

found to be calcium phosphate. A similar degeneration was found in some of the arteries in the kidneys. Large hemorrhages were found in the spleen and mesentery, and these had been suspected *intra vitam*.

In the absence of the usual etiological factors in this case, Brill and Libman thought that it might possibly be a case of so-called "family nephritis." Several observers have reported instances in which a number of the members of a family have suffered from nephritis. An inquiry into the patient's family history revealed that there was a "tendency" to the development of chronic interstitial nephritis in the three eldest children.

Brill and Libman summarize the main facts in this case as follows:

1. The occurrence of a very advanced primary chronic interstitial nephritis at the age of fourteen years.
2. Its presence in other members of the same family.
3. The extensive and marked arterial changes present.
4. The hemorrhagic diathesis and especially the occurrence of a large hemorrhage in the mesentery.
5. The occurrence of calcific deposits in the liver.
6. The case draws our attention again to the latency of some of these cases of chronic nephritis in children. There is no doubt that some of them have been regarded as instances of diabetes insipidus. The necessity of a careful and continued observation of the heart and vessels in such cases is apparent. Others are treated for a long time for anemia without its cause being discovered. Still others do not present themselves for treatment until the fatal termination is close at hand, the patients having had no marked symptoms. The fact that chronic nephritis may run so latent a course and may occur at any age should lead us to pay as much attention to the examination of the urine of children as of adults.

SURGERY.

UNDER THE CHARGE OF

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A New Method of Treating General Peritonitis with Drainage in Cases of Diffuse Peritonitis.—BODE (*Cent. für Chir.*, January 13, 1900) reports a new and thorough method of treating cases of diffuse peritonitis. He employs large quantities of normal sterile salt solution. The intestines are delivered *en masse*, and while they are covered with sterile towels soaked in hot sterile salt solution, the abdominal cavity is thoroughly scrubbed and

flushed. The intestines are then all carefully washed and any wounds sutured. When they are replaced, a drainage-tube having perforations in the middle is introduced, and the ends carried over the colon on either side and out through openings in both lumbar regions. Through these openings drainage-tubes are carried into the pelvis or any other portion of the abdomen that has been the seat of a focus of suppuration. Drainage is also inserted through the laparotomy wound as in ordinary methods. A peculiarity of the after-treatment is that the cavity is flushed out through these drainage-tubes in the daily dressings by means of large amounts of normal salt solution. When the symptoms of peritonitis subside, usually after three or four days, the tubes are withdrawn gradually and the wounds allowed to heal. The success of the treatment has been very marked, patients with very grave symptoms having recovered rapidly.

Local Anæsthesia in the Radical Cure of Hernia.—CUSHING (*Annals of Surgery*, January, 1900) reports that 233 herniotomies have been performed in Professor Halsted's clinic in the past two years, and that of these forty-nine were performed under regional anæsthesia.

Almost all cases of hernia, with the possible exception of those in young children, could undoubtedly be subjected to the radical operation under similar local methods, but when a general anæsthetic can be safely administered, for various reasons it is much to be preferred by both patient and operator.

In the cases reported complete narcosis was contraindicated by advanced age, chronic bronchitis, and emphysema, tubercalosis, laryngeal or pulmonary, cardiovascular changes of marked degree, chronic nephritis, and above all the shock and vomiting in strangulation. Besides these there have been about 200 cocaine operations of major character, where the use of a general anæsthetic was avoided for a similar reason. They included thirty laparotomies, exploratory sections; two gastrotomies; closure of a traumatic rupture of the jejunum; three cholecystotomies for empyema of the gall-bladder; three appendectomies, and one operation for the closure of a typhoid perforation. In handling the gut it was found that an anæsthetic was required, and no pain was produced unless traction was made excessive.

Local anæsthesia is particularly suitable for the ligation of varicose veins, suprapubic cystotomies, and all scrotal operations if done through the high incision.

The author gives a brief résumé of the case operated upon, and details the condition present and the result produced by the operation in some of the more important cases. In cases of strangulation, where the vomiting and shock from the absorbed toxins is great, the use of a general anæsthetic is contraindicated. He says: "It is in border-line cases of this sort that local anæsthesia gives the best chance of recovery. In just such cases do we often meet with death under or rapidly following the general anæsthetic."

He has carefully studied out the source and distribution of the cutaneous nerve supply of the operative area, both in dissections on the cadaver and by observations of the region of the cutaneous anæsthesia which results from such operations. Such knowledge is essential to the proper employment of the local anæsthetic in these or any operation.

Although not entering into the discussion of the merits of different local anæsthetic mixtures, he is well satisfied with Schleich's 1:1000 cocaine murine mixture for infiltration anæsthesia. He has not found that the solutions of eucaine-B, suggested by Braun, have any advantage, while the duration of the eucaine anæsthesia is not quite as great. For anæsthetizing the individual nerve-trunks he employs a $\frac{1}{2}$ to 1 per cent. sterilized solution of eucaine-B or cocaine, which is injected directly into the nerve.

The patients are prepared for operation by accustoming them to confinement in bed and getting them used to evacuating the bowels and passing the urine without getting up. A tenth or eighth grain of morphine is injected three-quarters of an hour before the operation, and repeated just before it is commenced. Its disadvantage is the confining of the bowels. The patients are often shaved and prepared on the table. The skin is infiltrated in the line of the incision. The tissue is found to be very vascular, and all bleeding is stopped, as it is essential to the dissection. It is unnecessary to anæsthetize the panniculus. Nerve fibres may be encountered in it, and veins that will cause pain if resected. The wound should be deepened to the aponeurosis at the upper angle near the external ring. The aponeurosis is then opened in the line of the fibres from the external ring, and the ilio-hypogastric and inguinal nerves immediately cocaineized with a 1 per cent. solution. This produces anæsthesia of the whole lower operative field if the high incision is employed and the scrotum not opened. The ilio-inguinal and genital branches should be carefully displaced in the lower angle of the wound. The closure of the wound does not require any further anæsthesia. If the subcuticular silver suture is employed the skin edges will still be sufficiently anæsthetic to permit of its introduction. Sometimes a few inhalations of chloroform, not enough to produce unconsciousness, are necessary if the patient becomes very nervous or a sensory nerve fibre is cut. No post-cocainization pain has been complained of, while the infiltration has not interfered with primary union under one dressing generally in ten days.

The Surgical Aspects of the Modern Small-bore Projectile.—SCHUCHER (*Annals of Surgery*, January, 1900) derives the following conclusions from his study of this subject:

1. All advanced nations have practically the same character of rifle and projectile, and the remarks applying to one apply practically with equal force to all.
2. That the modern small-bore projectile is capable of producing wounds of both a humane and a gruesome nature.
3. The nature of the wound produced by the small-bore projectile is either dependent upon the intervening distance or the character of the structure wounded, or both.
4. The precise manner in which the explosive action is developed in structures filled with or rich in fluid is still *sub judice*.
5. The weight of evidence and the majority of authors favor the hydrodynamic rather than the hydraulic theory.
6. The new projectile is propelled with greater energy, velocity, and accuracy; it is lighter, has a smaller frontage, and is less liable to deformation on striking an object.

7. The new projectile has less "disabling capacity," and on the whole produces wounds of a more humane character than the old leaden bullets.

8. By explosive action is meant the damage created in structures outside of the projectile's path.

9. The explosive action depends upon the deformation of the projectile, the range, and the character of the tissue.

10. The shorter the range within the first 400 to 600 yards of the projectile's flight the more pronounced the explosive action.

11. At 800 or 1000 yards explosive action is occasionally met with, and then only in the skull or in parts of the body filled with and rich in moisture.

12. At a distance of 800 or 1200 yards the new projectile, as a rule, creates wounds with small orifices of entrance and exit, and little or no explosive action.

13. That the rotatory action of the projectile may continue after its penetrative movement ceases, and that the character of the wound is partially dependent upon this rotation.

Inflammation of the Costal Cartilage as a Sequela of Typhoid Fever.
—LAMPE (*Deut. Zeit. für Chir.*, Band liii., Heft 5 and 6) concludes from his study of the clinical features and pathology of this condition that:

1. The inflammation of the cartilage originates in the cartilage itself. The perichondritis is secondary, although its clinical symptoms are the first to appear.

2. There are certain alterations in the cartilage which must proceed before infection can take place. They are due to age, and consist in vascularizations and the formation of sinuses or narrow cavities.

3. The treatment depends on the degree of inflammation; without suppuration an expectant treatment may be employed, but so soon as suppuration manifests itself the only treatment is operative. The excision of the entire costal cartilage is the only guarantee of cure.

Laceration of the Intestine with Rupture of the Mesenteric Artery Without a Skin Wound.—SHEPHERD (*Montreal Medical Journal*, July, 1899) reports a very rare case in which a traumatism produced a complete rupture of the small intestine without any external wound. The rectus abdominis muscle was, however, ruptured, the mesentery torn across, and with it the superior mesenteric artery near its origin. The patient's condition was very critical when he came to the hospital, and rapidly became worse. The operation was performed an hour after his admission. The abdomen was found filled with blood and intestinal contents, and, although the artery was secured and little blood was lost after the operation was commenced, the patient sank and died shortly afterward, although normal salt solutions were employed hypodermatically and the abdomen was filled with normal salt solution. Stimulant treatment was also employed. If the patient had recovered there would undoubtedly have been gangrene of a large part of the gut, and consequent death.

Internal or Direct Herniæ in the Female.—ESCHER (*Deut. Zeit. für Chir.*, 1899, Band liii., Heft 5 and 6) comments upon the rarity of these herniæ

as reported in literature or described by systemic writers. In 600 cases of inguinal herniæ which he has operated upon for the radical cure by Bassini's method there were forty-nine cases inguinal hernia in the female. Five of these cases were direct or internal herniæ. Of the 551 cases of herniæ in the male thirty-five were of the internal variety.

Of the five cases in the female, two were not examined to determine which variety of internal hernia they represented. In two of the cases the hernia originated in the fovea media and fovea interna, respectively, while a third was through the fovea interna.

The author believes that the difficulties that arise from the varying nomenclature of the herniæ could be avoided by designating them by the fovea on the peritoneal aspect, through which they make their exit. Thus the external oblique inguinal hernia would be termed *hernia foveæ inguinalis externæ*; the hernia inguinalis directa would be the *hernia inguinnlis foveæ mediæ*, and the hernia inguinalis obliqua would be the *hernia inguinalis foveæ internæ*.

The Radical Cure of Inguinal Hernia in Infants.—FRAENKEL (*Cent. für Chir.*, November 25, 1899) holds that the indications for the radical operation are as strong in children, even nurslings, as they are in the adult. Recent research and clinical experience have shown that a great many of the herniæ seen in adult life are the result of the non-obliteration of the vaginal process of peritonæum—that is, the sac is already there, and the opening, which was closed by only slight adhesions, yields under sufficient stress. This is also the tendency of herniæ which have been cured by truss or pad in early life. In addition to the danger of recurrence there is the physical and psychic influence which the presence of such a disability always has upon the development of mind and body of the individual. The danger accompanying such an operation is no greater than in other operations of like character. Asepsis can be secured by appropriate dressings, fixing the limb on the side of operation and the employment of occlusive dressings about the rectum and penis. The results of the operations have been very satisfactory. Primary union was secured in the majority of cases in from eight to ten days. The effect on the digestive tract has been a marked improvement and an increase, as the result of operation is not to be feared, although any irregularity should be corrected as nearly as possible before the operation is undertaken.

The Radical Treatment of Umbilical Hernia.—PICCOLI (*Cent. für Chir.*, 1900, No. 2) calls attention to a new simple method of radical operation for this form of hernia, which is in a measure similar to the Bassini operation for inguinal hernia. It is based on the principle of replacing the linea alba by two overlapping layers of the muscular wall, thus transforming a linear scar having an antero-posterior direction, which is in the line of pressure, into a transverse, broad scar between the two overlapping surfaces, which is also a transverse plane to the line of pressure. This is the same principle as that evolved by MacEwen in his radical cure of inguinal hernia and amplified by Bassini in his latest modification of his radical operation.

In applying it to umbilical herniæ the author proceeds as follows: The

incision extends two or three inches above and below the hernia, according to its size. The hernia is reduced, the sac fastened with a Billroth clamp, resected, and the resulting wound closed by sutures. The peritoneum is carefully dissected up by the finger passed through the hernial opening as far as possible with the finger. The abdominal wall is then cut in the linea alba above and below, with the finger used as a director. The hernial opening is thus converted into an ellipsoid. Four or five sutures are now placed in the edge of the wound through the muscle and sheath of the rectus. They are knotted and the ends left long. These ends are carried separately beneath the muscle on the opposite side and penetrate it at a point about an inch from its free margin. The two ends come up through the muscle and its sheath at separate points. Strong traction is made upon them, thus forcing the edge of one rectus beneath the other. When all the sutures have been passed, tightened, and knotted in this manner an ellipsoidal overlapping of the two recti has been secured at the point of the hernial opening. The free edge of the rectus that has been penetrated by the sutures is now drawn over and secured by interrupted sutures to the sheath of the other muscle. The superficial fascia and skin are then united, completing the operation.

The author's clinical experience with this operation fully substantiates the result obtained in animal experimentation.

The Radical Operation in Crural Hernia.—BRENNER (*Cent. fur Chir.*, November 4, 1899) calls attention to the fact that Salzer was the first to propose the closure of the crural ring by utilizing a crescentic flap formed from the pectineal fascia covering to the origin of the pectineus muscle. The flap is cut with its base attached to the os pubis, and is then turned over and sewed to Poupart's ligament. It is brought as close as possible to the internal border of the femoral vein.

The method of performing the operation is similar to that of other methods in isolating the sac, reducing the hernia and clearing the canal of all cellular tissue and glands. The sac is ligated, cut, and cauterized, when it generally retracts above Poupart's ligament. The pectineal fascia is seen glistening in the bottom of the wound after the removal of the tissue and glands. The flap is cut crescentic in shape. It has its convexity downward, which forms its free and inner border. Its base is thicker and attached to the os pubis. It is turned upward, so that the smooth surface covers the crural opening and attached by sutures to the middle portion of Poupart's ligament. A branch of the femoral artery and vein will often be found in the lower angle of the wound. No injury seems to be done by its section. It is not always essential to clear away the glands and connective tissue, and where possible they may be left. Sixty-three cases are reported with 91.8 per cent. of cures.

The Wisdom of Surgical Interference in Hæmatemesis and Melæna from Gastric and Duodenal Ulcer.—ARMSTRONG (*British Medical Journal*, October 21, 1899) reports two cases, one successful, one in which he operated, and one in which he assisted in the consultation, but in which he believed the patient was left too long before the operation was undertaken. This latter case leads him to the conclusion that operative interference is often

too long delayed. The results of the pathological and clinical study of the subject he expresses as his opinion that the following are suitable cases for intervention. He first, however, makes the following clinical division into classes: "Those in which occur frequently repeated small hemorrhages, and those in which the loss of blood is in large quantities; and it would seem that each class has a distinct pathological lesion, and this should be borne in mind in the consideration of the treatment of hæmtemesis, medically or surgically."

If, then, we can exclude aneurism, which should generally be possible, and leukaemia or cirrhosis or other cause of portal obstruction, he holds that the surgeon should interfere in those cases, first, of frequently repeated small hemorrhages which persist in spite of medical and dietetic treatment, and which threaten to destroy the life of the patient; and, secondly, in all cases of hemorrhage which, in spite of medical and dietetic treatment, recur. In these cases he advocates operation after the second hemorrhage. For hemorrhage occurring in cirrhosis and portal obstruction he does not think that the surgeon can accomplish any good. In these cases the hemorrhage is generally from a varicose œsophageal vein, a part difficult of access and secondary to a pathological lesion but little amenable to any form of treatment.

In cases of gastric and duodenal ulcer, however, the conditions are totally different. The lesion is primary and local, and in addition to securing the bleeding-point a more smooth and rapid convalescence is secured, the likelihood of perforation removed, and if found advisable the performance of a gastro-enterostomy or pyloroplasty secures to the stomach the rest which favors the healing of the ulcer and insures against subsequent occurrence of narrowing and obstruction at the pylorus.

The Radical Operation of Inguinal Hernia in Children.—KAREWSKI (*Cent. für Chir.*, 1899, No. 51), in discussing the subject, disagrees with Fraenkel, who holds that the Bassini operation is essential to the cure of the cases and that it is indicated in all cases. He does not believe that we have proof that all herniæ that have been cured by the truss are liable to be reproduced in later life, or that all herniæ are capable of being cured by the truss. He believes that many herniæ are cured by the wearing of a properly fitting truss, and that there are, on the other hand, many cases where the truss is not efficient and where the radical operation is indicated at an early age. The indications are the persistence of the hernia in spite of the truss; that it is not held up or the truss is not well borne where the hernia is irreducible or incarcerated. These are indications for operation in the nursing or in very young children. In older children the healing is less liable to occur from the application of a truss, and operation is therefore more frequently indicated.

The radical operation is not to be considered a perfectly harmless and dangerless operation, and should not be undertaken for the same reasons one would operate on a hare-lip. The simpler the operation the better. The author has found that the forcing of the sac by blunt dissection, its ligation and resection are sufficient to produce a radical cure, and that more complicated operations are not indicated.

PEDIATRICS.

UNDER THE CHARGE OF

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The Elimination of Mercury by the Mammary Gland.—E. SOMMA (*La Pediatria*, 1899, No. 6) has made careful analysis of the milk of seven women who were being treated either by inunction of mercurial ointment or with subcutaneous injections of a mercurinal. The most delicate reagents were employed, but in none of the cases was the slightest trace of mercury found in the milk.

The author therefore concludes that the treatment of heredo-syphilitics by the milk of women submitted to mercurial inunctions or injections of mercury has no rational foundation in fact.

The Subcutaneous Injection of Salt Solution in Acute Diseases.—LENHARTZ (*Société Médicale de Hambourg*, in *Annales de Médecine et Chirurgie Infantiles*, September 1, 1899, p. 674) reports his observations on the use of subcutaneous injections of a physiological saline solution in the treatment of numerous acute diseases in childhood. The immediate effect of such injections is to raise blood pressure, and consequently to increase diuresis. Not only is the force of the heart improved, but, to use an expression of Sahli, there results a lavage of the whole organism, which is thus relieved of toxins. This treatment has given excellent results in typhoid fever, pneumonia, grave dysentery, peritonitis, ileus, cholera infantum, and summer diarrhoea. In certain cases all alimentation by the mouth or by the rectum was suspended, and for several days the patients were sustained entirely by the injections, which were given in quantities of a litre for adults or from 400 to 600 grammes for children.

In typhoid fever, notably, it was observed that the injection exercised not only a tonic action, but also was calmative, quieting both physical and mental agitation. A case of dysentery which had eighty to one hundred stools a day, losing from 1300 to 7500 c.c. of sanguinolent mucus, was cured by systematic injections of saline solution in dose of two litres a day. These results were due to the rapid elimination of toxins. The treatment is especially recommended in cases of grave peritonitis in which it is impossible to operate at once.

Among the unpleasant sequelæ of this procedure are subcutaneous abscesses, which are observed rarely in hospital and slightly more frequently in private practice, and acute dilatation of the right heart in nurslings. In three autopsies of infants Lenhartz observed slight edema of the glottis, of which there had been no symptoms during life.