

A CASE PRESENTING DIFFICULTY IN DIAGNOSIS.

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The patient, aged forty-three, Jewish, was admitted to a medical ward on a Saturday afternoon. He was sent in as an acute case, either coronary thrombosis, diaphragmatic pleurisy, or acute abdomen, but certainly requiring hospital observation. He spoke English very poorly, but he was able to indicate that he had pain in the epigastrium, left hypochondrium and lower part of the left chest in front.

He stated that until the previous Thursday evening he had been well. On arriving home from work that evening he experienced a "warm" feeling in the epigastrium. This did not trouble him unduly. He had a heavy meal and went to bed. About 4.30 a.m. the following morning his sleep was disturbed by a sudden pain in the left hypochondrium and epigastrium. The pain was pressing, severe, and continuous in character.

The pain could not be relieved. It was aggravated by sitting up, standing, lying on his left side and, to a lesser extent, by lying on his right side. Deep breathing, however, did not aggravate the pain.

He went to work on Friday, but returned home at 10 a.m., as the pain was severe. It lasted all day. On Saturday morning he vomited three times. He then called in a doctor, who sent him to hospital.

Condition on Examination.

Middle-aged male subject; somewhat obese, sitting up in bed. Temperature 102.40 deg. F.; pulse 120; respiratory rate 30. His lips were markedly cyanosed. Tongue very dry and furred.

The patient was breathing rapidly, thirty times per minute. Both sides of the chest moved equally, but the excursion was small. There were occasional crepitations at both bases.

The chest was short and broad, well covered with fat, so that it was difficult to define the size of the heart, but there were no extraneous sounds while the rhythm was regular and the rate corresponded to that felt at the wrist. The blood pressure was: systolic, 120; diastolic, 88.

The abdomen moved slightly on respiration. There was rigidity over the right hypochondrium and right lumbar region. Marked tenderness was elicited over both right and left hypochondria. Murphy's sign was negative; no masses palpable; and no enlargement of the liver or spleen could be detected. There was no tenderness rectally, and no other abnormality detected.

The leucocyte count was 20,000 per cu. mm. The urine was acid: S.G. 1.020. Albumin was present, and a few pus cells were detected in a catheter specimen.

This patient had been admitted to a medical ward, and the physician was troubled as to whether this might be an acute surgical condition. Consequently the corresponding surgeon was called in. He made a provisional diagnosis of acute cholecystitis, and advised conservative treatment.

The following morning the patient's condition was slightly improved, but his pulse rate was still 120, breathing was rapid and cyanosis marked. His temperature was 101 deg. F., the upper right rectus was still rigid, but there were no further chest signs.

On the third day he was transferred to a surgical ward, where his condition gradually improved. The pain and cyanosis decreased, and on the fourth day the temperature was normal, the pulse 84, and the respiratory rate 28.

Discussion.

The case was discussed at a meeting of the Final Years; many and varied were the diagnoses and pathological explanations offered. The main conditions suggested were:—

1. *Coronary Thrombosis.* The pain started at rest. It was continuous, and was not relieved by anything. There was marked cyanosis. These points were offset by the abnormal situation of the pain and a pulse of good tension with regular rhythm.

2. *Diaphragmatic Pleurisy.* Pain in both hypochondria with rigidity of the upper right rectus, rapid respiration, cyanosis with increased leucocyte count, and crepitations at both bases were points in favour of this diagnosis. The main arguments against this diagnosis were: The pain was not aggravated by respiration, and there was no subsequent appearance of a pleural rub.

3. *Acute Cholecystitis.* The continuous pain, temperature, rigidity, and leucocytosis all pointed to this diagnosis. The absence of any previous history of flatulence or reaction to fatty foods (though this could not be satisfactorily determined), the cyanosis, and the negative Murphy's signs were points against the diagnosis.

Although no definite diagnosis was reached, a subsequent electrocardiogram which showed no abnormality and two "shadocol" examinations which revealed deficient concentration would appear to confirm the last diagnosis.

This type of case is not uncommon, and illustrates how difficult it may be to differentiate between an acute medical and an acute surgical

condition. A case described by J. H. Gear in the November issue of *The Leech*, 1935, which presented a somewhat similar picture, turned out to be a diaphragmatic pleurisy. On the other hand, a similar case admitted to the Non-European Hospital during the first week of May, which was treated conservatively for twenty-four hours and then opened, proved to be a generalised peritonitis.

RECENT ADVANCES.

I.—PHYSIOLOGY.

The Suprarenal Cortex.

The last few years have witnessed remarkable developments in biochemistry, such as the isolation and determination of the chemical constitution of the sex hormones and Vitamin B, and within the last few months these developments have been crowned with the isolation of the suprarenal cortical hormone and the resolution of its chemical constitution by Reichstein, of Zurich, and various co-workers at the Universities of Basel and Amsterdam.

Reichstein isolated about nine crystalline substances from the suprarenal cortex, and of these, one had the physiological properties of active cortical extracts. This has been designated corticosteron, although the term adrenosteron has found its way into the literature. Although highly active, the existence of other active or at least activating substances is still possible.

Corticosteron is a sterol, hence its name, and this fact in itself is sensational to anyone who is familiar with the chemistry of the sex hormones, and the carcinogenic substances of Cook and his co-workers in London. It has long been known that the suprarenal cortex is intimately connected with the sex glands, various changes occurring in the hypophysis and gonads on adrenalectomy, and in the cortex on experimental interference with the sex glands. Recent experiments indicate that pregnant adrenalectomised female rats fail to go through the normal processes of parturition; abortion is common and lactation absent. Adrenal cortical extracts re-establish the normal course of reproduction, parturition and lactation (Britton and Kline.)

The sexual changes occurring with cortical tumours are also familiar. Considerable light may now be thrown on the mechanism of these by the chemical constitution of corticosteron, and some degree of correlation between the changes in the sex glands and cortex on the basis of chemical formulae may be possible. The chemical constitution may also, in due course, afford an

explanation of the occurrence of cortical tumours just as the sex hormones may give rise to carcinogenic phenanthrene derivatives; but the scope of this subject is far too comprehensive to be dealt with here.

The incidence of the large number of lipid granules of high cholesterol content in the suprarenal cortex has long baffled histologists, but now it may be possible to connect them with the formation of the cortical hormone, perhaps as precursors of it, just as the cholesterol granules in the corpus luteum might be the forerunners of progesterone. These facts will be appreciated by anyone acquainted with the chemistry of cholesterol and the hormones, and are supported by the fact that adrenalectomy results in a rise of blood cholesterol. In human Addison's disease the blood cholesterol is also high, and falls when cortical extract is given.

Probably the most important function of the cortical hormone so far unfolded is its connection with carbohydrate metabolism. This work is due largely to Verzar and his co-workers. It has been revealed that glucose in its absorption from the intestine undergoes phosphorylation processes similar to those occurring in glucose oxidation in muscle. The phosphorylation is under the influence of corticosteron, and by this means glucose can be selectively absorbed from the intestine. If the phosphorylation processes are interrupted, either by adrenalectomy or by iodoacetic acid, this selective absorption is abolished, and such unusual sugars as xylose may be absorbed. Corticosteron is also concerned in the absorption of fatty acids, cholesterol and Vitamin B₂.

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II.—PATHOLOGY.

(a) The Etiology of Influenza.

Interest in the etiology of influenza has been stimulated by the isolation of a filterable virus from cases of epidemic influenza by Smith, Andrewes and Laidlaw (1933.) These workers were able to produce a characteristic disease in ferrets by the nasal instillation of human nasopharyngeal washings; the infection was reproduced in series and the responsible agent shown to be a virus. These results were later confirmed and the virus has also been isolated by Frances (1934) in America, Burnet (1935) in Australia, and Smorodintseff (quoted by Fairbrother and Hoyle) in Russia.

All these viruses are immunologically identical; and attempts to isolate the virus from normal individuals from cases of acute coryza and cases of sporadic influenza have given negative results.