

of the left side and sense the muscular resistance offered by the left leg you will observe that the left heel is pressed on to the couch with the same force which is exhibited in lifting the right leg off the couch. In other words, the left heel is employed to fix a point of opposition against the couch during the effort at lifting the right leg. This will always occur if the healthy person makes a free and uninhibited effort to lift the right leg. Of course the opposition offered by the other leg is not essential to a successful elevation of one leg, but if a free effort of the will is made (no matter how slight the effort) the point of opposition made with the leg of the other side is invariably present unless some inhibitory impulse be sent to the opposing leg.

If the movements are carried out in the reverse order the same principle holds true; i. e., if a normal person be requested to press the right leg against the surface of the couch there will be a counter-lifting force exhibited in the left leg.

If a patient suffering from hemiplegia or monoplegia of a leg be requested to lift the extended and paretic leg off the couch it will be observed that the other leg offers the opposition above described whether there is any voluntary muscular strength exhibited or not on the affected side. I have had opportunity to observe this in a large number of hemiplegic patients and the opposition from the normal leg never failed.

If the hemiparetic patient is asked to lift the normal leg off the couch against resistance he will exhibit an opposition with the paretic leg which is directly proportional to the voluntary muscular strength he is able to employ when a display of voluntary muscular power in the paretic leg is exacted.

When the upper extremity is involved this sign is sometimes demonstrable on the normal arm, but at other times it is wanting.

In two cases in which paresis of one leg was claimed by the plaintiffs in suits for personal injuries, there were wanting the characteristic physical signs to sustain the claim of paresis of the lower extremity as the result of injuries. Furthermore, in both of these cases, when the patient was asked to lift the normal leg off the couch, the leg which was alleged to be very paretic was opposed strongly against the surface when resistance was offered to lifting the normal leg. When the patient was requested to lift the paretic leg, there was an apparent attempt to respond to my demand, but the normal leg did not offer the least opposition. The normal leg lay perfectly limp on the couch. Had the paresis been genuine, the sound leg would have been firmly opposed against the surface of the couch when an uninhibited attempt was made to lift the paretic leg.

The absolute lack of complemental opposition from the normal leg was also observed in a case of hysterical hemiplegia, when the patient was requested to lift the paralyzed leg.

In another case of hysterical para-paresis inferior, which was accompanied by abasia, the patient could bow himself into the pose of opisthotonos, but if he was requested to lift one leg off the couch there was no complemental opposition offered by the other leg and the leg which he seemingly attempted to lift would not be raised off the couch.

This sign appeals to me as being particularly valuable for the reason that it depends on the exhibition of a function from the normal leg which must always be

present if the patient does not inhibit the normal impulses to the lower extremities.

In the four cases I have briefly described the complemental opposition was entirely wanting. Whether this lack of complemental opposition will always be found or not in malingerers and hysterical subjects remains for further observation to determine. But in view of the fact that complemental opposition is always present in a normal patient and in all patients with genuine paresis and genuine paralysis, we are justified in assuming the existence of cerebral inhibition to an apparent voluntary exhibition of strength when complemental opposition is absent.

If a malingerer were familiar with the object of the examination he could, of course, satisfy the demands of the examiner. In testing for this sign the examiner should seem to fix his attention on the leg which is alleged to be paretic.

In this manner I believe that one will always be able to trick a malingerer or hysterical subject into betraying the falsity of his claim.

I demonstrated the character and significance of this sign to one of the patients described. He promptly abandoned a crutch and cane, an orthopedic corset and blue spectacles and returned to work for the company against whom he had brought suit. The same course was adopted with the hysterical abasic patient. His gait became quite normal after a half hour's persuasion. Whether he later relapsed or not I do not know.

The sign in genuine hemiplegia which Babinski describes¹ for differentiating between genuine and functional hemiplegias depends on the affected side for its exhibition. I have found Babinski's sign unsatisfactory. The fact that this sign of complemental opposition is always present in normal subjects and in genuine paresis of the lower extremity, and the fact that it depends on an invariable function of the normal side gives it a very broad application.

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VENESECTION AND CARDIOVASCULAR AFFECTIONS*

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Venesection in cardiovascular affections is referred to by many authors, but it receives scant attention in actual practice. Recently, two physicians in active practice for several years reluctantly admitted at the bedside of a patient that they had never performed a phlebotomy.

That venesection has become neglected is due, first, to inherited prejudice because of its indiscriminate and unjustifiable use years ago, at which time it was the fashion to bleed healthy individuals each spring; second, to the fear that the abstraction of blood would weaken one already diseased; third, to the objection to its use by the laity, who are prone to believe that if death subsequently occurs, it is due to blood-letting; fourth, to a failure on the part of many physicians to recognize clearly the indications and limitations

1. Brissaud and Souqils: Article in Bouchard and Brissaud's "Traité de médecine," ix, 55.

* Read before the American Therapeutic Society, Philadelphia, May 7, 1908.

of this procedure; and fifth, to the erroneous belief that a small, weak, rapid pulse is an absolute contraindication to blood-letting.

Usually, venesection in cardiovascular affections is employed as a palliative or as a life-saving measure. As a rule, venesection becomes necessary in conditions in which the patient's life is in jeopardy, so that when performed, even though marked amelioration of symptoms is secured, many deaths eventually occur. Occasionally, however, certain death is averted.

Venesection is especially indicated in certain cases of valvular diseases of the heart with well-marked failure of compensation, in which the patient presents extreme dyspnea or orthopnea, cyanosis, tumultuous cardiac action, a rapid, small, feeble pulse, distention of the veins of the head and neck, a feeble apex-beat displaced to the left and seen and felt over a larger area than normal; increase in the area of cardiac dullness to the left and right, and not infrequently accentuation of the pulmonic second sound. Blood-letting is especially indicated if these symptoms and signs are progressive, despite the administration of the ordinary cardiovascular remedies. Under such conditions twenty ounces of blood should be slowly abstracted from the median cephalic vein. If degeneration of the myocardium is not extreme, the relief secured is immediate and satisfactory. Cyanosis disappears, dyspnea diminishes, the overdistended veins become less prominent, the heart becomes stronger and less tumultuous, and the radial pulse increases in strength and volume and decreases in rate.

In these cases a small, weak radial pulse is due to the emptying of the blood from the arterial system into the veins, which produces extreme overdistention of the right auricle and ventricle, preventing their emptying. The right ventricle is often so extremely dilated that its contractions are exceedingly feeble, and the pulmonic circulation is so greatly interfered with that but a small quantity of blood is delivered to the left heart. The extraordinary relief of symptoms, however, is often but temporary, although occasionally, in the interval, cardiac remedies are able to produce a favorable effect, which, before venesection, was impossible, so that gradually circulatory equilibrium is re-established and the patient recovers. Exudates in any of the serous cavities should be removed before resorting to venesection.

The cardiac signs and symptoms described may occur late in the disease affecting the mitral or aortic valves.

In mitral stenosis, accompanied by extreme right ventricular dilatation, with failure of compensation, venesection is of great value and often prolongs life.

In acute pulmonary edema, symptomatic of right heart dilatation, even when the patient is almost moribund, venesection often induces marked palliation and sometimes recovery follows.

In well-marked degeneration of the myocardium, venesection is valueless.

In failure of compensation, occurring in the course of arteriosclerosis, blood-letting is frequently of great value.

In aneurism of the arch of the aorta, dyspnea or pain may be temporarily relieved by the abstraction of eight or ten ounces of blood.

A not uncommon cause of death in acute croupous pneumonia is extreme dilatation of the right heart due to the obstruction in the pulmonary circulation caused by a consolidated lung. When, therefore, the symptoms and signs of right heart dilatation show themselves, venesection to the extent of twenty or

twenty-four ounces becomes not only a palliative measure of great value, but occasionally saves life. It is important to accentuate that a weak radial pulse in croupous pneumonia, under these circumstances, is not a contraindication of venesection, but on the contrary a strong indication for its performance. In a certain number of these cases, it is most gratifying to observe a gradual progressive increase in the strength of the pulse while blood is escaping from the incised vein, illustrating strikingly the existence of an overfull venous system and a partially emptied arterial system.

Recently several physicians decided that venesection would in all probability hasten death in a case of pneumonia because the pulse was extremely weak. Reluctantly they consented to the abstraction of twenty-four ounces of blood and witnessed an increase in the force of the pulse during the operation, and later restoration of the circulatory equilibrium and recovery.

Certain of the deaths in pneumonia following venesection are due to a cardiac thrombus which had formed in the right heart, while dilatation was at its maximum, and prior to blood-letting. In other cases the myocardium was previously diseased, or the toxemia had already produced myocardial degeneration.

The danger of cardiac thrombosis is due not only to the overfilling of the venous system with blood and the slowing of the circulation, but also to the extraordinary increase in the coagulability of the blood in this disease; and therefore venesection should be performed promptly. As soon as early symptoms and signs of right ventricular dilatation show themselves, venesection should be performed, not only to prevent cessation of the heart-beat, but also to prevent cardiac thrombosis.

Rather uniformly hypertension, even to 220 mm. or more, has been observed in uremia and the frequent occurrence of arteriocalillary spasm has been recorded.

It is easy, therefore, to understand why, under these circumstances, sudden and extensive cardiac dilatation may occur, and also why the venous system should contain a relatively greater quantity of blood than normal. These conditions would be favorably influenced by venesection.

It is not within the scope of this paper to consider the relationship of phlebotomy to any other disease, but mention should be made of the benefit observed in certain cases of apoplexy, after blood-letting, by lowering the blood pressure and diminishing the amount of blood escaping into the cerebrum or from the meninges.

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INFECTION OF OPERATIVE WOUNDS BY MALIGNANT DISEASE.*

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The question of most importance in all operative surgery is how to save human life, not only for the time, but to prevent a return of the morbid process whenever this is possible. Certain problems regarding the extension of malignant disease have engaged the attention of physicians for many years, and we have been impressed with the importance of further study of the danger of implantation of cancer and tuberculosis during the time we have a broad exposure of raw sur-

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