RECENT ADVANCES IN MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF

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The Spleen: Its Association with the Liver and its Relation to Certain Conditions of the Blood.

Wm. J. Mayo (Journ. Amer. Med. Assoc., March 1916) discusses shortly the possible relationships between the spleen and the liver, and gives his results by splenectomy in the various forms of enlargement of the spleen. The spleen has a close and distinct relationship to the liver. It sends the material it takes from the blood to the liver; the spleen hypertrophies secondary to cirrhotic processes in the liver, and in Banti's disease (the terminal stage of splenic anæmia) the liver becomes cirrhosed. Probably the spleen conserves what is obtained from broken-down red cells, and sends them to the liver for further use, and also acts as a sieve for parasites and products of degeneration, and passes them on to the liver for conservation. The spleen also has a relationship to the blood. In the foetus it is a blood-forming organ; at birth it loses power to produce red cells, and after birth it disposes of the worn-out red cells. When the spleen becomes enlarged Mayo suggests this may be a work hypertrophy, as seen in splenic anæmia, haemolytic jaundice, and possibly pernicious anæmia. In other cases the enlargement of the spleen—e.g. in syphilis—is definitely associated with the accompanying secondary anæmia, as is shown by the fact that removal of the spleen removes the anæmia. In enlarged spleens there are microscopic differences, and this, Mayo thinks, may explain why removal of the spleen is of benefit and may even cure conditions of the blood or liver which hitherto have been fatal. Mayo puts it that "the spleen—an organ not necessary to life and not causing disease on its own initiative—is the one link in an otherwise fatal chain which can be easily and safely broken."

Results of Splenectomy in Various Enlargements of the Spleen—(a) Infections.—In primary tuberculosis of the spleen its removal has cured a few instances. In 3 cases Mayo removed very large spleens from cases of chronic syphilis with marked anæmia. Ordinary specific treatment had not the desired effect, but following splenectomy marvellous improvement in the anæmia took place. He removed the spleen in
7 cases of chronic recurring septic conditions. The benefits were not marked, such cases being liable to be carried off by cardio-renal insufficiency.

(b) Splenic Enlargements in Association with Hepatic Disease.—In primary biliary cirrhosis of young adults in which the spleen is also enlarged, splenectomy has been followed by marked benefit and even cure. In 4 cases of portal cirrhosis of the liver and greatly enlarged spleen Mayo removed the spleen with great improvement in 3 of the cases, the ascites and anaemia soon disappearing.

(c) Enlargements in Blood Conditions.—Cases of splenic anaemia are cured in most instances by removal of the spleen, and in several instances Mayo has obtained cure in the advanced stages of the condition, i.e. after the liver had become cirrhosed and ascites established. In 3 cases of Gaucher's disease in which the spleen was of enormous size Mayo performed splenectomy, with cure.

In haemolytic jaundice—an anaemia of splenic origin with acholuric jaundice—Mayo has performed splenectomy in 9 cases, and with striking results. In 24 hours the jaundice begins to disappear, and in a few days the complexion is clear. The anaemia soon disappears, and the cure is permanent.

Mayo has removed an enlarged spleen in 19 patients with pernicious anaemia, and he is of the opinion that splenectomy, if performed in the early stages, will permanently check, if not cure, the condition.

Results from Blood Transfusion in the Treatment of Severe Post-haemorrhagic Anaemia and the Haemorrhagic Diseases. Methods for Testing Donors for Transfusion of Blood.

Petersan (Journ. Amer. Med. Assoc., April 1916) discusses blood transfusion and gives his results, and Minot (Boston Med. and Surg. Journ., 4th May 1916) describes the methods for testing donors of blood before transfusion.

Petersan is inclined to think that at present the procedure is often adopted without discrimination. He believes transfusion ought to be employed in (1) cases of haemorrhages of various degrees and types; (2) selected cases of anaemia; and (3) selected toxic and septic cases. Petersan's 27 recorded cases belonged to the first category of simple and pathologic haemorrhage, the latter including haemophilic and purpuric cases. In anaemia, from simple loss of blood—(e.g.) following trauma—transfusion of blood is always efficacious and prompt. In cases where the haemorrhage cannot be reached without operation—(e.g.) gastric or duodenal ulcer or typhoid fever—transfusion does well, and, as a rule, it is better to wait till bleeding has ceased before transfusing. In chronic post-haemorrhagic anaemia following repeated losses of blood—
(e.g.) haemorrhoids, epistaxis—transfusion is easily the best remedy, and here it is better to employ several small transfusions than a single large one. All Petersan’s 7 cases of this group are successful.

In haemophilia, while the disease is not cured, transfusion offers the best results in helping those who have lost a quantity of blood. The transfused blood introduces into the patient an excess of the elements necessary for coagulation. Petersan’s 6 cases were markedly benefited.

In purpuric conditions transfusion is of great service. He reports one case of haemorrhagic neonatorum cured, and says that, from the experience of others, transfusion has reduced the death-rate from 60 per cent. to 5 or 10 per cent. In idiopathic purpura there is a tendency to uncontrollable haemorrhage. Petersan treated 8 cases by transfusion. Two died, one of acute nephritis months after last transfusion, and one was moribund at the time the treatment was given. In 3 cases a single transfusion cured the condition. In 2 cases, where death was threatening from profound anaemia, transfusion was successful in saving them. In secondary haemorrhagic diseases—(e.g.) in haemorrhage seen in uterus, sepsis, nephritis, blood diseases, etc.—transfusion is useful in controlling the bleedings. In conclusion, he points out that transfusion may be a “miss or hit” game, because one donor’s blood may do excellently while that of another has no effect, and that these variable results may be expected so long as we have no means of standardisation of blood as a therapeutic agent. Minot in his paper describes the essential conditions for successful transfusion. In transfusion he says it is desirable to have as a donor one who is healthy, whose blood gives a negative Wassermann, and whose plasma neither haemolyses nor agglutinates the patient’s red cells, and whose cells are not haemolysed or agglutinated by the patient’s plasma. It has now been established that “all human adults can be divided into 4 groups in regard to the ability of their red blood-cells to be agglutinated by other human sera, or their sera to agglutinate other human red cells.” If, therefore, two individuals belong to the same group, neither will agglutinate nor haemolys each other’s red cells. Some groups are less common than others; and the group to which a particular individual belongs is inherited, according to Mendel’s law, and an individual throughout life, and in all conditions, remains in the same group. A donor is a satisfactory one if he belongs to the same group as the patient. At the Massachusetts General Hospital Minot has determined the groups to which a series of willing donors belong. When a transfusion case is admitted his group is determined, and a donor of that same group is summoned, and transfusion can then be done with no fear or risk of agglutination or haemolysis. The determination of a particular donor’s group is readily determined, and Minot, in his paper, describes the methods in regular use. Little apparatus is required, and the process of determining donors’ groups takes only about 20 minutes,
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a short-time method being essential, as transfusion is often required in an emergency.

The Pituitary Body and Renal Function.

Motzfeldt of Christiania (*Boston Med. and Surg. Journ.*, 4th May 1916) contributes further information on the relations of the pituitary gland to renal function. Clinical cases of diabetes insipidus treated with pituitary extract, and observations on normal individuals with pituitary, have led him to the conclusion that the pituitary gland controls the amount of urine passed and also certain of the solid constituents. In 3 cases with diabetes insipidus he was able to show that administration of extract of the posterior lobe of the pituitary gland considerably diminished the quantity and increased the concentration of the urine. In these cases, as roentgenograms showed, there was no tumour of the gland; and he concludes that his cases were the result of a hypofunctional activity of the hypophysis. This was corroborated also by the fact that they answered in their symptoms to the four cardinal symptoms laid down by Cushing as indicating a lowered functional activity of the posterior lobe of the pituitary. Motzfeldt is of the opinion that the majority of cases of diabetes insipidus are due to this lack in the posterior lobe. Following his clinical cases he made numerous observations on normal individuals, and ascertained that injection of extract of the posterior lobe had a distinct effect on the quantity of urine passed. In each case the diuresis was diminished, and in most cases to a considerable extent, and the concentration of the urine increased both as to nitrogen and sodium chloride. The effect of a single dose is not very lasting, and is not influenced by sex, age, or disease, and the results are obtained without any change in blood-pressure. This influence of the posterior lobe of the pituitary gland on the renal functions may be brought about in various ways—(1) Directly on the kidneys through the circulatory system; (2) through influences on the nervous system (autonomic or sympathetic); (3) through influence on other internal secreting organs. Assuming, Motzfeldt says, that all three factors are in action, the influence may be supposed to be exerted directly on the secreting epithelium of the kidneys or on the renal vessels.

Diagnosis, Symptomatology, and Therapy of Dilatation of Aneurysms of the Descending Thoracic Aorta.

Neuhof (*Amer. Journ. Med. Sci.*, May 1916) says that the object of his paper is to suggest that such aneurysms are of greater frequency than is supposed, that they have a definite symptomatology, and that the condition is a clinical entity. He describes 5 cases with
radiograms. The commonest symptoms are pains behind the sternum, or referred to different parts of the chest, neck, jaws, or head. Their aetiology is not certain. Signs of heart decompensation are not marked. Edema is slight and is confined to the legs. Dyspnœa is of the usual cardiac type. The left ventricle is hypertrophied to varying degrees. On auscultation abnormal sounds are heard at the left sternal border, at its middle third or from 3rd left intercostal space to the ensiform. There is a rough systolic murmur over the dilated aortal area. The second sound has a liquid rather than an accentuated tone, and is prolonged so as to occupy the whole diastole, or is followed by a diastolic murmur of varying intensity. A distinct heaving area, distinguishable from the apex beat, may be seen over the lower left intercostal spaces, and the thrill may also be felt. To complete the diagnosis fluoroscopy must be resorted to in several lateral positions. The prognosis in these cases, he thinks, is not grave, and as most cases are specific the treatment is clearly indicated.

E. M.

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SURGERY.

UNDER THE CHARGE OF

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THE TREATMENT OF PAINFUL NEURITIS BY INJECTION OF ALCOHOL.

Injection of alcohol into the trunk of a nerve has in the past mainly been employed in cases of severe trigeminal neuralgia, and with good results. In dealing with a mixed nerve, like the sciatic, it is important to realise that injection of alcohol into the nerve substance will cause not only anaesthesia in the distribution of the nerve, but also motor paralysis, which will last for some weeks or months. Hence, if this method of treatment is employed in cases of common sciatica, it is necessary to limit the injection to the neighbourhood of the nerve. A local reaction will be produced which may relieve the patient’s symptoms and will not affect the motor nerve fibres.

Sicard (La presse médicale, 1st June 1916) states that he has employed alcohol by injection into the nerve trunks in cases of hemiplegia or paraplegia, in order to diminish spastic contractures. While improvement may occur in these cases it can only be for a limited period, as the lesion in the central nervous system is organic.

In the present war localised neuritis affecting nerve trunks is not uncommon after wounds by projectiles. It is difficult to explain why there should be so much more pain in some cases than in others. The nerve trunks most frequently involved are the median and