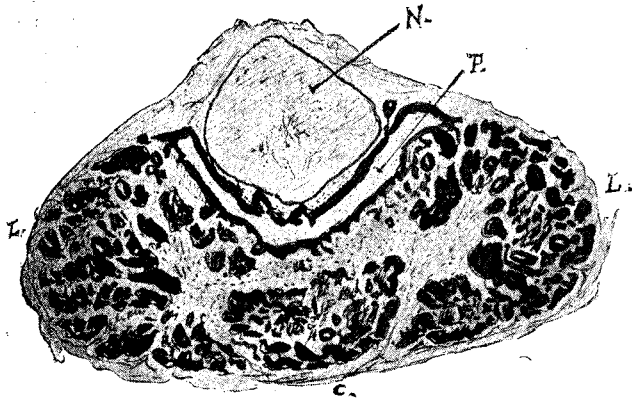


process has grown much in length, and that the two horns have met over it, thus leaving its rounded free end projecting as a posterior lobe. The mass of the body on either side of this is mainly composed of epithelial processes from the anterior surface of the original "plate." In their growth these have pushed back the plate and its contained cavity, and wrapped it closely round the front and sides of the neural process. In the figure the small prominence marked by a cross is actually the posterior wall of the cavity showing on the surface at this spot.

A transverse section through the body, such as is seen in Fig. 5, shows very well this assumption of a dorsal-curved

FIG. 5.



Section through pituitary body in fourth month. N. Neural (posterior) lobe. P. Cavity. L. L. C., Lateral and central groups of processes.

position by the cavity, pushed back by the mass of epithelial processes. The section is below the level of overlapping cornua and shows the extent of the cavity laterally. It does not appear to be at all occluded by the pressure of the mass of outgrowths, but is covered by them altogether in front and is wrapped round the posterior lobe on its front and lateral aspects. If the cavity is followed upwards it is found to be continuous on each side with a cornual cavity, and these two processes turn back above the neural part and just meet; from these processes large masses of outgrowths take origin, and these form the greater part of the mass that meets its fellow behind. In fact, the cornual cavity itself is confined to the lower part of each of the two meeting masses.

The common cavity extends down below the level of the posterior lobe, lying in the back part of the body, nearly to its lower end, but the lower part of the body is altogether formed by the outgrowths from the cavity. It seems that the cavity contained in the "plate" of the sixth week is preserved almost unchanged, except by its cornual outgrowths.

The section shown in the last figure indicates also the general arrangement of the groups of processes. It can be seen that there are two lateral collections of these, which are the largest and the earliest formed, growing from the margins of the plate as shown in the younger stages; but there is also a central group of epithelial processes, and this has its origin, at a lower level, from the central convexity of the front wall of the cavity. There are two other sets of outgrowths to be considered; those from the intermediate parts of the front wall, which are short and unimportant, reaching their best development in the region of the origin of the central mass, and those from the posterior wall, which are very few, short, and stumpy, and with a comparatively large cavity.

The arrangement of the three principal groups of processes is simple, and related to the disposition of the cavity. The two lateral groups form the mass of the gland in the lower part, but open out and turn backward as they pass up, thus leaving the more deeply placed central group to reach the surface and cause a slight convexity in the upper and front part of the body. The groups are separated by broad strands of stroma, and this is probably already cutting up some of the epithelial processes in places. A lumen is easily seen in most of the processes, and in some is comparatively large. The specimen measures 1.2×2.4 mm.

The cavity of the infundibular growth apparently disappears during the third month. At this time the process is mainly composed of neural cells continuous with those in the floor of

the third ventricle, but with a layer of fibres on their ventral side. In the fourth month fibres have appeared among the cells, and the general arrangement is one where a layer of fibres superficially encloses a complex of cells and fibres in the centre; but the earlier ventral position of the fibres is maintained to some degree where the cornua enclose the process, and these fibres appear to decussate as they pass down into the prominent uncovered part. At this stage also some collections of cells are found in the free part of the process, running longitudinally and perhaps enclosing a lumen; whether these have any connexion with the original cavity seems doubtful.

The description given of the growth of the pituitary body can be easily and shortly summed up. During the second and third months Rathke's pouch, at its dilated upper end, grows up on both sides of an infundibular or neural process, and encloses its proximal part, leaving its distal end freely projecting behind. At the same time lateral groups of epithelial processes spring from the front aspects of the pouch margins, and a central group from its front aspect between these. The lateral groups extend from below upwards, and thus reach the cornua that enclose the neural part, and in the interval thus occurring between them as they pass backward the central group comes to the surface. The groups, enlarging, form the great mass of the gland in the fourth month, and because they grow from its front wall they push the cavity to the back, where it lies under the neural portion. The buccal portion loses its connexion with the naso-pharynx about the beginning of the third month or later, but a persistent tract remains below the skull running down the back of the nasal septum to the angle between the septum and the soft palate.

Probably the buccal portion, looked at from the front, would be more or less circular if it were not for the presence of the infundibulum lying on its top border, and the growth of the cornua is probably the expression of this tendency under the existing circumstances. This view of the "plate" so modified is supported by the measurements given, although they cannot, of course, be more than approximately true, especially in the case of the earlier embryos. Finally, it is only necessary to add that I have never seen in these stages any tendency of the neural part to invade the buccal portion or to throw out any processes whatever.

ACUTE COLLIQUATIVE NECROSIS OF THE SPLEEN.

By G. W. WATSON, M.D. LOND., M.R.C.P. LOND.,
HONORARY ASSISTANT PHYSICIAN, LEEDS GENERAL INFIRMARY;
AND
M. J. STEWART, M.B. GLASG., M.R.C.P. LOND.,
CLINICAL PATHOLOGIST, LEEDS GENERAL INFIRMARY.

In fatal cases of streptococcus infection changes in the spleen are among the most constant of the post-mortem findings. These changes are probably in the majority of cases similar in kind, though differing in degree according to the virulence of the attacking organism, the capacity for resistance of the host, and other factors. The organ is increased in size and altered in colour and consistency. In the earlier stages there are congestion and slight softening of the splenic pulp, which becomes of a dark red colour. Later, the colour changes to a peculiar greyish-red and the organ becomes extremely soft, even diffuent. It is rare to find actual suppuration occurring in the spleen in cases of septicæmia, but in general pyæmia and in malignant endocarditis splenic abscesses are not uncommon. As a rule, they are multiple and small in size, being the result of embolic infarction; but sometimes the spleen is simply converted into a large abscess-cavity which may contain anything up to several litres of pus.

The condition which we wish to describe differs materially from all the above. Here the greater part of the interior of the organ, pulp and stroma alike, had undergone necrosis and liquefaction, but without any evidence of suppuration.

Clinical history.—The patient, a man aged 26 years, came under observation on Feb. 2nd, 1912. He was a temperate man, and gave no history of ill-health prior to the onset of the present illness. For a week he had suffered from "rheumatic" pains in different parts of the body, but

chiefly in the shoulders. There were no other symptoms beyond a feeling of utter weakness. There was no history of syphilis.

On examination no joint affection could be determined. The pain was evidently not connected with the joints, but appeared to be muscular, and was associated with tenderness on pressure. This was most marked in the upper arms and in the calves of the legs. Examination of the nervous system revealed no indication of any disease thereof. There were no evidences of metallic poisoning of any kind. The percussion note at the apices of the lungs was not very good, and was not so good on the right side as on the left. At the right apex, above the clavicle, an occasional râle was heard on deep inspiration. The question of early phthisis was considered, but the signs were too indefinite to warrant a diagnosis, and in the absence of any complaint of cough or fever the matter was looked on as of subsidiary importance.

The man was admitted to hospital on Feb. 6th. Beyond the fact that he looked considerably worse than he had done four days previously, there were no new developments. The temperature was normal and the pulse-rate 84. On the 8th a blood examination was made, but this showed nothing beyond a leucocytosis of 15,000. The patient was now coughing up a certain amount of muco-purulent sputum, which was examined several times for tubercle bacilli with negative result. The signs in the chest were unaltered. On the 16th a severe tonsillitis developed, with a rise of temperature to 101.4° F. This was determined to be of streptococcal origin. On the same day a copious purpuric eruption appeared on the hands and feet, and there was a little bright blood in the sputum. On the following day episcleritis and iritis developed, and the rash became more extensive. The tongue was brown and dry, the gums swollen and tender, and the breath very offensive. The pulse-rate had gradually risen to 120, and the patient was now critically ill. There was some complaint of tenderness in the region of the spleen, but nothing objective could be made out on examination.

The case was looked upon as probably one of septicæmia of obscure origin, and a culture of the blood was decided upon, but before this could be carried out the patient died somewhat suddenly on the morning of Feb. 21st.

Post-mortem examination.—A somewhat emaciated subject. The blotchy purpuric eruption still persisted, and was most marked on the hands, elbows, and feet.

The *spleen* was much enlarged, and presented a very remarkable appearance. It was cavitated in the centre, apparently by a process of colliquative necrosis, and filled with a bloody, turbid fluid, not in the least resembling pus, of which several ounces ran out on incision of the organ. The capsule was thickened, and adherent to the diaphragm and other surrounding structures. Internally it was lined by a layer of shaggy, much altered splenic tissue, which varied in thickness in different parts.

The *lungs* were the seat of both old and recent tuberculous lesions. In the apex of the left upper lobe there was a chronic caseous lesion with central cavity formation, while near the apex of the lower lobe there was a recent active cavity with some small tuberculous foci round about. At the apex of the right lung there was also a chronic cavity, with enormous thickening of the adjacent pleura. There were many old pleural adhesions on both sides of the chest. The *bronchial glands* were enlarged and congested, and in at least one of them there was a small calcareous focus.

The *heart* showed evidence of cloudy swelling, but was otherwise normal. In both *kidneys* there were several wedge-shaped tuberculous infarcts of various sizes, apparently of recent formation. The *liver* was pale, soft, and fatty-looking, but the other abdominal viscera appeared normal.

The *cerebral vessels* showed marked engorgement, but the *brain* on section appeared normal.

Microscopical examination of spleen.—The splenic substance, or what remains of it, shows more or less necrosis, the change being most advanced in the ragged portion lining the central cavity. In this situation the few stained nuclei which remain are chiefly those of a few lymphocytes and polymorphs, the latter by no means abundant. Immediately beneath the capsule, where the necrotic changes are less advanced, there is a narrow zone of engorgement and hæmorrhage. At no part is there any evidence of pus formation. The spleen is adherent to the diaphragm by soft, loose fibroblastic tissue, of which the layer immediately abutting on the splenic capsule shows necrotic changes, and is infiltrated by round cells and polymorphs. Irregularly scattered throughout the shaggy, most necrotic, portion of the spleen are many short chains of streptococci, but no organisms are seen in the peripheral subcapsular region of the organ. Unfortunately no cultures were taken and the liquefied splenic substance was not examined.

Remarks.—From the clinical standpoint the case was a very obscure one, especially during the earlier stages. The total duration of the illness was only four weeks, and for the first three weeks of this period the patient's sole complaint was of widespread muscular pain and tenderness, and of great weakness. From the time of onset of streptococcal tonsillitis, five days before death, and especially after the

appearance of a purpuric eruption, the diagnosis of septicæmia became moderately certain, and latterly all the phenomena pointed to such an interpretation.

The question arises, Did the septicæmia date from the tonsillitis, or was it in existence prior to that time? The latter seems the more probable, and on this assumption we are able to explain both the earlier symptoms and the presence on Feb. 8th, a week before the tonsillitis, of a leucocytosis of 15,000. It is rather remarkable, however, that the disease should have run an afebrile course until the onset of tonsillitis, and it is just possible that, after all, the latter may have been the initial streptococcal lesion. Apart from this possibility, the pulmonary phthisical cavities constitute the most obvious source of streptococcal infection. The tuberculous lesions themselves are not extensive, although probably of long standing, but that the disease was still active is shown by the presence of recent tuberculous foci in both kidneys. It is difficult to estimate to what extent tubercle was a factor in the production of this patient's symptoms, but the post-mortem appearances certainly suggest that there was a terminal lighting up of the tuberculous process, perhaps coincident with, but possibly preceding, the streptococcal infection.

From the pathological point of view, the chief interest is centred in the condition of the spleen. During life, apart from some complaint of tenderness in the splenic region, there was nothing to indicate that profound changes were taking place within that organ, yet on post-mortem examination it is found that the spleen is virtually converted into a sac of bloody, turbid fluid, which flowed out on incision of the organ. To this condition we have ventured to apply the term "colliquative necrosis" as being both self-explanatory and strictly accurate. It is conclusively shown microscopically that the lesion is a necrotic and not a suppurative one, and also that it is associated with the presence in the spleen of numerous short chains of streptococci. The latter are found only in the shaggy necrotic tissue lining the splenic capsule, as if there had been an enormous and rapid accumulation of organisms locally with death *en masse* of the splenic pulp. There was no evidence of embolism or thrombosis.

The condition is unique in our own experience, and must be one of great rarity, as we can find no reference in the literature to anything approaching it. Professor Walker Hall informs us that he has recently seen a similar specimen from a case of puerperal septicæmia.

Leeds.

ACUTE IRREDUCIBLE INTUSSUSCEPTION IN A CHILD AGED SIX MONTHS; RESECTION; RECOVERY.

BY GERALD S. HUGHES, M.B., B.S. LOND.,
F.R.C.S. ENG.,

ASSISTANT SURGEON, YORK COUNTY HOSPITAL; LATE SURGEONAL
REGISTRAR AND PATHOLOGIST, BOLINGBROKE HOSPITAL,
WANDSWORTH COMMON, S.W.

With a Note by Mr. D'ARCY POWER.

THE following case of intussusception in an infant aged six months seems worthy to be recorded, not so much on account of the rarity of such cases, but on account of the success attending the resection of 15 inches of the gut.

A male infant, aged six months, was admitted into the York County Hospital on April 29th, 1911, under my care. The mother gave a history that the child was taken ill at 10 A.M. on April 27th. At first he seemed to be suffering from diarrhoea and vomiting; the motions passed were loose and green. At 4 P.M. blood was seen for the first time in the motions and the child had a "convulsion." On the same evening the child had more of these "convulsions." During the early hours of the following morning the mother noticed a lump in the abdomen. Dr. S. H. Smith was consulted, who diagnosed that the child had an intussusception and sent the infant at once into the hospital.

On admission the child appeared to be very collapsed. The pulse-rate was 120, and the temperature was 97° F. A swelling could be felt across the upper part of the abdomen, and the rectum was found to contain blood. I operated immediately and found a large ileo-colic intussusception, which