

being applicable to all operations on the limbs where a segment may thus be rendered anesthetic. Properly applied it is apparently without danger, although one should bear in mind that the quantity of drug used amounts to a toxic dose if allowed to enter the general circulation.

The principle which Bier has made use of is interesting from a physiological standpoint, and its practical value has already been demonstrated by several German surgeons.

About one year ago, Klapp, then assistant to Bier, sought to diminish the quantity of anesthetic (especially in general anesthesia) by reducing the amount of circulating blood. His experiments were upon the following lines: Two rabbits of approximately the same weight were selected; upon the first an Esmarch bandage was placed as high as possible on each thigh; both rabbits were then placed in a glass jar into which a mixture of chloroform and air is injected. Under these conditions the ligated rabbit would invariably go to sleep much quicker than the control rabbit, and, upon removing the bandages, at the completion of the experiment, the ligated rabbit would recover earlier than the control rabbit. If the ligated rabbit be placed in the glass jar several minutes after the control rabbit and both rabbits fall asleep at the same time, they will awaken almost simultaneously after being taken from the jars and removing the bandages.

Thus, by shutting off from the general circulation the blood in the limbs, narcosis may be obtained with smaller quantities of anesthetic than are considered necessary under normal conditions.

Zur Veith, working in Bier's clinic, applied the results of the foregoing experiments in 100 operations. He first studied on himself the effects of prolonged application of Esmarch bandage to the upper and lower extremities, and found it could not be tolerated for more than 15 to 20 minutes on account of the pain which soon followed its application and gradually increased in intensity. No change in the pulse rate or tension was noted. The well known reports of brachial paralysis following prolonged constriction of the arm led zur Veith to apply the Esmarch bandages only to the lower limbs in his operative cases. Under these conditions the quantity of anesthetic necessary to produce and maintain narcosis was notably reduced. Another fact of considerable importance was the patients' early, almost immediate, recovery from the anesthetic upon removing the bandages. Apparently the blood of the lower limbs, saturated with CO₂ and free from anesthetic, rushing suddenly into the general circulation, acts as an excitant to the central nerve centers.

Anschutz, with 50 additional cases, confirms zur Veith's findings and considers the procedure especially valuable in operations upon the head and neck. Fear of late hemorrhage has caused him to advise against its use in intestinal operations. On the other hand zur Veith has never noted a single instance of late hemorrhage. D. T.

A CASE OF SCROTAL GALACTOCELE.

By HARRY I. WIEL, M. D., San Francisco.

This case offers an interest, almost if not quite unique and is well worth the telling. At the out-

set we must define *galactocoele*. Searching the literature under that heading, cases will be found in number sufficient to remove the condition from the rarities, but a glance at the articles themselves will discover that they refer to milk-containing cysts of the mammary gland.

The matter brought out in this report is a different affair and yet comes under the heading. It is almost inconceivable to have a milk-containing cyst of any organ other than the mammary gland, but this case proves it possible. Therefore, conforming to the literal sense of the term, we mean by *galactocoele* any cyst containing milk, and by *milk*, for this purpose is understood nothing more than an emulsion of fat.

J. T. Y., carpenter, married, age 38, native of Australia, consulted me, June 10, 1908, for a swelling of the right side of the scrotum. Only point of interest in family history was death of mother at 64 of uterine cancer. Previous history of no note except that until nine months of time of consultation he had lived in western Australia. (In the light of later findings this was considered of some importance.)

Present illness was first noticed ten weeks previously when right side of scrotum was seen to be enlarging and gradually increased to its present size. It never gave any discomfort other than a slight sense of heaviness on walking. No sexual or urinary disturbances, no loss of weight, no fever, no general malaise, no night sweats; in fact, general health entirely unimpaired.

Physical examination disclosed a normal well-nourished individual as regards heart, lungs, head and abdomen. On lower extremities were noticed numerous varices, probably varicose lymphatics. Right side of scrotum enlarged to about the size of a large orange, tense, heavy and evidently containing fluid. The testicle was easily made out lying in the usual position behind the sac of fluid and had a small nodule on its anterior inferior surface. The inguinal canal was clear, the epididymis normal as was also the left side of the scrotum. The condition was unhesitatingly diagnosed as hydrocele and tapping advised which was done the next day in the office. The result was to say the least startling, for on withdrawing the piston of the syringe, the fluid which followed into the barrel was to all appearances milk, 150 cc. in amount. Examination of the fluid showed it to be a true emulsion of fat and corresponding to milk in many of its reactions.

The patient was told to return the next day and meanwhile it was a puzzle as to what the bottom of the condition might be. In twenty-four hours the sac had filled again completely, and as it was evident that the condition was an unusual one, a surgical consultation was advised. Dr. Camillus Bush saw the patient with me on the following day and together we tapped the sac again, 130 cc. of "milk" being withdrawn. The blood was examined and found to be negative from all points of view. In the light that there was present a small nodular growth on the testicle it appeared to us that we might be dealing with a tumor of the testicle and even went so far as to suggest to ourselves a teratoma with some aberrant mammary tissue secreting milk. The idea of filariasis had of course previously entered our mind both from the nature of the fluid found and from the man's former place of residence. Elephantiasis, however, we argued was usually bilateral; but nevertheless we had not yet examined the blood at night and could not definitely exclude it. At any rate unilateral castration was urged and agreed upon.

On June 14th at 10 p. m., the patient was roused from his sleep and a specimen of blood taken, many smears and fresh samples being examined. Nothing in the nature of a parasite was found.

Operation June 15th, by Dr. Camillus Bush. Under

ether anesthesia an incision was made high up on the left side of the scrotum near the external ring. The spermatic cord was found much thickened due to varicose lymphatics, from the cut ends of which by the use of considerable force some of the milky fluid could be expressed from the sac below. The vas was seen to be normal. The cremaster, vas and vessels were tied and cut and the testicle lifted out of the scrotum with the galactocoele intact. The scrotum was then closed and the patient returned to his bed.

Specimen was sent to Dr. Ophuls, pathologist to the Lane Hospital, for examination. He opened the sac and found 150 cc. of the "milk." To the naked eye the tunica albuginea and vaginalis were normal, though microscopically there existed a mild degree of chronic periorchitis. The epididymis was a little large and soft and on gross section rather pultaceous. The nodule heretofore mentioned was a small spermatocele. Smears made from section of the varicose lymphatics and from fresh blood from the specimen were negative for parasites.

Post-operative history. Patient's general recovery was uneventful though an interesting feature in his local trouble developed. On the 4th day after the operation there was noticed a soft boggy, probably cystic intra-abdominal mass just above the right Poupart's ligament, immovable and painless. Its appearance seemed to be sudden and its size, during the patient's stay in the hospital did not alter. On the 8th day the patient was allowed to go to his home, and ordered to visit me at the office frequently for observation.

This he did. It was difficult for us to disassociate the matter from a parasitic cause, and with that notion in mind atoxyl, in the light of its use in trypanisomiasis, suggested itself to us as a therapeutic agent. We used the drug by means of intravenous injections, beginning with a dose of 1-3 gr. This was done at two-day intervals, gradually increasing the dose up to 1 1-3 grs. until July 10th, twenty-four days after the operation. At that time the patient was in good general condition and the intra-abdominal tumor, if changed at all, had perhaps grown slightly larger.

The patient was then allowed rest from treatment for a week as we felt delicate about pushing atoxyl too far. When seen the week following he reported having been at work at his trade and having felt no ill effects. Abdominal examination showed that the abdominal tumor had disappeared. He was seen again a week later and the mass had not returned. He then left town and we have not seen him since, though he has been heard from as working and in normal condition.

In recent years there have appeared at intervals in the literature reports and discussions on cases of chylous ascites, and their nature is not yet quite clear. Here we have a chylous hydrocele and probably the same factors are at the bottom of both. On the other hand the rapidity with which it filled after tapping, and the development of an intra-abdominal cystic mass after communication with the scrotum had been closed, suggests to us that there must have been an open funicular process of peritoneum and that we were dealing with an "hydrocele communicans." This may have been in connection with a chylous ascites, but more probably with a mesenteric cyst, and whether we could even trace the source of the fluid to the receptaculum chyli is food for thought. Of this we were certain, that we were not dealing with lymphatic fluid nor with the sort of fluid obtained in a spermatocele, but with a

creamy white opaque emulsion of fat, in fact with a milk.

We also came to the conclusion finally that the affair was not parasitic, as a continued and careful search by many persons would in all probability have revealed at some time any organisms that might have been the cause. Especially careful were we to seek many specimens of blood while the patient was asleep.

Literature on this matter is so sparse as to be almost negligible. Konig in passing mentions that Vidal had such a case in an African soldier and took the milk to be some anomaly in albuminous metabolism, a diffuse statement which really throws no light at all on the subject. The first named also quotes V. Pitha as having such a case, but without comment. Here and there in a text-book on genito-urinary surgery is an isolated statement to the effect that such an anomaly has been known to occur, but probably its mention comes from the knowledge of the case of Vidal.

In a matter so rare as this it may not be of much moment just what the etiological factors are, and as fortunately (sic) in this case there is no immediate outlook for an autopsy to throw what light it can, we shall probably not find out anything further. Nevertheless the extraordinary is always teeming with interest, and as remarkable tales of unusual things are often received with pleasure, we take that as justification for putting this one in print.

References.

- Casper, "Lehrbuch der Urologie", pp.
Konig, "Specielle Chirugie", Vol. II. pp.
White & Martin.

WARREN TRIENNIAL PRIZE.

Massachusetts General Hospital.

The Warren Triennial Prize was founded by the late Dr. J. Mason Warren in memory of his father, and his will provides that the accumulated interest of the fund shall be awarded every three years to the best dissertation, considered worthy of a premium, on some subject in Physiology, Surgery, or Pathological Anatomy; the arbitrators being the physicians and surgeons of the Massachusetts General Hospital.

The subject for competition for the year 1910 is on Some Special Subject in Physiology, Surgery, or Pathology.

Dissertation must be in either the English, French or German languages, and must be typewritten and suitably bound, so as to be easily handled. Work that has been published previously will not be considered in competition. The name of the writer must be enclosed in a sealed envelope, on which must be written a motto corresponding with one or the accompanying dissertation.

Any clew given by the dissertation, or any action on the part of the writer which reveals his name before the award of the prize, will disqualify him from receiving the same.

The amount of the prize for the year 1910 will be \$500.

In case no dissertation is considered sufficiently meritorious, no award will be made. Dissertations will be received until April 14, 1910.

A high value will be placed on original work.

FREDERIC A. WASHBURN,

Resident Physician.

Boston, February, 1909.