

A case of Mr. Pollard's is also of interest in that the tuberculous affection was acute when the patient came under his care.

A girl, aged 11 years, was admitted to University College Hospital on May 18th, 1906, and discharged on June 27th cured. Three years ago she was seen in the out-patient department by Mr. Pollard for signs of tuberculous disease of the left hip. She was put on a Thomas double hip splint and remained on it for a year. The symptoms gradually subsided and the disease appeared to have cleared up. She was kept lying down for another six months, then she was up and about. Since then, during the last six months, she had several bad falls and the mother attributed the present condition to these falls. When admitted the right hip was greatly swollen and there was a large abscess on the anterior and outer parts of the joint. The skin over the abscess was slightly red. The hip-joint was quite fixed in good position, the limb being slightly abducted and rotated out. There was some tilting down of the pelvis on the right side with one and a half inches apparent lengthening, but in reality half an inch shortening. There was no sign of disease in any other joint or organ. On May 19th Mr. Pollard operated by the usual incision for an anterior excision of the hip. The acetabulum was found to be perforated and an abscess inside the pelvis was evacuated, the diseased bone scraped and a counter opening made at the lower part of the abscess and two tubes inserted. She suffered considerably from shock. On admission the patient's temperature was 100.6°F . but after the operation it did not rise above 100.2° . Seven days after the operation she was given an injection of $\frac{1}{1000}$ th milligramme tuberculin T.R. Next day her highest temperature was 99.2° but after that it did not rise above 99° . Six days after this injection and 13 after the operation, a second injection of $\frac{1}{1000}$ th milligramme tuberculin was given, and again a third dose on June 22nd, her temperature now being normal, her appetite good, and only small granulating surfaces present where the tubes had been. On June 27th she left the hospital and went to the seaside, her opsonic index then being 1.1 as compared with 0.68 when first examined. From there she came to the hospital at the beginning of August and was given a further dose of $\frac{1}{1000}$ th milligramme tuberculin. On Sept. 24th her opsonic index was 0.92 and she is apparently quite cured.

My thanks are due to Mr. P. M. Heath, surgical registrar, for the clinical notes of these cases.

It is, of course, possible that these cases might have done as well without tuberculin, but their past history was in each case unfavourable and showed a tendency to recurrence, while their power of resistance to the tubercle bacillus was low. This was increased by tuberculin injections, and it is reasonable to suppose that their rapid recovery was at least aided by increasing their resisting power to the bacterial infection. I will not weary you with any more cases, but I might refer you to a paper in THE LANCET of Oct. 27th, 1906, p. 1130, by Turton and Parkin of Hull giving details of 34 cases of various kinds which they have recently treated in their practice, in 30 of which the injection of bacterial vaccines gave excellent results. The results of treatment of some dermatological cases have already appeared in a paper by Pernet and myself in the October, November, and December numbers for 1906 of the *British Journal of Dermatology*. So many other successful cases have now been recorded that the employment of bacterial vaccines must in the future prove of the greatest service in the treatment of disease when controlled by the method which Wright and Douglas have so ably elaborated. They must in many cases be used in conjunction with other methods, for as long as a patient has a focus of disease he is liable to reinfection. In conclusion, I have to express my indebtedness to Dr. W. Bulloch for much valuable advice and assistance and to Professor Sidney H. C. Martin for his kindly encouragement and for permitting me to avail myself of the resources of his laboratory.

Park-street, Grosvenor-square, W.

A CASE OF HÆMORRHAGIC CYST OF THE SPLEEN.

By W. L. HARNETT, M.A., M.B. CAMB., F.R.C.S. ENG.,
ASSISTANT PATHOLOGIST AND DEMONSTRATOR OF MORBID ANATOMY,
ST. THOMAS'S HOSPITAL.

THE patient, a male, aged 40 years, was admitted into St. Thomas's Hospital under the care of Mr. Clutton on Nov. 25th, 1905. He was at that time a coal porter, but had been in the Marines for 21 years and had served abroad in various parts of the world for, in all, 15 years. There was a clear history of malaria, but he denied having ever had syphilis. The family history was of no interest. Seven weeks previously to admission he noticed a small swelling on the inside of the left thigh just above the knee. This increased in size so rapidly that in less than a month he was unable to walk. On admission a pulsating swelling, having all the characters of an aneurysm of the popliteal artery, was present on the inner side of the left thigh just above the knee. The leg was markedly wasted and, in common with the rest of the body, was covered with a pustular rash of a scabetic character which, according to the patient's statement, had been present for some time. There was well-marked general arterio-sclerosis and no pulsation could be felt in the peripheral arteries below the aneurysm. The liver and spleen could be felt to be enlarged. The urine contained a trace of albumin. During the few days preceding operation the aneurysm increased rapidly in size, the circumference of the thigh, which on admission was $14\frac{1}{2}$ inches, rising to $15\frac{1}{2}$ inches three days later. At the same time the skin over the aneurysm began to show signs of pressure. On Nov. 28th Mr. Clutton operated and ligatured the femoral in Hunter's canal, the walls of the artery being found to be extensively diseased. During the next few days the temperature assumed a septic type, with signs of suppuration in the neighbourhood of the aneurysmal sac, and at the same time suppuration became more active in the pustules on that leg. There were no signs of gangrene in the leg, the state of the circulation being as before the operation. On Dec. 3rd an incision was made over the sac without actually opening the latter and extensive cellulitis was found. As will be detailed below, suppuration had actually taken place in the sac, the infection having presumably reached it from the pustules in the overlying skin, the ligation having probably hastened events by diminishing the blood-supply to the parts. After the incision the temperature fell but death took place two days later.

Post-mortem examination.—Only a partial necropsy was allowed. The skin over the aneurysm was in a sloughing condition and the sac was found to be filled with suppurating blood clot. The femoral and popliteal arteries were in a state of advanced atheroma with extensive calcification. The lumen of the femoral was firmly occluded by the ligature. The heart was enlarged, mainly owing to hypertrophy of the wall of the left ventricle. Both mitral and aortic valves were thickened, but were competent when tested in the usual manner; there were no recent vegetations upon any of the valves. There was well-marked atheroma of the aorta, though not so extensive as might have been expected from the condition of the femoral and popliteal arteries. The peritoneum and intestines were normal. The liver was enlarged, weighing $86\frac{1}{2}$ ounces, and was pale in colour and markedly cirrhotic. In addition, there were several deep puckered scars, resembling those caused by the healing of gummata. The cut surface showed the fibrous tissue to be increased, dividing up the parenchyma into islets in the manner usual in polylobular cirrhosis. There was slight enlargement of the kidneys, the organs weighing $7\frac{1}{4}$ and 7 ounces respectively. The capsules were adherent and on stripping them a coarsely granular surface of an unusual appearance was left, the elevated areas being of a dead white colour, in striking contrast to the darker coloured depressed portions. The amount of cortical substance was relatively diminished and was of a white colour, whilst the pyramids were dark. The renal arterioles were moderately thickened. The spleen was converted into an enormous unilocular cyst, measuring about 10 inches by 6 inches, of a dark indigo colour, with an irregular bossy surface. There were numerous adhesions, of considerable standing, between the peritoneal surface and the surrounding organs. On section the cyst was found to contain nearly a pint of dark, brownish-red, turbid fluid,

LITERARY INTELLIGENCE.—Mr. James Stanley Little, from whose pen we publish this week an interesting lay view upon the Riviera as a health resort, is publishing through Messrs. W. H. and L. Collingridge a new work entitled "The Doom of Western Civilisation." Mr. Little's title is probably more pessimistic than his book, for his previous writings lead us to believe that he thinks a good deal of vitality still remains in the British Empire.

which proved to be altered blood. The main mass of the splenic substance formed the outer and part of the posterior walls of the cyst, was about four inches long, and roughly maintained the shape of the normal spleen. Another good-sized mass of splenic substance was situated on the inner wall near the hilum, and between these two a broad bar of it extended transversely, roughly dividing the cyst into two nearly equal compartments, an upper and a lower. The splenic substance was much tougher than normal. The wall of the cyst varied from about one-eighth to one quarter of an inch in thickness; in some places it appeared to be composed of fibrous tissue only, in others splenic substance could be seen inclosed in the fibrous tissue. The inner surface of the wall was rough and coated with remains of blood clot, whilst on the peritoneal surface were remains of adhesions, torn through in removal. The main trunk of the splenic artery was found entering at the hilum; it was somewhat thickened, but not markedly so. Fine probes were passed into the main artery, which traversed the transverse bar of splenic substance mentioned above, but all attempts to discover a branch communicating with the interior of the cyst were unsuccessful.

The accompanying illustration (Fig. 1) shows the organ

FIG. 1.



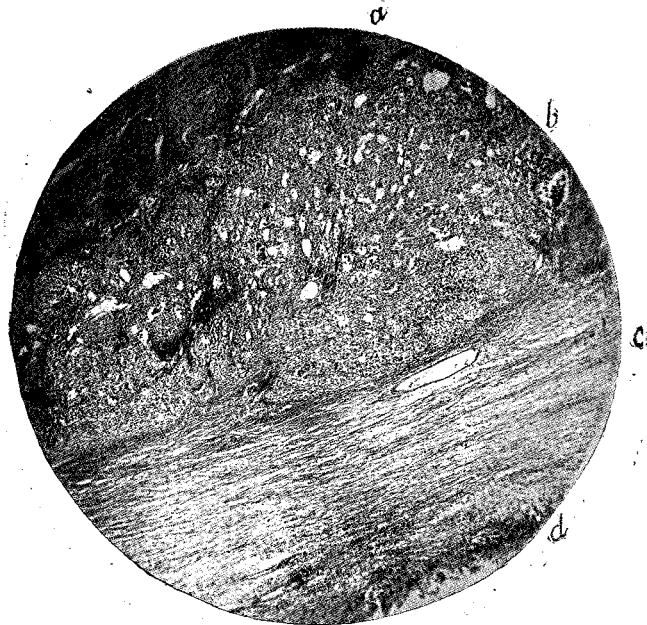
The cyst viewed from the front. The two compartments are well shown; a pad of wool has been inserted into the lower one to prevent it collapsing while being photographed.

viewed from the front and the cyst opened by a transverse cut. The remains of the spleen are seen on the right of the figure and a probe enters the splenic artery on the left at the hilum, to emerge in the spleen substance where the artery divides into several branches. The two compartments of the cyst are well shown.

Microscopical examination.—Sections of the spleen showed great thickening of its peritoneal coat. The spleen substance proper was divided from the cavity of the cyst by a fibrous tissue coat, of less density than that on the peritoneal surface, which merged into the remains of blood clot everywhere lining the cavity of the cyst; no limiting layer of cells was present. The substance of the spleen showed a slight but distinct fine fibrosis. The Malpighian bodies were well developed and quite unaffected by the fibrosis. A large amount of pigment (which gave the reaction for free iron) was scattered throughout the section. The cells contained in the trabeculae differed from the normal only in the higher proportion of polymorphonuclear neutrophils to lymphocytes and in the markedly increased number of coarsely granular eosinophile cells, the latter forming a striking feature of sections stained by Leishman's method. Sections stained with methyl violet showed slight amyloid degeneration in the trabeculae throughout the spleen substance, the Malpighian bodies being unaffected. In the

thicker parts of the cyst wall (see Fig. 2) three distinct layers were present—an outer fibro-muscular layer, an inner fibrous lining of more open texture merging into the altered blood clot, and a middle zone consisting of remains of splenic tissue undergoing fibrosis. In the inner layer a good deal of pigment, some of which gave the reaction for free iron, was present. There was no sign of any layer of

FIG. 2.



A portion of the cyst wall where the three layers are well defined: (a) outer fibro-muscular layer; (b) middle layer of spleen pulp; (c) inner fibrous layer; and (d) blood clot forming lining of cyst. (1 in. obj. B eye-piece.)

cells lining the cyst cavity. The middle layer resembled the spleen, as described above, but the fibrosis and increased proportion of coarsely granular eosinophile cells were more marked. In the splenic artery there was slight patchy thickening of the intima in the portions prepared for microscopy, but there were no large patches of degeneration and no interruption of continuity of the endothelium. No amyloid degeneration could be detected. There was advanced cirrhosis of the liver of the polylobular type with well-marked perihepatitis, bands of fibrous tissue extending downwards from the thickened capsule into the liver substance. The interstitial fibrous tissue was extensively infiltrated with round cells, of which the polymorphonuclear neutrophils formed by far the larger proportion. Fatty change in, and necrosis of, the liver cells were very marked and in some areas the liver cells had broken down into masses of debris, these latter changes being evidently the result of the septic infection from the suppurating aneurysm. All the vessels in the liver showed well-marked amyloid degeneration. In the kidney the usual changes of chronic interstitial nephritis were well marked and in addition there was amyloid degeneration in the vessels and glomeruli. The interstitial tissue was very cellular and here, too, the high proportion of polymorphonuclear neutrophile cells was noticeable. All the vessels showed well-marked thickening.

Non-parasitic cysts of the spleen are of extreme rarity and in text-books of pathology are dismissed with a bare reference to their existence. The Hunterian Museum of the Royal College of Surgeons of England contains one specimen of a hæmorrhagic cyst from the human subject and one of a serous cyst in the spleen of an ox. Attention was first drawn to the condition by Andral in 1829, and since then some 32 cases observed during life and about 20 met with accidentally at necropsy have been recorded.

Heinricius¹ has collected all recorded cases up to 1904, and discusses fully the various theories which have been put forward to explain the formation of these cysts; whilst lately Powers² has added some further cases. Two classes of cyst formation are discussed by Heinricius with illustrative cases: (a) serous cysts, usually multiple and of small size, which are considered to arise either from dilatation of

¹ Heinricius: *Archiv für Klinische Chirurgie*, 1904, vol. lxxii., p. 138. (This paper contains a bibliography of the subject up to 1904.)

² Powers: *Annals of Surgery*, 1906, part clvii.

lymph vessels or from inclusions of peritoneal endothelium; and (b) hæmorrhagic and sero-sanguineous cysts, single and usually of considerable size, which he, in common with other observers, regards as being due to the rupture of an intrasplenic vessel with subsequent encapsulation of the extravasated blood. Powers further differentiates two varieties of this latter class: one form originates in a sub-capsular hæmorrhage, slight but continuing for a long time, the peritoneal capsule undergoing a low form of inflammation with the formation of adhesions and the spleen being liable to atrophy from the pressure of the cyst; whilst in the second form the hæmorrhage takes place deep in the parenchyma and the walls are formed of normal splenic tissue, which in time becomes transformed into fibrous tissue, the cyst tending as it enlarges to approach the surface. That the present specimen belongs to this variety of Class (b) is evident from the large masses of nearly normal splenic tissue contained in the walls of the cyst (as described above).

This case is described in detail as it presents many points which support the view that these cysts arise from rupture of an intrasplenic vessel. The patient was the subject of advanced arterial disease and had a popliteal aneurysm, together with evidence of syphilis in the form of gummatous cirrhosis of the liver and amyloid disease in the viscera. It is possible that there may have been a small aneurysm of one of the branches of the splenic artery, from the rupture of which the hæmorrhage originated, though the absence of any marked disease of the main splenic artery is rather against this. No communication between any of the arterial branches and the interior of the cyst could be discovered, but one cannot lay any stress on this point, as the hæmorrhage would almost certainly proceed from a small perforation, and would probably take the form of repeated small hæmorrhages spread over a long period of time. There was a history of malaria in this case, and in many of the cases quoted by Heinricius mention is made of this point. When present it is an important etiological factor, as the liability of the enlarged malarial spleen to be ruptured by trivial injuries is well known. And when to this predisposition is added atheromatous and amyloid disease of the vessels it is obvious that very slight causes might bring about the extravasation of blood. In some of the cases there was a definite history of trauma, but these were a minority. As regards the anatomical site of the leaking vessel in this case it was probably close to the hilum since the main mass of unaltered spleen substance formed the left-hand wall of the cyst.

In the two papers referred to the questions of symptoms, diagnosis, and treatment are considered, but these I do not propose to enter into here, as they did not come up for discussion in this case, the existence of the cyst being only discovered at the necropsy. The interest of the case lies in the presence of coincident factors which clearly indicate the pathology of one form of this rare condition.

I have to thank Mr. Clutton for permission to make use of the clinical notes of the case.

THE RELATIVE SIZES OF THE MATERNAL PELVIS AND OF THE FÆTUS IN EUROPEANS, EURASIANS, EAST INDIANS, AND BENGALIS.

By J. C. HOLDICH LEICESTER, M.D., B.S., B.Sc.

LOND., M.R.C.P. LOND., F.R.C.S. ENG.,

CAPTAIN, I.M.S.; FIRST SURGEON TO THE GENERAL HOSPITAL, CALCUTTA.

SOME time ago there appeared in THE LANCET¹ an interesting and suggestive paper by Captain Clayton A. Lane, I.M.S., entitled "A Clinical Comparison of the Maternal Pelvis and of the Fœtus in Europeans, Eurasians, and Bengalis," in which he tabulated the full measurements of 118 pelvises, the weights of 357 children, and the measurements of the heads of 158 children, and from the results obtained he enunciated a law that: "The child grows in utero in such a manner, and at such a rate that at full term his size is proportional to that of the mother's pelvis through which he has to pass in order to be born." At a later date a leading article on this paper appeared in the same journal.² At the time of

reading these articles I was holding the post of resident surgeon to the Eden Hospital for Women, Calcutta, and I thought that as I was in such a favourable position for the work it would be both interesting and instructive to carry out a further course of investigations on the same lines, but which should embrace a far larger series of cases. I began this work in October, 1903, and with the exception of a few weeks' break in April and May, 1904 (due to illness), I continued it until I relinquished my appointment in June, 1905. I endeavoured to adopt as far as possible exactly the same methods of weighing and measuring the children, and of measuring the pelvis, as were employed by Lane and fully

TABLE I.—Showing the Measurements in Inches of the Pelvis for Varying Lengths of Conjugate Diameter.

Length of the conjugate diameter.	Number of cases measured.	Length of the inter spinous diameter.			Length of intercristal diameter.			Percentage of interspinous to intercristal diameter.
		Minimum.	Maximum.	Average.	Minimum.	Maximum.	Average.	
Bengalis.								
3.625	6	6.125	8.25	7.187	8.5	9.75	9.146	78.581
3.75	22	6.0	8.5	7.364	7.625	10.5	9.222	79.853
3.875	49	5.25	9.0	7.383	8.75	10.375	9.429	78.301
4.0	240	5.75	9.0	7.415	8.0	10.75	9.527	77.831
4.125	84	5.75	8.75	7.495	8.625	10.75	9.674	77.476
4.25	61	6.0	9.0	7.273	8.125	10.5	9.59	75.839
4.375	11	6.5	9.25	7.989	9.375	10.75	10.0	79.89
4.5	8	6.0	8.5	7.453	9.25	10.875	9.906	75.237
4.75	2	8.25	9.25	8.75	10.5	10.75	10.625	82.353
Other Natives.								
3.25	1	7.25	7.25	7.25	9.5	9.5	9.5	76.316
3.5	3	6.25	6.75	6.417	8.125	8.875	8.583	74.764
3.625	2	5.5	6.625	6.062	7.25	8.75	8.0	75.775
3.75	4	5.5	7.25	6.656	7.75	9.375	8.875	74.997
3.875	5	7.125	9.125	8.05	9.5	10.5	10.025	80.299
4.0	33	6.0	9.0	7.519	8.75	10.75	9.633	78.055
4.125	21	7.0	9.5	7.929	9.0	11.25	9.964	79.576
4.25	16	6.625	8.75	7.633	9.25	11.0	9.984	76.452
4.375	3	8.0	8.5	8.25	9.625	11.0	10.5	78.571
4.5	1	8.0	8.0	8.0	10.0	10.0	10.0	80.0
East Indians.								
3.5	1	6.5	6.5	6.5	8.125	8.125	8.125	80.0
3.75	1	7.75	7.75	7.75	9.5	9.5	9.5	81.579
3.875	3	6.75	8.0	7.208	9.125	10.0	9.458	76.211
4.0	20	6.5	8.625	7.462	8.625	10.875	9.881	75.519
4.125	22	6.125	9.25	7.534	9.25	11.375	10.062	74.876
4.25	16	6.5	9.0	7.742	9.25	11.0	10.062	76.943
4.375	7	7.25	9.0	8.089	9.0	11.125	10.178	79.475
4.5	4	6.875	8.0	7.531	9.625	11.25	10.344	72.805
Eurasians.								
3.75	1	8.125	8.125	8.125	10.0	10.0	10.0	81.25
3.875	1	7.0	7.0	7.0	9.25	9.25	9.25	75.676
4.0	33	6.25	8.5	7.53	8.75	11.0	9.958	75.618
4.125	52	6.125	9.25	7.534	9.0	11.0	9.995	75.378
4.25	60	6.125	9.25	7.698	9.0	11.75	10.275	74.919
4.375	34	6.5	9.25	7.805	9.0	11.625	10.231	76.288
4.5	20	6.625	8.875	7.775	9.25	11.125	10.356	75.077
4.625	2	7.75	8.5	8.125	10.75	12.0	11.375	71.429
4.75	2	8.5	9.25	8.875	10.75	10.75	10.75	82.558
Europeans.								
4.0	4	7.5	8.5	8.062	10.125	10.625	10.437	77.244
4.125	14	7.0	8.625	7.732	9.375	11.5	10.339	74.785
4.25	25	6.75	9.375	8.06	8.75	12.125	10.665	75.574
4.375	19	7.0	10.25	8.053	10.0	12.0	10.711	75.184
4.5	24	6.875	10.75	8.446	10.0	12.5	11.083	76.207
4.625	1	7.25	7.25	7.25	10.0	10.0	10.0	72.5
4.75	1	9.375	9.375	9.375	11.5	11.5	11.5	81.522
4.875	2	8.25	9.25	8.75	10.625	11.625	11.125	78.652

¹ THE LANCET, Sept. 26th, 1903, p. 885.

² THE LANCET, Oct. 3rd, 1903, p. 963.