Since then I have seen scores of cases in which gaps, and wide displacements, appear in several processes, sometimes on both sides of the vertebrae, where no injury had occurred.

In this district, where back injuries and fractured spines are common, the problem of deciding whether trauma has anything to do with the condition shown in a radiograph arises almost every day. In some of the widest separations I have seen, in which perhaps four processes have been displaced downwards for an inch or more, there has been no strain or blow, but I have now and then found a similar condition below the seat of an injury, and in several cases the man has placed his finger on a spot as the seat of pain, which has proved to be exactly over a separated process. In such cases I always attribute the separation to the injury. The case here illustrated by diagrams taken from radiographs is interesting because it for once answers a question which has often been raised—namely, if these processes have been fractured why do they not follow the usual method of healing with callus formation?

A Welsh collier, aged 55, was struck in the left loin by some falling material. He was much bruised and had a small wound. Some weeks later a radiograph showed the first four left lumbar transverse processes separated as shown in the diagram (Fig. 1). The man resumed work, and, after a time, did full collier's work for some months. Then, after an unusual twist, he had pain in the left loin and gave up work. I took the radiograph (Fig. 2) some two and a half years after the first accident. The first process remains as before; the remaining three have fused together in a mass of callus about four inches long and one inch wide, running parallel to but separate from and behind the bodies.

FIG. 1

FIG. 2

I have previously seen slight attempts at callus formation in single fractured processes, but never anything so extensive as this.

On the vexed question whether strain, as distinct from direct violence, can fracture these processes, I can only say that I have not been satisfied in any case that it has occurred. I think it more likely that muscle or muscle attachment would give before bone.

Before I accept even direct violence as a cause I expect the following conditions to be fulfilled.

1. A definite history of a blow over the site of the suspected fracture. I have seen a workman awarded compensation because a radiograph showed a separated second lumbar transverse process. His injury was a fall on the buttocks on a smooth floor, whilst pushing a wheelbarrow. His symptoms were those of sciatica.

2. The lesion must be unilateral. It is inconceivable that an

injury could fracture transverse processes on both sides without also fracturing the spinous process.

3. The immediate after-history should be reasonably consistent with the man having had a severe blow. Considerable force is necessary to break a bone covered as these processes are covered, and I should expect very definite evidence of bruising, and probably a wound. So much depends upon the man, that his capacity for working on varies enormously. Some of the old Welsh colliers have extraordinary powers of bearing pain, and will manage to walk home after such an injury, but any attempts at working or stooping would naturally be extremely painful.

AN INFLUENZAL CONDITION SIMULATING THE ACUTE ABDOMEN.

BY

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THE responsibility of deciding whether a case is one needing the immediate aid of surgery, or whether the abdominal signs are the mask of a medical condition, is no uncommon experience. When faced with this type of case the medical practitioner will be alive to the possibility of pneumonia or of a sudden pneumothorax, of uraemia, and of the nervous crises of tabes and pernicious anaemia; but when all these have been reckoned with there remains another class not infrequently submitted to needless surgery.

Many can call to mind a case in which the abdomen was opened under the impression that an acute catastrophe had taken place, but no gross lesion of any organ could be discovered, only a slight amount of free fluid, sometimes blood-stained, scattered petechial haemorrhages, and small bags of jelly-like lymph. After careful search a more or less normal appendix has been removed, and the surgeon has closed the abdomen with no small degree of secret chagrin.

During the last two years I have seen in consultation a series of fifteen cases, all remarkably constant in general type, with marked signs and symptoms pointing apparently to some acute surgical intra-abdominal lesion. In one instance I performed laparotomy on the diagnosis of acute intestinal obstruction. I found the free fluid, the jelly-like lymph, and the subperitoneal petechiae. There was in addition, in the lower portion of the ileum, a persistent

contraction ring with distended gut above and collapsed intestine below. No organic cause of any nature could be discovered. This man recovered in spite of the treatment, whilst all the others have reached the same happy ending without the intervention of surgery.

These cases form, I believe, a definite clinical condition, which can mimic, as it did in this series, any type of acute surgical abdominal condition. Taking this case which I opened with the previous sporadic ones exhibiting similar intra-abdominal findings, and comparing all as regards their clinical signs and symptoms, I think that it is possible to offer a reasonable hypothesis for their cause and pathology.

The onset was sudden; vomiting of bile-stained material was an early sign, but was not persistent. The patient was seized with the most acute pain without any previous feeling of malaise or other warning symptom. In some the pain was in the upper abdomen, in others in the lower. The acute spasms of pain were intermittent, with intervals of comparative freedom varying from five to fifteen minutes. During the spasm the muscles in the affected area could be felt, and at times could be seen to go into a condition of cramp. During the attack there was board-like rigidity in the affected area which did not completely disappear with the pain. Palpation caused pain, but the patient complained before the pressure of the examining hand had reached the peritoneum. The tender layer appeared to lie in the muscles of the abdominal wall rather than in the peritoneum. It is a distinction which is not very easy to explain in writing, but it can be clearly observed in the clinical examination.

The severity of the pain was most marked, and the way in which it could wring a cry from strong men suggested, when seen for the first time, that an acute perforation of

a hollow viscus had occurred. These patients did not, however, lie still, as does one with acute perforation, but rolled about in pain; some of the patients insisted on getting into the knee-elbow position during the spasms. The abdominal respiratory movement was little if at all impaired in spite of the large degree of rigidity. This is a point which I believe is always of great value in diagnosis between a surgical abdomen and referred abdominal symptoms. It is a sign which I have before described as "the respiratory movement resistance-ratio."

The pulse rate in most cases was unaltered at the commencement of the trouble, the temperature was normal or even subnormal. The facial expression was in no way suggestive of an abdominal lesion, and was a valuable piece of evidence. In twenty-four to forty-eight hours the picture changed, and signs suggestive of influenza were manifest, whilst the pain had in large measure disappeared. It is with the cases in which an acute obstruction is suspected that most difficulty arises. It is hard to refrain from opening the abdomen in a doubtful case when two enemas have produced no result. The passage of intestinal contents may be arrested in three ways: by mechanical obstruction, by paralytic ileus, and by acute spasm of the intestine, or what is called spastic ileus. The one case which I opened was of this type. Its association with influenza has been noted by other observers. If this condition is suspected and two enemas have no result, then the correct treatment is to give an injection of morphine and follow this by another enema in half an hour. In my experience a good faecal result will follow this practice, and so prevent untimely surgery.

There appears to be a definite seasonal incidence, since these cases have mostly occurred during an epidemic of influenza. As happens with influenza, relapses were not

uncommon in this series, in some of which the whole sequence of events was repeated after a fortnight or three weeks; in one instance of a girl who had severe vaginal and pelvic pain three attacks supervened.

In other cases of influenza pain of a similar nature has been felt along the course of the fifth cranial nerve, and in some this has been followed by a herpetic eruption over the area so supplied; in others an eruption has not appeared although the acuteness of the pain in the area has been just as marked. A true herpetic eruption was seen in only one of this series. In another case, however, which suggested an acute cholecystitis, in place of the ordinary vesicular appearance of the herpetic lesion a crop of petechial haemorrhages with the same characteristic spacing and distribution was later seen in the area of the skin of the abdominal wall affected by the pain. I have on one other occasion seen pain along the course of cutaneous nerves followed by a similar haemorrhagic manifestation of herpes.

In encephalitis lethargica, which also in some measure keeps pace with influenza epidemics, an intermittent painful spasm of the abdominal musculature is a well known feature.

The suggestion which is here put forward in explanation of the pathology of these cases is based on the work of Sir Thomas Lewis on the setting free of a histamine-like body in the skin by the use of antidromic nerve impulses. It is suggested that the influenza toxin or some ultramicroscopic virus associated with the disease causes a lesion of the posterior root ganglia. Instead of a toxic agent being set free in the skin, as it is in some instances as a result of such irritation, this happens at the nerve endings in the sub-peritoneal tissues, and so gives rise to the petechial haemorrhages and the free fluid which are the common pathological changes seen if the abdomen is opened in these cases.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PAPILLOEDEMA AND ARTERIO-SCLEROSIS.

DURING May, 1926, two patients were admitted to the ophthalmic ward of St. Bartholomew's Hospital complaining of failing vision.

CASE I.

A man, aged 52, had been in the hospital in June, 1925, when he complained of failing vision, and was found to have marked swelling of both discs, unaccompanied by haemorrhage or exudation. There was also well marked retinal arterio-sclerosis. Vision in both eyes was much reduced ($< 6/60$). The heart was slightly enlarged; the blood pressure was 260/160, and there was a trace of albuminuria. No nervous lesion was discovered. The Wassermann reaction was negative. He was discharged at the end of June, 1925, *in statu quo*.

On readmission in May, 1926, he had the same degree of papilloedema and of retinal arterio-sclerosis as before, but vision was still more reduced. His complexion was blotchy and unhealthy. The heart was not appreciably larger than before; blood pressure 260/140. There was no nervous lesion. The urine contained a heavy cloud of albumin, urea 1.65 per cent., and there was a scanty deposit consisting of a few white blood corpuscles, epithelial cells, and hyaline casts.

CASE II.

A man, aged 52, gave a history of failing vision (presbyopia) for four years. He was found to have considerable swelling of both discs with no haemorrhages or exudation. Arterio-sclerotic changes were well marked in both fundi. Vision in both eyes was 6/12. The general examination revealed that his health was good. The heart was slightly enlarged; blood pressure 205/145. No nervous lesion was discovered. The urine contained a trace of albumin; urea 2.6 per cent.; a moderate deposit contained a few white blood corpuscles and a few epithelial cells.

In both these cases there was well marked papilloedema of a type which, ophthalmoscopically, was indistinguishable from that seen in cases of cerebral tumour. The only other changes were those of arterio-sclerosis. There were no haemorrhages and no exudation. The clinical diagnosis in each case was persistent hypertension, and the diagnosis lay between hyperpiesia and chronic interstitial nephritis. The high diastolic pressure in both cases is in favour of

chronic interstitial nephritis, in which the diastolic pressure tends to be rather higher than in the purely vascular group. In the first case the presence of a heavy cloud of albumin was also in favour of chronic interstitial nephritis. In both cases there was absence of symptoms of renal function failure or renal toxæmia; there was no loss of weight in Case II (slight in Case I); no digestive disturbance, no micturition changes, and no secondary anaemia. In both cases the kidneys could concentrate well. There were no red blood cells or appreciable excess of white blood cells in the urine.

Dr. Geoffrey Evans has shown that arterio-sclerosis of a certain form is a constant pathological change found after death in vessels of patients suffering from persistent hypertension during life. In both cases, therefore, the pathological diagnosis of diffuse hyperplastic sclerosis can be made. But whereas Case II belongs to the group of essential hypertension, or hyperpiesia (German arteriolo-sclerosis mitis, or nephro-sclerosis lenta), the first case belongs, more probably, to the group of chronic interstitial nephritis (German arteriolo-sclerosis gravis; Volhard's form of malignant hypertension). The striking point is the amount of papilloedema. In both cases, as has been stated above, this was present in the degree which is seen in cases of pronounced increased intracranial pressure, and, indeed, it was indistinguishable from that which occurs in this condition.

Papilloedema does occur in renal retinitis, but rarely to such a degree, and is very seldom unaccompanied by other evidence of renal retinitis—such as cotton-wool patches and haemorrhages. Further, in Case II the renal origin of the disease can be, with a good deal of certainty, excluded.

It is noteworthy that the amount of papilloedema in Case I remained unchanged after one year.

It is suggested that the papilloedema in these cases is associated with persistent hypertension and arterio-sclerosis.

These cases are published in order to call attention to this association, for by following up such cases it should be possible to tell if Bright's disease in any form develops.

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