

Medical Matters.

REPAIR OF BLOOD VESSELS.



Dr. Stuart McGuire, writing on the above subject in an American medical journal, says that arteries and veins are formed of three coats, the internal, or tunica intima, composed of endothelial cells; the middle, or tunica media, composed of elastic and muscular tissue; and the external, or tunica adventitia, composed of fibrous tissue. The two inner coats are firmly united to each other, but are very easily separated from the external coat. If a ligature be tied tightly around a blood vessel the external coat will not be divided but the two inner coats will be cut circularly in the line of the ligature, and will retract from the external coat. It is essential for the safety of the patient that repair after injury to blood vessels be rapid and complete, and fortunately nature has endowed these structures with high vegetative power. Healing occurs here, as elsewhere, by the proliferation of the formative cells and the production of new tissue, which, undergoing vascularisation and cicatrization, results in the permanent repair of the injury. When a vessel is divided the tunica intima and tunica media separate from the tunica adventitia and retract. Their edges curl inward, fibrin is deposited upon them, and a thrombus is formed, which arrests bleeding. The action of this plug of coagulated blood is temporary, however, and the formation of a permanent cicatrix must follow, else that patient will be in danger of a recurrence of hæmorrhage. The old authors thought that the final healing of a blood vessel was due to what they termed "the organisation of the thrombus," but this theory has been proved to be incorrect. The formation of a thrombus is merely a provision of nature to secure temporary hæmorrhage, and the final or permanent repair of the injury is accomplished by the proliferation of the formative cells of the tunica intima and tunica media. As soon as the circulation is arrested by the formation of the thrombus, the formative cells of the vessel wall begin to divide and form new cells, which infiltrate the blood clot and cause its gradual absorption. The mass of granulation tissue thus produced undergoes vascularisation from the vaso-vasorum, and finally through the process of cicatrization is converted into mature cells. As long as a vessel is merely occluded by a thrombus there is danger of secondary hæmorrhage, and it is

not until a permanent repair of the defect is accomplished through the agency of the formative cells that the patient is safe. The reason secondary hæmorrhage was so frequent in the pre-antiseptic era was because inflammation was usually present in the wound and the thrombi disintegrated by septic process before regeneration was complete. The reason secondary hæmorrhage is now rare is because inflammation is rarely present in a wound, and the aseptic thrombi remain in the ends of divided vessels until definitive healing takes place. In the old days thrombosis was much more extensive than at present. In fact, after division of a vessel the blood usually coagulated back to the nearest collateral branch. Surgeons of that generation were afraid to ligate a vessel unless they had a space of at least an inch to contain the thrombus. In modern aseptic surgery, extensive thrombosis is not seen, and the operator is able to ligate a vessel close to a collateral branch or near its bifurcation with little or no risk of secondary bleeding. In regard to injuries to blood vessels, if the vessel is a large one and the injury only partially divides it, there is the possibility of closing the opening by sutures or a lateral ligature without completely obstructing its lumen. If the vessel is entirely divided, its two ends should be ligated with fine aseptic silk or catgut.

SOME HYGIENIC PRECAUTIONS IN THE LATE WAR BETWEEN RUSSIA AND JAPAN.

Dr. Laval states, in the *Medical Record*, that in the late war between Russia and Japan the vessels which were equipped with evaporators used distilled water. The other ships, such as the torpedoes, were furnished with water by two ships which were equipped with distilling apparatus which could produce about 300 tons of water daily, and which accommodated 5,000 tons of water. With this supply the ships never lacked water. The only infectious diseases which made their appearance were enteric fever and dysentery. Even in times of peace typhoid fever has occurred. The average occurrence of such diseases in peace was not greatly exceeded during the war. The total number of cases were 241. The men who were attacked were put on the hospital ships and their possessions were carefully disinfected. A few cases of dysentery broke out in August and September, 1904, during the siege of Port Arthur. Dr. Suzuki thought that flies were responsible for this light epidemic. These insects literally invaded the ships when they approached the Chinese junks for inspection. Strict measures were taken to destroy the flies, and meat was well baked before it was consumed. The dysentery disappeared almost immediately.

[previous page](#)

[next page](#)