

The use of the tourniquet was suggested to Cushing by observing the phenomena following the removal of the tourniquet after operation. After its removal a flushing of the member with arterial blood almost invariably occurs peripherally to the site of constriction. This is presumably due to the temporary paralysis of vasomotor control to the part below the encircling bandage. The constriction causes in some way a "blocking" of the non-medullated fibres. It was the familiarity with the vasodilatation occurring under these circumstances which suggested the employment of a similar procedure as a therapeutic measure to counteract the local conditions of spasm which characterize Raynaud's disease.

The tourniquet was first applied for two minutes on November 10, during an exacerbation of pain and asphyxia in the left upper extremity, a flat rubber bandage being used. It caused some temporary discomfort, but its removal was followed by a much more readily palpable radial artery and great relief to the pain. From this on the tourniquet was applied daily to one or other extremity as conditions indicated. The patient immediately began to make rapid improvement. The pain was always greatly ameliorated, and the attacks became gradually less frequent. Finally they ceased, and she was eventually discharged on December 28, apparently quite well and with the extremities presenting their normal physiological tint.

SURGERY.

UNDER THE CHARGE OF

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The External Dorsal Luxation of the Metacarpophalangeal Joint of the Thumb.—GRISEL (*Revue de Orthopédie*, January, 1902), in a critical and exhaustive review of this subject, states that the pathological anatomy of the complete variety of the dislocation has been well shown by the researches of Vitrac, who gives the following résumé of the lesions: 1. Tearing of the two lateral ligaments. 2. Displacement of the tendon of the long flexor to the outer side of the metacarpal head. 3. Tearing of the phalangeal tendinous sheath, with displacement of the tendon to the outer side of the intersesamoid space. 4. Tearing of the adductor muscle, with or without penetration of this muscle by the head of the sesamoid. The symptoms have been well described in the observations of Guermontez, and are those of the habitual luxation in the Z position—shortening of the thumb and a variable degree of mobility of the phalanx and three characteristic signs: 1. The situation of the phalanx over the external surface of

the metacarpal. 2. The presence of the flexor tendon, which sometimes may be easily shown, over the external surface of the metacarpal. 3. The forced adduction of the metacarpal bone with its head prominent under the skin of the inferior portion and internal to the thenar eminence in the region of the metacarpal bone of the index finger. This permanent adduction is a double obstacle to reduction because: 1. The adduction being complete it is impossible to carry the bone further away so as to relax the muscular buttonhole at the moment of reduction. 2. The metacarpal bone falls down into the palm of the hand and increases the difficulty of releasing the articular head of the phalanx.

In the complete external dorsal luxation the symptoms are: 1. The situation of the phalanx over the external surface of the metacarpal bone. 2. The presence of the tendon to the outer side of the head of the metacarpal bone. 3. Forced adduction of the metacarpal bone. Beyond the phalanx to the outer side of the metacarpal one may see: 1. The lateral ligaments in part torn and in part detached and having carried away with them the periosteum and lateral portion of the metacarpal bone. 2. The dorsal portion of the capsule and the periosteum of the dorsal surface are elevated by the passing of the phalanx over the back of the metacarpal bone. 3. The turning back of the gleno-sesamoid band which remains adherent to the phalanx. 4. The existence of a buttonhole through which passes the metacarpal bone; the internal edge of which is formed by the adductor, and the external edge by the flexor tendon, external sesamoid bone, and external sesamoid muscle, and the eyelet corresponds to the internal sesamoid. 5. The flexor tendon is maintained between the sesamoids in the fibrous tissue which crosses obliquely the external border of the metacarpal bone to reach the slip of the short flexor.

The causes of the irreducibility of the external complex luxation are: 1. The flexor tendon being torn from its phalangeal sheath is no longer next the phalanx and the sesamoid during the manoeuvres of reduction. It either remains curled up near the metacarpal bone, or it is interposed between the articular surfaces. 2. The sesamoid bones may not constitute an obstacle to reduction if there is a sufficient separation of the phalanx and the metacarpal bones for them to pass. 3. A luxation that is irreducible, notwithstanding the separation of the two bones sufficient for the passage of the sesamoids, may be reduced by section of the flexor tendon.

In those cases of habitual complicated luxation which often present themselves for treatment, where the section of the glenoid ligament is not sufficient, the surgeon has the choice of any one of three solutions of the problem: 1. The complete elevation of the gleno-sesamoid covering. 2. Section of the lateral ligaments and the attachments of the sesamoid muscles. 3. Resection of the head of the metacarpal bone.

Femoral Osteotomy and Ostectomy in Ankylosis of the Hip in Malposition and in Certain Fractures of the Femur United in Malposition.—VINCENT (*Revue de Chir.*, 1902, No. 10), after a detailed review of the subject, states in conclusion: 1. The application of the vise of Lorenz during the course of osteotomy for the relief of viciously consolidated fracture of the diaphysis of the femur, with marked over-riding of the fragments, is a

useful procedure. It is much more powerful than manual traction, and may be used with sureness and precision. 2. This method is especially valuable in the bony section in the form of a Z, which gives to the reduced osseous surfaces a true notch, and permits of the advantages of the oblique osteotomy for the coaptation of the fragments and avoids the necessity of applying continuous extension, which is painful and uncertain in its results.

The Fracture of Dupuytren.—MALLY and RICHON (*Revue de Chir.*, 1902, No. 10), after an exhaustive review of the subject, state in conclusion: 1. By the term fracture of Dupuytren is meant the bimalleolar fracture of the leg by adduction, that is to say, fracture by tearing away of the internal malleolus from its base or its end, or, more rarely, laceration of the internal lateral ligament, fracture of the fibula to the upper side of the inferior tibiofibular ligament, and separation of the ends of the bones forming the inferior tibiofibular articulation; this last may not occur. It is always an articular fracture. 2. The prognosis is extremely grave from the point of view of function. In spite of well-directed therapeutics, at the moment when the consolidation should be theoretically well advanced one may observe, during the period of convalescence, two sorts of secondary complications: *a.* First and almost constant, but of variable severity, is the muscular atrophy of muscular origin affecting unequally the motor muscles of the tibiotarsal articulation, and at the same time one sees the various cutaneous and vasomotor trophic disturbances. *b.* A secondary deviation of the foot progressive to valgus. 3. This muscular atrophy has the characteristics of the reflex muscular atrophy, and permits in consequence the atrophy of a certain number of the motor cells of the anterior horns of the cord in the region of the dorsolumbar enlargement. 4. The existence of trophic phenomena in the skin and vasomotor system with the muscular atrophy permits the belief that the deviation of the foot has as its primary cause a similar trophic trouble, which causes alteration of the structure of the ligaments and interference with the normal progress of ossification of the callus. These primary alterations of the ligaments and the callus are, according to the authors, of trophic origin, and allow the weight of the body to efface the plantar arch, permitting the astragalus to "see-saw" downward and inward. This movement of the astragalus is assisted by the stretching of the internal ligament by the callus, and the forcing to the outer side of the fibular malleolus, which transmits a portion of the weight of the body upward and outward to the external face of the astragalus, the fibular callus yields and the bone becomes ultimately bent. 5. The spinal lesions which cause the trophic phenomena have not been exactly determined; those which cause the atrophy of the muscles consist essentially in the diminution of the motor cells of the anterior horn with atrophy of their pigment and effacement of their cylindrical prolongations. 6. The pathogeny that the authors have proposed to explain these secondary complications is entirely new and is justified by the statement of Tillaux: "There is no other fracture in which the treatment is more important and more difficult than in the bimalleolar fracture by abduction." 7. The immediate treatment should consist in the application of a dressing which will accurately maintain reduction; the dressing should be so applied that the internal

malleolar region is freely accessible. In order to fulfil these indications the authors have proposed the use of a plaster-of-Paris trough of special design, the foot first being placed in forced adduction. If the œdema of the soft parts is very pronounced, massage and evaporating lotions should be used for several days preceding attempts at reduction. If the fracture is compound, reduction should be preceded by a vigorous disinfection of the wound. 8. The callus almost always is retarded in its consolidation, and so when one removes the plaster trough it is essential to maintain the instep not only laterally but also underneath the arch by a suitable bandage, so as to prevent the secondary deviation to the position of valgus. 9. The muscular atrophy which is peculiar to these articular fractures, and which is spasmodic, demands for its relief an altogether different treatment from that of simple atrophy. All forcible manipulations of the joint and the direct excitation of the muscles by either massage or electricity are absolutely contraindicated. Local sedative applications, with counterirritation over the spine, may prove to be of value. The author's experience shows that static electricity best fulfils this last indication. 10. Union in bad position is a serious condition, and demands surgical intervention for its relief. According to the severity of the case, one may have recourse to either simple or wedge-shaped osteotomy, resection, astragalectomy, and, finally, the wiring together of those fragments which show no tendency to become united.

THERAPEUTICS.

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Concerning a New Series of Synthetic Salts of the Nucleids of Iron, Copper, Mercury, and Silver.—DR. E. R. LARNED gives a summary of the steps which have led up to the commercial production of these new compounds of nucleinic acid and the metals—iron, copper, mercury, and silver. They are known under the trade names of *ferrinol*, *cuprol*, *mercuriol*, and *argol*, respectively. He summarizes their advantages as follows: 1. These new salts of nucleinic acid are rational reconstructives; they are true tonics; they increase physiological resistance; they increase the functional activity of secretory organs. 2. They are powerful germicides, and are not harmful to the tissues. 3. If the present state of our knowledge of the nucleins and leucocytosis is correct, then the nucleid is the proper form for the administration of the metals.—*Therapeutic Gazette*, 1902, vol. xxvi. p. 593.