The congestion may take two forms, active or passive. The former occurs with diseases involving the spleen directly, such as tuberculosis, Hodgkin’s disease or malaria. According to Ravenna, the diseased splenic arterioles fail to control the amount of blood which enters the spleen, resulting in a damming effect, elevation of hydrostatic pressure, and splenomegaly.

The exact relationship between the enlarged spleen and the decrease in cellular elements of the blood is unknown, but two interesting theories have been proposed. Doan suggests that with stagnation of the blood in the spleen, there is a change in the cells which makes them more susceptible to hemolysis. Dameshek, on the other hand, believes that the spleen elaborates a hormone which acts on the marrow to suppress it so that the cells do not mature and hence do not reach the general circulation. Though neither of these theories has been proved, the “stagnation theory” of Doan is supported by Sodeman.

**Summary**

The spleen has both a constructive and destructive influence on the blood. An exaggeration of the latter effect, termed hypersplenism, can be either primary or secondary. In many instances of hypersplenism, congestion of the spleen, either active or passive, appears to be a basic factor in the destruction of the cellular elements of the blood.

The case of a 34-year-old woman with splenomegaly and pancytopenia due to carcinoma of the tail of the pancreas is described.

Carcinoma of the tail of the pancreas may be added to the varied list of causes of secondary hypersplenism.

**References**


**SHORT COMMUNICATION**

A Method of Providing Adequate Cerebral Blood Flow During Carotid Artery Thromboendarterectomy


**DIRECT** surgical treatment of stenotic lesions of the carotid, mesenteric and renal arteries is now established. Each region, however, presents specific problems. The operation of thromboendarterectomy of the carotid artery (by virtue of its segmental nature and accessibility) is technically not difficult, but reduction of cerebral blood flow during operation may be catastrophic. Various methods are currently employed to “protect” the cerebrum. Hypothermia, temporary shunts, or a combination of both have been used extensively. The shunt may be internal or external. One popular approach has been direct arterial exposure under local anesthesia, a test of temporary occlusion of the internal carotid artery in the conscious patient, followed by temporary bypass with plastic tubing. We no longer use this method for the following reasons:

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General or local anesthesia may be used. The bifurcation of the carotid artery is exposed, as is the long saphenous vein at the fossa ovalis. The inferior vena cava is cannulated with a Bardic catheter of appropriate size (usually a No. 24) via the saphenous vein. The venous blood is returned to an oxygenator and exposed to a mixture of 95% oxygen and 5% carbon dioxide. (The latter encourages cerebral vasodilatation.)

The arterialized blood is then returned to the patient via the internal carotid artery, distal to the proposed arteriotomy, by a 360° fully occlusive rotor pump at a predetermined flow rate (200 to 300 c.c. per minute, depending upon the body surface area of the patient), and at a pressure equal to the patient's mean preoperative systemic blood pressure (Fig. 1).

If an automatic pressure regulating control of the pump head is not available, a simple alternative is to pump the blood into a calibrated reservoir from which it falls by gravity (the height being predetermined by pressure and flow required) into the internal carotid artery.

The perfusion of the internal carotid artery is begun, the common carotid artery is occluded, the thromboendarterectomy is performed, the arteriotomy sutured, and the suture line is then tested before bypass is discontinued.

This method has the disadvantage of requiring 500 c.c. of freshly drawn heparinized blood to prime the pump oxygenator, and temporary anticoagulation of the patient by means of heparin. An experienced pump-oxygenator team is of course mandatory. These disadvantages are strongly outweighed by the assurance of adequate cerebral perfusion during the operation.

**Case Histories**

**Case 1.**—A 60-year-old man (H.B.) experienced blindness associated with a heavy sensation in the left eye on three separate occasions in the previous eight months. Examination with an ophthalmodynamometer on September 3, 1961, revealed a pressure of 50 mm. Hg in the right eye and 20 mm. in the left. Operation on September 8, 1961, confirmed the clinical and radiological impression (Figs. 2 and 3) of stenosis of the internal carotid artery at its origin. Perfusion was carried out at a mean pressure of 90 mm. Hg and a flow rate of 250 c.c. per minute. Thromboendarterectomy was performed through a 2-cm. arteriotomy.

The postoperative course was uneventful, values obtained by ophthalmodynamometer examination returned to normal and the heavy sensation in the left eye disappeared. The patient has returned to work as a jeweller's engraver and is asymptomatic.
Case 2.—A 57-year-old housewife (O. C.) presented with tinnitus in the left ear. A systolic bruit was present under the angle of the jaw on the left side. Angiography revealed a marked stenosis of the left carotid artery at its bifurcation (Figs. 4 and 5). Temporary left carotid occlusion resulted in immediate symptoms (weakness) in the right arm and right leg.

Operation (thromboendarterectomy) was performed on December 1, 1961, using a flow rate of 270 c.c. per minute at a mean pressure of 95 mm. Hg. The postoperative course was uneventful. The patient has since been asymptomatic.

Discussion

In Case 1, the nature of this man’s work made it mandatory to use a method whereby adequate cerebral blood flow was assured during operation. Unless this can be accomplished, relatively asymptomatic patients, such as Case 2, should not be subjected to this operation.

The early results in these two cases are encouraging. The exact place of carotid thromboendarterectomy awaits a long-term follow-up of comparable groups of operated and non-operated cases, especially in regard to asymptomatic carotid stenosis.

Summary

The method that the authors have found most satisfactory in preserving adequate cerebral blood flow during carotid artery thromboendarterectomy has been described. In this method venous blood is drawn from the inferior vena cava via the long saphenous vein, passed through an oxygenator and returned to the circulation via the internal carotid artery distal to the site of arteriotomy. This report is supported by two case histories.

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References


Pages Out of the Past: From the Journal of Fifty Years Ago

In an acute appendicitis, even though perforation ensues, if purgatives are not given, and absolute starvation is enforced, diffuse peritonitis does not as a rule supervene, but a localized abscess will usually develop. This fact affords the best indication for treatment; namely, that at the onset of an acute attack of appendicitis all food by the mouth should be withheld, with the object of arresting peristaltic activity in the intestine and reducing the virulence of the bacteria within the bowel, and in addition to this it is of course absolutely essential that no purgative be given. Even the administration of fluids, which must reach the caecum to be absorbed, should be avoided. As the giving of aperients has been shown to increase the virulence of the bacteria within the caecum, it will be quite obvious how important it is to withhold them when the appendix, which opens into the caecum, is inflamed.