SURGERY.

Late Results in the Transplantation of Veins into Arteries. By Alexis Carrel (Revue de Chirurgie, June, 1910).—It is five years now since Carrel proposed to substitute a segment of a vein for a portion of an artery excised because of the presence of aneurysm or of some other lesion.

The proposal was based on his experimental work which proved that such anastomoses properly performed remained permeable, and that the vein reacted to its new conditions not, as might have been feared, by unduly distending but by undergoing a process of thickening, proportionate to the increased intravascular pressure. When these results were not obtained it was nearly always the result of defective technique. Five to eight months after the anastomosis there was neither shrinkage nor dilatation of the implanted segment of vein, which, becoming white in colour as contrasted with its original bluish tinge, had now acquired walls of a thickness equal to that of the arterial walls.

These results have been confirmed by many other workers now.

The operation has been carried out twice in men, once successfully.

It is clearly an advantage to use the patient’s own tissue in preference to “grafts” which have been preserved in cold storage. Great stress is laid on aseptic technique, as the slightest trace of infection will spoil the operation. There should be no visible reaction in the adjoining tissue, and no leucocyte infiltration round the silk threads. Carrel differentiated degrees of non-suppurative infection to an extent not generally recognised, since they may be present when a wound is healing quite satisfactorily.

Perfect hemostasis both in the case of the artery and in the surrounding field must be effected, since coagulating blood liberates substances which tend to produce coagulation.

End to end anastomosis is preferred, and when the technique detailed is closely followed one obtains a cicatrix almost invisible, showing very little thickening, and without any danger of the formation of a parietal thrombus.

There is no late yielding of the scar, and so one is enabled to study it after the lapse of a long time.

Sections show thickening of the media of the vein and union to that of the artery without the interposition of cicatricial tissue. Carrel has many such sections obtained up till sixteen and twenty months after the performance of the anastomosis.

The “functional hypertrophy” of the vein can be traced gradually arising. Stich considers that there is an increase of the muscle cells. This increase or hypertrophy is followed by a sclerosis and a disappearance of the fibres—an experimental demonstration of the ideas long held by Adami on the subject of arteriosclerosis.

It remains to be seen whether after three or four years the transplanted vein will not actually become degenerated, atheromatous.

The increase in the blood tension apart from any intoxication may well produce a true atheroma. Carrel has thus produced an experimental atheroma, only the portions of artery used had been previously weakened by cold storage.

Up till twenty months, then, it is proved that there is excellent adaptation to its new functions by the implanted vein, and only time can show whether it is preferable to transplant arteries which have been artificially preserved.

—W. Rankin.

An Improved Method of Preparing Catgut Ligatures. By Ellice M'Donald, M.D. (American Journal of Surgery, May, 1910).—As a result of investigation of over fifty methods of preparing catgut the writer has adopted the following:—
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1. Iodine, 4 per cent in acetone, eight days.
2. Wash in acetone, four days.
3. Preserving solution, acetone, 85 per cent; Columbian spirits, 10 per cent; glycerine, 5 per cent. The glycerine should first be dissolved in the alcohol and then added to the acetone.

The solutions are fat solvents and antiseptics; the iodine thoroughly impregnates the gut so that the ligatures are black and well saturated with iodine when they are placed in the clear acetone solution. The pure acetone abstracts the excess of iodine, leaving the gut clear and white. The preserving solution completes the bleaching and softens the gut, while the dehydrating power of the acetone prevents the gut from swelling up, as it does when placed in alcoholic solution.

The author usually boils the gut in paraffin oil before placing it in the iodine solution, “to make assurance doubly sure.”

By this method a strong, sterile, and soft ligature is obtained, capable of preservation for a long period of time without loss of strength or sterility.

—Roy F. Young.

Treatment of Sciatica by Continued Extension. By Dr. Zezas (Archives Générales de Chirurgie, May, 1910).—In two cases of sciatica the author applied extension to the affected limb, in the same manner as in fracture of the femur. Weights up to 11 lb. were employed, the comfort of the patient being the best guide to the regulation of the weight. In both cases the pain disappeared rapidly, and, during the early treatment, only reappeared when the weights were removed. At the end of four weeks the patients were able to leave bed without any return of pain. One patient had suffered for several years previously without receiving any benefit from drugs, heat, massage, &c. The author explains the action as simply being due to extension of the nerve.—Roy F. Young.

DISEASES OF CHILDREN.

Tetany.—During the last decade our ideas regarding tetany have undergone much change, and tetany, laryngismus stridulus, and infantile eclampsia are no longer considered independent diseases, but merely different manifestations of one clinical entity—hyperexcitability of the nervous system, called by the Germans, after Escherich, “Spasmophilie.” The condition does not necessarily give rise to symptoms, but may be latent, yet it can always be demonstrated by the increased irritability of the muscles to the galvanic current, which increased galvanic irritability is now taken as the pathognomonic sign of the disease.

To obtain the K.O.C. in the normal child, a current of 8 milliamperes is necessary, while in the “spasmophilic” child contractions may be elicited with a current of even 1 milliampère. In practice it is assumed as evidence of the disease when the K.O.C. is obtained with a current of less than 5 milliampères. The frequency of this condition in the latent state may be appreciated from the fact that Finkelstein¹ found increased electrical irritability in 55.7 per cent of apparently healthy artificially nourished children. In view of the above facts the irritation of teething and intestinal worms, &c., receives a new importance in the causation of infantile convulsions.

Increased myotatic irritability can also be demonstrated by tapping the cheek immediately below the zygomatic process, and inducing a contraction of the frontalis muscle. This is known as Chvostek’s sign or the “facial phenomenon.” Trousseau² has shown that in cases susceptible to tetany the carpal spasm may be produced by compression of the arm by the hand or a tourniquet, so as to impede the arterial or venous circulation.