophy, etc.). In many cases a second injection was given at a period dangerous for anaphylaxis, and no reactions were noted which in any way resembled a state of allergy (rash, Quincke's oedema, and other symptoms).

By using numerous successive injections of colloidal infusin we were able to obtain a rapid increase in the amount of albumin in the serum of patients suffering from alimentary dystrophy, with a corresponding increase in colloid osmotic pressure. The data obtained in experiments on animals and in the treatment of human beings demonstrate the significance of colloidal infusin in combating hypoproteinaemia in various diseases.

We now have considerable data, both clinical and experimental, on the question of the effect of colloidal infusin on the permeability of the epithelium of the capillaries of the patient. The question of the permeability of the capillaries is an important pathogenic factor in the development of many diseases. As a rule an injection of colloidal infusin noticeably lowers the permeability of the capillaries, with a pathogenic increase in permeability during the first hours after the injection. Lower capillary permeability was expressed by a lowering of the liquid filtration figure and—a most important fact—by a cessation in the pathological filtration of albumin.

Colloidal infusin is now used clinically in the following ways: as a plasma substitute in cases of traumatic shock and as a complete blood substitute in cases where there has been considerable loss of blood; as a means of treating hypoproteinaemia of various origins (exhaustion from wounds, deficiency of food,

etc.); and as a stimulant in all cases of indolent wounds. In the surgical and therapeutical clinics of the Academy Profs. H. H. Vlado and V. I. Kazansky have made over 700 injections of colloidal infusin. Patients have proved able to withstand large doses of the solution, and its value as a substitute and a stimulant has been proved.

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Monovular Twins

I would like to place on record the following case of twin labour which occurred at the Bosworth Park Infirmary, Market Bosworth, and which appears to confute the theory of X and Y chromosomes.

CASE REPORT

In a primipara aged 31 a twin pregnancy was diagnosed antenatally. This was confirmed some three weeks before parturition by an x-ray photograph, which showed a vertex and a breech presenting. A week later the breech of the larger foetus seemed to be in front of the vertex of the smaller; so by simple external manipulation the latter was made to engage in the pelvic brim.

At the commencement of labour the diagnosis of vertex and breech was confirmed, and the vertex was found to be leading. Labour proceeded normally and expeditiously up to the birth of the first twin, a girl who weighed 5 lb. 2 oz. (2.3 kg.); the placenta, however, remained *in situ*, and its normal delivery was prevented by the head of the second twin following on the heels of the first, so that the second head engaged in the pelvic brim, and the presenting part became the vertex instead of the breech. The birth of the second child was complicated by the presence of the umbilical cord of the first, which latter was no doubt responsible for the imperfect flexion of the head, which resulted in a deep transverse arrest. With the aid of forceps the second twin, a boy of 6 lb. 12 oz. (3.06 kg.), was delivered 2 hrs. 20 mins. after the first.

The after-birth came away naturally after the second twin was born, and consisted of a single bag of membranes containing two placentae. There was no visible communication between the two placentae, nor was there any evidence, either macroscopically or by palpation, of the remains of an atrophied partition of membranes, which would have indicated the fusion of two gestation sacs into one. Mother and children are all doing well.

I am indebted to Dr. G. D. Kelly for permission to publish this case.

G. H. PICKERING, M.R.C.S., L.R.C.P.

Oedema of Vulva due to Toxaemia of Pregnancy

The following case of vulval oedema obstructing normal delivery may be thought interesting enough to be put on record.

CASE REPORT

Mrs. B., a primigravida of 21 years, attended the antenatal clinic at this hospital throughout her pregnancy. She had no history of any cardiovascular or renal disease, and these systems were normal on examination. Her last menses started on June 19, 1945, the expected date of delivery therefore being March 26, 1946. At first examination she appeared healthy, her blood pressure being 110/55 mm. Hg. There was no oedema or albuminuria. Her pregnancy was uneventful until Feb. 15, when she complained of some swelling of her ankles. A fortnight later, at the 36th week of pregnancy, her B.P. was 150/95. On March 14, the 38th week, her B.P. was 150/105, and there was considerable albuminuria (+++), together with gross pitting oedema of legs and thighs, stretching up on to the anterior abdominal wall. Her face looked puffy and oedematous, but there was no oedema of her hands. She had vomited once during the previous night, but was free from visual symptoms and headaches.

On examination on admission there was also considerable pitting oedema of the vulva as well as of the legs and abdomen. The B.P. was 150/110, and there was considerable albuminuria—5 parts per 1,000. In spite of routine treatment, including fluid restriction, salt-free low-protein diet, and 3 mg. vitamin B, three times a day, the oedema did not decrease. The following day oedema of the vulva was greater but that of the legs was less. The labia majora and minora were grossly enlarged, as can be seen in the accompanying photograph. Her urine contained 6 parts of albumin per 1,000, and her B.P. was 140/110.

By March 16 no improvement in her condition had occurred; her B.P. was 140/100, albuminuria $5\frac{1}{2}$ parts per 1,000, and oedema greater still. Urinary output was persistently normal and satisfactory. Caesarean section was therefore performed, the indications being a severe pre-eclamptic toxæmia not responding to treatment, with gross oedema of vulva sufficient to obstruct any attempt at a normal delivery. The classical upper-segment operation was performed, because of the impossibility of catheterization of the bladder due to the gross oedema. On opening the peritoneal cavity 1 to $1\frac{1}{2}$ pints (568 to 852 ml.) of pale yellow free fluid was found. This was removed. A normal male child weighing 6 lb. 1 oz. (2.749 kg.) was delivered in good condition, and cried immediately. The mother's condition at the close of the operation was good.

Subsequently her progress was satisfactory. On the third day after operation she developed a temperature. There were no symptoms to account for this, and the oedema prevented a catheter specimen of urine or cervical swab being taken. The pyrexia soon settled with a course of sulphadiazine. The oedema subsided during the course of the next 10 to 14 days, her blood pressure rapidly fell to normal limits, and the albuminuria had disappeared after 10 days. On April 8 she was discharged from hospital in very good health. There was no oedema or albuminuria, and her B.P. was 120/85. The infant weighed 6 lb. 6 oz. (2.89 kg.), was fully breast-fed and

Showing the oedematous vulva, from a photograph taken on March 15, the day before Caesarean section was performed.

in very good condition. The mother was subsequently seen at the postnatal clinic on May 1, 1946, six weeks after delivery, when she was still well, with no trace of oedema or albuminuria. B.P. was 130/70. The child was progressing satisfactorily.

I wish to thank Mr. A. J. Wrigley and Mr. F. H. Finlaison for permission to publish this case, and Mr. M. G. Allen for the photograph.

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Modification of Ochsner and Mahorner Test for Patency of Deep Veins of Calf

It is well established that before an operative cure of varicose veins can be contemplated the patency of the other venous drainage of the leg—that is, the deep system—must be proved. At present there are two standard methods of doing this. The first is that of Ochsner and Mahorner, in which an Esmarch bandage is used to occlude the superficial veins; the onset of pain on walking indicates occlusion of the deep veins. Secondly, that of Delbet and Mocquet, which is based on the anatomical facts that there is free communication between the deep and superficial veins of the calf through the gastrocnemius and soleus and that contraction of those muscles plays a large part in the onward transmission of blood from the leg. When the patient walks with the superficial veins occluded by pressure the collapse of the veins below the pressure signifies patency of the deep veins. The test as described in Hamilton Bailey's *Physical Signs in Clinical Surgery* is a combination of the principles underlying these two tests. Both are rather laborious, and the modification to be described, based on these principles, seems to me more convenient and equally effective.

THE TEST

When the incompetence of the saphenous valves has been proved by the presence of a "cough impulse" the thumb or fingers are laid over the great saphenous vein in the thigh with just sufficient pressure to occlude it. The patient is then asked to raise himself up and down on his toes, thus bringing the muscles of the calf into action. He continues to do this until either he complains of pain or the veins below the thumb are definitely seen to be emptying (this usually takes 15 to 30 seconds). The pressure in the thigh is then released, and the veins will be seen to refill rapidly from above. Any doubts as to their having emptied will be dispelled. If this emptying occurs the deep veins may be confidently stated to be patent.

This is a quick and convenient test and is chiefly of value when emptying occurs. If no collapse is seen, although the deep veins may be patent they should be regarded with suspicion. Further inquiry may reveal a history of old thrombophlebitis, which obviously contraindicates ligation.

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