convulsions will follow; this mischief may be rectified by injecting normal salt solution to the amount of an ounce or more, and temporary arrest of the drainage; or, as I prefer, iodoform emulsion may be used for injection purposes.

Sometimes traumatic hemorrhage into the ventricles is a complication. In such a case, the advice of Keen is to be followed: instant trephining and evacuation of the clots. Its early recognition, however, must be very difficult.

In this particular case, it seems to me that operation is entirely out of the question, in the physical condition of the patient, as she is suffering from a subacute bronchitis and from an edema of the glottis, from which she nearly suffocates at each paroxysm of coughing. Many of these cases die from pulmonary and laryngeal complications; and it is probable that this little patient will end its life in this way. If, however, the Doctor is successful in treating the present trouble, we can then explain the possibilities of the operation to the parents, and follow the plan which I have just described if they decide in favor of having it done.

A CASE OF HEMATURIA.

Our third patient, a gentleman age 55, has been sent by Dr. C. L. Burke of Argentine, Kan., for diagnosis. He is evidently neurotic, confesses to impotency, and complains of passing bloody urine at irregular intervals. He comes seeking relief from the latter, to which he ascribes his ill health; he is directed to this clinic for us to determine if he needs surgical treatment. The first thing to decide is whether he has hematuria or hemaglobinuria—as in each the urine may be tinged red. We may exclude hemaglobinuria by the fact that there is no cause, that is, there is no continuous use of certain drugs, like potassium chlorate, glycerin, some of the anilines, etc.; no partaking of certain edible fungi; also by the fact that this trouble has persisted for more than two years; hemaglobinuria commonly being a transient condition whereas hematuria may be long continued. But we must remember that there is a well-defined disease characterized by hemaglobinuria as its chief symptom, generally paroxysmal as in this case, and sometimes long continued; but questioning reveals the fact that the blood has appeared almost daily for months, though not always; and is not associated with exposure, a chill or violent emotion; and examination of the urine with the microscope (by Prof. Jos. Sharp) shows the presence of blood corpuscles in great abundance. So we are compelled to decide that we have hematuria and not hemaglobinuria.

Is the hematuria of urethral, vesical or renal origin? Let us see.

The endoscope reveals no pathologic condition of the urethra anteriorly and the steel sound shows nothing but a hyperesthetic deep urethra. Examination by the finger in the rectum detects an enlarged prostate; but this is usual in men of his age; and if the hematuria were dependent upon this cause it would be preceded by and associated with a marked vesical catarrh. There is no history of such a trouble and the microscope fails to show pus cells, triple phosphate and large quantities of bladder epithelium, as would be the case in vesical catarrh—so we exclude the urethra and the prostate from etiologic factors.

We now pass the hollow sound into the bladder and make careful search for calculi; none being detected the sound is made to traverse the whole area of the bladder walls, inch by inch, to discover epithelioma, papilloma or other form of tumor which might act as a cause. The sound gives no evidence of abnormality, and the patient manifests little signs of discomfort, so we would conclude that no pathologic condition exists in the bladder; but to be sure that the manipulations have caused no bleeding the blad-

der may be partially filled with warm boric solution, and this passing away uncolored confirms our opinion. There being no urethral and no vesical cause discoverable, we are forced to believe the hematuria of renal origin.

Examination, is therefore, made to determine whether or not it can be relieved by surgical treatment. Auscultation gives no evidence of cardiac lesion, percussion discloses no cirrhosis of the liver and palpation reveals no abdominal tumor—the three causes of obstruction to the return of blood from the kidneys. There is no history of colic, no pain, no tumor in the region of the kidney and no pus in the urine from suppurative pyelitis—the usual symptoms of renal calculus.

Having by exclusion, reached the conclusion that this is not a surgical case, I am compelled to send the patient to the medical clinic, as it is certain that the hematuria arises from embolism or thrombosis (the latter usually dependent upon atheroma or calcification of the vessels of the kidney), in which case the collateral hyperemia gives rise to repeated escape of blood into the tubules or into the pelvis of the kidney; or to nephritis; or to disease of the renal vessels, (aneurisms, etc.); or possibly to some depraved condition of the nervous system.

STRICTURE OF THE RECTUM.

The last patient is a colored woman of 24 years, who has a stricture of the rectum of three years' duration; it has become very close and greatly interferes with the patient's comfort and health. When she is under complete anesthesia I insert my knife through the stricture, pass it directly backward to the coccyx, and at one sweep cut through stricture, sphincter, skin and all. The inferior hemorrhoidal artery is caught and twisted, the rectum and wound thoroughly irrigated and the whole quickly packed with iodoform gauze, secured by a pad and a T bandage. The gauze may be removed at the end of forty-eight or seventy-two hours and the wound allowed to heal by granulation.

The subsequent history of a case of external proctotomy, as this operation is called, is usually quite satisfactory; far more so than in internal proctotomy (division of the stricture without cutting the sphincter or the anus) which has often been followed by pelvic inflammations, septicemia and even death. In some cases no attention is needed after the removal of the gauze, but in others it is necessary to pass a large rectal bougie from time to time to prevent too marked contraction of the cicatrix. Restoration of the function of the sphincter occurs in from a fortnight to two or three months.

PERITONITIS AND POST-OPERATIVE SEPSIS.

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The peritoneum is a "sacred sac," and he who permits the surgeon to enter therein with unclean hands and dirty instruments will suffer (not from his own iniquities), but from the septic agents introduced into the peritoneal cavity. Cleanliness is next to godliness in intra-peritoneal surgery.

Peritonitis is a disease of the gravest character, presenting many varied types and symptoms. One case dying with a diffused septic peritonitis with a sub-normal temperature and a pulse of 55; another seemingly with the same local pathologic process

present, will have a temperature reaching a dangerous hyperpyrexia, with a pulse of 180. In one case you will find a distended abdomen, filled with paretic bowel and rigid abdominal muscles, and writhing from the pain. Again you will find a case with a like origin, with a flattened abdomen, free from pain and tenderness, and at the *postmortem* find very little evidence of so grave and rapidly fatal malady. It is from this obscurity or irregular run of the disease (peritonitis) that I have added to this discussion post-operative sepsis—a condition often mistaken for and treated as peritonitis. It is generally admitted that, with the exception of the tubercular peritonitis, this disease is always of a traumatic origin. That there exists an immunity, more or less, to septic invasion in the peritoneum, no one will doubt. This serous membrane with its endothelial covering has the power of digesting large blood clots and gelatinous extra-uterine babies, if these foreign bodies are of an aseptic character. I have seen the victim of a ruptured tubal pregnancy of tenth week recover without any operative procedure, the extravasated or free blood in the peritoneum being absorbed within a few weeks. Unfortunately this is not the usual history of these cases when not relieved by a surgical procedure.

A form of peritonitis often met with by the abdominal surgeon is one due to a ruptured ovarian blood cyst, abscess or pyosalpinx. A case known to have a collection of pus in the pelvis, should with no exception, be operated upon at once. It is true in many cases a little leakage may take place from a Fallopian tube filled with pus, and the woman escape with only a slight localized pelvic peritonitis, followed by the invariable intestinal and omental adhesions endangering her life from a strictured gut, dilated ureter and surgical kidneys, ruptured gut or bladder. The next attack may prove fatal by the local process becoming a diffused one.

There seems to be a peculiar immunity established by a slow vaccination or inoculation process, in many of these old pus cases.

I have repeatedly in "hulling out" old ovarian abscesses had a pint or more of pus escape into the pelvic cavity, and with irrigation and a drainage tube, these cases do well. If in this same case you place your patient in Trendelenburg's position and the pus is permitted to flow toward the diaphragm or in that portion of the cavity not protected by the local inoculation, as is the pelvic peritoneum, the patient will surely have greater dangers to encounter and many will die from a peritonitis regardless of the prophylactic irrigation and drainage.

The abdominal peritoneum is much more susceptible to septic invasion than the pelvic under all circumstances. You see this in comparing the recoveries in two cases where the uterus has been removed, one by vaginal, the other through an abdominal incision. In one case the operation is performed through a septic cavity, and yet the cases have a convalescence compared by one author to an "ideal puerperal getting-up." It matters not how much irrigating fluid is used, where an abscess has ruptured into the peritoneum, all the septic matter can not be removed; even though a microscope be brought to the surgeon's assistance, he could not remove it all. A few drops only of the last irrigating fluid or the fluid from the drainage tube, introduced into a clean, healthy peritoneum may induce a rapidly fatal septic peritonitis.

In appendicitis you have an acute process in the "upper peritoneum," the pus being of a most virulent character, a small quantity of which is sufficient, if turned loose into the general cavity, to produce a rapid and fatal peritonitis. Hence the practice, in operating for a "walled off" appendicitis, of never attempting to break up adhesions for fear of entering the general cavity, an accident or procedure sure to lead to the development of a dangerous or fatal peritonitis. In ovarian abscesses or *intra-pelvic* inflammatory processes, the wise procedure is to break up all adhesions, remove diseased structures and liberate healthy organs.

In gunshot, stabbed and other wounds involving the hollow viscera of the abdomen, a fatal termination is always expected (rare exceptions), from a peritonitis induced either by the weapon, missile or the escape of visceral contents teeming with pathogenic bacteria. In such cases the surgery must be *early and thorough*.

A large abdominal incision increases the dangers from septic invasion, and at the same time exposes the intestines to more handling and consequent injury. A bowel that has been exposed for a time of long duration to the atmosphere, and has been permitted to become dry and blanched, has sustained sufficient injury to materially injure its functionary powers, and any agent, be it what it may, in abdominal operations that interferes with the function of this canal endangers the life and safety of the patient from the dangers attending a peritonitis. The intestines are one of nature's sewers (drainage tubes), the function of which is to absorb through the peritoneum, fluids in the abdomen, and to eliminate the same. *In a paretic bowel this function is reversed.* The peristaltic action is retarded or lost, the absorptive and digestive functions suspended, and the eliminative action absent, the contents of the paralyzed gut, already teeming with pathogenic bacteria, act as an inoculated culture tube with its two ends sealed; gases soon form in large quantities, the muscular and serous coats are dilated and thinned until the microorganisms find easy avenues of escape from the intestines into the peritoneal cavity, the function of which, as a protecting agent, is soon lost, and its great cavity converted into a vast bacterial hotbed, and the patient's whole economy saturated (from this source) with these poisonous germs and their ptomaines. Such is the progress of invasion where there have been no germs introduced into the peritoneum from without, but where the operation has been a prolonged one, with the consequent handling of the intestines and resulting injury to the great sympathetic system as a result of the prolonged exposure and traumatism.

I have seen a case go on the table with an intestinal canal empty and as flat as a tape line, and within two hours after operation find it enormously distended as a sequelæ of prolonged and unavoidable handling. All operations within the abdomen should be quickly performed by skilled and clean hands. It has occurred to me, as a good and safe procedure, where the bowel is so enormously distended and refusing to expel its contents of liquid and gases, to perform, under cocaine anesthesia, a right inguinal enterostomy, wash out the intestines with an antiseptic solution, as boroglycerid, salicylic acid or boracic acid, this to be repeated as often as necessary. Other drainage should be carried out. This

opening in the bowel would permit the gas to escape unobstructed by a sphincter and would give an outward drainage; it would reverse the poisonous endosmosis, and it would give the parietic gut the best chances to regain peristaltic function and tonicity. This procedure would relieve the vomiting which is one of nature's efforts to rid the canal of its offending contents. The stomach is the last of the alimentary organs to lose its contractile powers. A paralyzed peritonitic bowel will not empty itself through a hypodermic needle, but with an opening such as I have advocated, the gut will collapse and the patient will quickly feel greatly relieved from the oppressed breathing, irregular heart action and the pain from the distension. If the patient recovers, the opening can be safely closed at any time. This procedure, I think, should be resorted to early in the most desperate cases where experience has taught that all similar cases have died without it. This procedure, when salines fail, offers the best chances for the relief of the "trinity—peritonitis, tympanitis and vomiting, the furies of abdominal surgery." (Greig Smith.)

Before resorting to this procedure, salines and injections should be given a fair trial.

The usual operation for peritonitis is the procedure for the removal of the exciting cause, as appendicitis, suppurating dermoids, postpartum poisoning, etc.

The consideration of the fever following labor is one at this time receiving much attention, and is now, as it was by Dr. Holmes, fifty years ago, recognized as being of septic origin, the poison being often carried or introduced into the genital canal by the physician. An exception to this being the auto-genetic type—where the woman at time of delivery has a real pathologic process which sustains an injury during parturition and leads to the development of a peritonitis—as an abscess in an ovary or a pyosalpinx. The treatment here is the same as for other forms of peritonitis. Remove the source of infection. Unfortunately all treatment of diffused septic peritonitis has proved futile. *Only early or abortive surgery* will check the rapid and dangerous invasion of this disease. All abdominal operations should be performed under absolute aseptic precautions. The smallest incision compatible with the work to be done; the shortest period of anesthesia and the most rapid operative work leaves the patient in a condition the better able to withstand or combat any tendency to destructive invasions. Irrigation with hot sterilized water, followed by intelligent use of drainage tube, should be practiced in all cases where there exists a suspicion that the case is a septic one. These agents are used here as prophylactics. The intestinal canal may be "toned up" by giving 20 drop doses of tincture of nux vomica three times a day for a few days before the time set for the operation, and continued in form of strychnia hypodermically for days afterward. An empty stomach and intestinal canal will cause these organs to be handled and exposed less during the operation, and will conduce to the safety and comfort of the patient from vomiting and gaseous distension. If the intestines are empty the peritoneum will absorb and digest much better the fluids in its cavity. Withhold fluids for several hours after the operation. If excessive thirst exists give an enema of six ounces of peptonized milk. Avoid sweet milk and eggs by the stomach, as these articles of diet are gas forming

agents. Avoid all preparations of opium. If it becomes necessary to give any form of this drug give codeia. If drainage is being used, see that the tube is kept dry by frequent aspirations. If any symptoms arise pointing to the development of a peritonitis, such as persistent vomiting, inactivity of the bowels, distended abdomen, elevation of temperature, and quickened heart beats, give the salines (sulph. magnesias is the best) in good size doses (one to two ounces) each two or four hours until bowels act, or gas passes in abundance. To this course may be added turpentine enema (3ii to pint water) to which two ounces of salts are added. If this course succeeds, in many of the cases improvement will be noticed at once. The bowels must be kept acting each day. If patient can not retain the salts, give one-tenth grain of calomel each hour until bowels move or vomiting ceases. Many cases will be relieved of the vomiting where no peritonitis exists by giving nutrient enemata each three or four hours. Many post-operative cases die from systemic infection before the disease has had time to become general. In these cases the development may be initiated immediately after the operation, and with symptoms resembling those of shock, the patient dying within twenty-four or forty-eight hours. Here large quantities of strychnia, digitalin and whisky must be given.

The subject of peritonitis can not be discussed without considering the *trio*: 1, fermentation fever (Bergman); 2, septic intoxication (sapremia), and 3, septic infection or true septicemia. I know of no better way to make these classifications understood than by reporting illustrative cases occurring in my practice:

Case 1.—Fermentation fever, following a salpingo-oöphorectomy. Six hours after the removal of sound uterine appendages for relief of the symptoms due to the presence of a uterine fibroid, my patient's temperature began to go up, reaching 104 degrees F. within twenty-four hours; was not preceded by chill; pulse increased correspondingly. The case presented no other alarming general symptoms; said she felt very well. Fearing I had the beginning of a dangerous sequela to combat, I removed my dressings and found a large indurated(?) spot to one side of my incision, in the abdominal parietes. I cut a couple of stitches and thus liberated a large collection of imprisoned blood that was forcing the fibrin ferment into the blood. My patient's temperature and pulse within a few hours returned to normal.

Some authorities doubt the existence of an aseptic fever. If there is such a condition as fermentation fever, this case belongs to that classification:

Case 2.—Sapremia (absorption of product of putrefaction) following a criminal abortion, retained placenta. After repeated endeavors with some blunt instrument, this young lady succeeded in producing an abortion. The fetus and part of the membranes and placenta were expelled. She was four months pregnant. Three days later a physician was called and found her with a temperature of 103 degrees F., having had a chill a few hours before. Pulse of the character described as indicating the absorption of the preformed ptomaines of putrefactive bacteria; a soft, compressible, quick pulse, indicating enfeebled heart's force. Vomiting, anorexia, tongue furred and dry, clammy perspiration, fetid discharge from vagina, tympanitic abdomen. I saw the case a few hours before death, at which time her temperature was 105 degrees F., pulse imperceptible, delirious, restless, clammy perspiration, dilated pupils, cyanotic, all pointing to an early dissolution. At the *postmortem* I found a large, soft uterus, with half of a rotten, stinking afterbirth in its cavity. This case could have been saved by a timely surgical procedure. Curetting, irrigation, iodoform gauze and drainage.

In this case there was some tenderness over the abdomen. The early removal of the cause will cure

the majority of these cases, unless a mixed infection far advanced exist at the time:

Case 3.—Septicemia, septic absorption, progressive sepsis. Presented the initial history of Case 2, and started as a true sapremia (absorption of the products of putrefaction) but on the third day a dirty or unsurgical curetting was done, which added a secondary (pyogenic) infection; the absorption of the products and the rapid increase of the same in the blood made the case a desperate one from this time. At the *postmortem* the peritoneum was found to contain much muddy fluid, with evidences of a general peritonitis; the local process had not progressed to that extent to account for the death, hence the certificate was signed, septicemia. An early hysterectomy with the removal of the appendages which were diseased, may have saved the patient by cutting off the supply of septic material entering the blood. The accompanying peritonitis was induced by an invasion of the germs through the Fallopian tubes.

I have reported these cases to illustrate what an easy matter it would have been to have diagnosed them as peritonitis, had they all been postoperative laparotomy cases.

In a peritonitis with well-marked constitutional septic manifestations, to resort to prophylactic or abortive measures should be early and thorough. After a laparotomy, if this condition is developing, the stitches at the lower angle of the incision should be cut, and the pelvic and lower abdominal cavity irrigated with gallons of hot salicylated or borated (boric acid) solution, and a drainage tube introduced. This washing of the peritoneum should be repeated two or three times during the twenty-four hours. It can be done without an anesthetic in the majority of cases.

SOME THINGS THAT SHOULD NOT BE FORGOTTEN BY THE GENERAL PRACTITIONER.

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First, he should recognize his duty to himself, and second, his relation to other physicians. I believe it was the late Dr. Flint who made the remark that "every physician who is true to himself should be a thorough gentleman, a thorough business man and a thorough physician."

First of all, he should be in sympathy with the Christian religion; even if he is not a member of any special branch of the orthodox church, he should certainly not be a skeptic or an infidel. It would be exceedingly difficult for a skeptical physician to hold the confidence of one of his church-going patients through any serious illness, to say nothing of the many other disadvantages, under which he would have to labor. I may be pardoned for saying that we have in our ranks, men who are not only skeptical on religion but *peculiarly so* on the science of medicine. They delight to speak disparagingly of the science and are fain to show an air of ostentation that well characterizes the peacock or the *non compos mentis*. This latter class of physicians, to say the least, are unworthy of the title they bear; for to them is due the skepticism that exists among the laity on the science of medicine, and thus a great barrier is formed between physician and patient, to say nothing of the harm done to the credit of the profession. It is true, there are wonderful changes constantly being made in the art of medicine, but generally speaking, these changes are only steps toward a better and more perfect practice of the

science. As man's constitution changes so must our practice change, in order to adapt its merits to man's necessities. Medicine is a progressive science. The advance that has been made in the past ten years in the science of medicine and surgery far surpasses that of all other branches of knowledge. Dr. Nicholas Senn, who is one of the progressive surgeons of the world, remarked to a large body of physicians a few months ago, that there had been more genuine progress made in the science of surgery within the past ten years than had been made during the previous one hundred years. Thus we see how grandly our great science is keeping abreast with all others, and I may add, since antiseptic surgery and electricity have come to our aid, we are fast outstripping all other professions on the broad road of progress.

All honor to such men as Koch, Pasteur and Sternberg who have accomplished wonderful results in their researches with the microscope, in ascertaining the cause of disease. All honor to such men as Senn and Gerster, Loomis and Osler for putting into practice the teachings of the former, and thus bringing about a grand revolution in the practice of medicine. It is the duty of every true physician to hold up the standard of his profession. And to do this successfully, he should be both a thorough gentleman and a thorough physician. He should keep abreast of the times, by spending at least three months out of every three years at the medical centers, where hospital advantages are offered to the general practitioner as well as to the specialist. This is a duty that every true physician owes to himself. If every general practitioner would do this, he would be better prepared to do his work, instead of allowing his patients to go to the city specialists to be treated for the very disease that he could have treated equally as well at home. It is passing strange that there are so many general practitioners, who from mere want of confidence in their own abilities, will send their patients to the cities to be treated by men who have had less experience and fewer collegiate advantages than they have had. I am acquainted with a physician who sends at least one-third of his cases to the city to be treated; these doubtless could be treated at home just as well. I claim that there is but one advantage the prominent city physician has over the town or country physician, namely, the hospital advantages, where good and skilful nursing is required after capital surgical operations. We need a few more McDowell's and Sims in the country villages to encourage us to compete with the city surgeons and city specialists.

I long to see the day when every village and country doctor will be as handsomely equipped in office facilities, etc., as any city specialist, and thus be prepared to treat his cases at home, instead of sending them with their pocket-books full of money to the city specialist. I am proud of the fact, that out of a yearly three thousand dollar office practice, I have thus far been able to treat my cases at home, and I mean to continue to do so as long as I remain in the practice of medicine. There is no just reason why every physician should not keep abreast of the times as above indicated, and be equipped with a full supply of the necessary surgical instruments, galvanic, faradic and cautery batteries, etc. There are many lives sacrificed, wholly on account of the attending physician not having proper surgical instruments to relieve the patient. To cite an instance of this kind:

About four weeks ago I was summoned fifteen