

INTRAPERITONEAL COMPLETE RUPTURE OF BLADDER CUPULA, COMPLICATED BY TEN-DAYS URINE PERITONITIS. CASE FROM PRACTICE

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Abstract

A rare case is given in our article with 10 days old closed injury with isolated full intraperitoneal rupture of the bladder dome. In the surgical department of our hospital, with bladder ruptures, which are given according to literary data, but have met with such a case first. At the insistence of a linear medical assistant after 10 days, the patient was brought by train to us with a diagnosis cirrhosis, ascites. The intraperitoneal rupture of the bladder, complicated by 10 days of urinary peritonitis, which is not found in the available literature. At the first catheterization the patient is exposed diagnosis.

Due to the severity of the patient's condition, the therapists showed vigilance and after consulting Stov in the intensive care unit held preoperative preparation, operation: rehabilitation of the abdominal cavity with drainage, suturing the wound of the dome of the bladder with the imposition of epicystostomy, postoperative care and adequate treatment, based on practical experience, led to a positive outcome. the results of surgical treatment, the patient lives, now on a well-deserved rest.

Keywords

bladder, trauma, peritonitis

Онкүндік несеп перитонитімен асқынған қуықтың күмбезінің ішпердеішілік толық зақымдануы. Клиникалық оқиға

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Аңдатпа

Мақалада қуық күмбезінің оқшауланған толық ішпердеішілік жабық жарақаты бар сирек жағдай келтірілген.

Біздің аурухананың хирургиялық бөлімінде қуық жаралары бар операциялар жасалды, олар әдеби мәліметтер бойынша жасалады, бірақ бұл бірінші оқиға.

Фельдшердің талабы бойынша 10 күннен кейін пациент бізге пойызбен «бауыр циррозы, асцит» диагнозымен жеткізілді.

Біз қолда бар әдебиеттерде таппаған 10 күндік несеп перитонитпен асқынған қуықтың ішпердеішілік жарылуы.

Катетеризация кезінде науқасқа диагноз қойылды. Науқастың жағдайының ауырлығына байланысты терапевттер қырағылық танытып, маманмен кеңескеннен кейін интенсивті терапия бөлімінде операция алдындағы дайындық жүргізілді. Операция: құрсақ қуысын дренажбен қалпына келтіру, қуық күмбезінің жарасын эпицистостомиямен тігу, операциядан кейінгі күтім және тиісті ем, тәжірибеге сүйене отырып, оң нәтижеге әкелді.

Хирургиялық емнің алшақ нәтижелері бойынша пациент қазір бірқалыпты лайықты демалыста.

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қуық, жарақат, перитонит

Внутриперитонеальное полное повреждение купола мочевого пузыря, осложненное десятидневным мочевым перитонитом. Случай из практики

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Аннотация

В нашей статье приведен редкий случай 10 дневной закрытой травмы с изолированным полными внутри-
брюшинным разрывом купола мочевого пузыря. В хирургическом отделении больницы оперирован пациент с
разрывами мочевого пузыря. По настоянию линейного фельдшера через 10 дней больной привезен на поезде к
нам с диагнозом: «цирроз печени, асцит». Внутрибрюшинный разрыв мочевого пузыря, осложненный 10 дневным
мочевым перитонитом, о котором в доступной литературе информация нами не найдена. При первой катетериза-
ции больному выставлен диагноз. Из-за тяжести состояния больного терапевты проявили бдительность и после
консультации специалистов в отделение реанимации проведена предоперационная подготовка. Операция: сана-
ция брюшной полости с дренированием, ушивание раны купола мочевого пузыря с наложением эпицистостомии,
послеоперационный уход и адекватное лечение, привели к положительному исходу. По отдаленным результатам
хирургического лечения пациент жив, сейчас на заслуженном отдыхе.

Ключевые слова

мочевой пузырь, травма,
перитонит

Urgency

During the recent 50 years of practice in sur-
gical department of railroad hospital among oper-
ated patients with bladder traumas with the follow-
ing complications: 10-days urine peritonitis, it has
been the first case in which the patient was saved.
According to literature data, even in case of isolat-
ed damage of bladder lethality equaled 4,4 %. Dur-
ing the recent 10 years articles, devoted to ruptures
of bladder with such complications, have not been
published.

The main cause of bladder ruptures is trauma.
V.A. Klyuzhev (2001) illustrates that bladder injuries
and urine-discharging ways are very rare in peace-
ful times, it is defined by its anatomic location in
encirclement of pelvis bones. However, in case of
anthropogenic traumas bladder damages grew by
7 %, and in case of traffic accidents bladder inju-
ries take place in 86–90 % of events, among those
70–80 % of them are hazardous for life, and in com-
bined traumas bladder ruptures form 25,7 %. The
Cause of rupture is a direct injury along the lower
part of stomach: a kick, hit by a moving transport,
fall from a certain height, overrun by an automobile,
etc. More rare are indirect injuries: a strike to sa-
crum, buttock, thigh.

Works of such authors as (T.A. Revenko, 1981;
P.S. Jalilov, 1985; S.B. Petrov, 1999; Tiquert R. et
al., 2000) show us that bladder rupture depends
not only on a hit, but also the speed of traumatic
force. In case of alcohol intoxication bladder rup-
ture takes place much more frequently and grows
two times (I.G. Ryabtsev, 1975; N.A. Shor, A.A.

Chichetka, 1989), especially among men of able-
to-work age. A cause of a complete rupture of
bladder in case of an accidental trauma among
the injured in condition of alcohol intoxication is
lack of protective senses. Intraperitoneal rupture
of bladder can happen to a person with an over-
filled bladder in case of an accidental downfall
under the own weight of the injured person or in
case of a hit to the stomach with a dull object.
Practical significance has the division of all blad-
der damages into extraperitoneal and intraperi-
toneal. Depending on the mechanism of trauma
damage of bladder can be, as mentioned above,
complete and incomplete. In case of incomplete
damages partial rupture of bladder wall takes
place: mucous membrane, sometimes mucous
membrane and muscle tissue with preservation
of wholeness in serous cover. On the contrary, in
case fractions of pelvis bones are introduced from
external environment, rupture of advention and
part of muscle tissue takes place with preserva-
tion of wholeness in mucous membrane. The au-
thors claim that incomplete ruptures can further
transform into complete due to overflow of blad-
der with urine and sharp increase in intra-bladder
pressure. Intraperitoneal fractures usually hap-
pen with fractures of pelvis bones, the mechanic
of such rupture is basically defined by traction of
pelvis ring at the moment of fracture with an over-
tension in ligamentous apparatus of bladder. As a
result, rupture of bladder wall with rupture of liga-
ments takes place. More rarely bladder rupture
happens due to a damage, caused by bone frac-

tions of pelvis bones. As a rule, intraperitoneal ruptures of bladder aren't succeeded by fractures of pelvis bones, as the main part in the mechanism of trauma is played by hydraulic blow in an overflowed bladder.

In his "Guide on urology" of 1998, academy member N.A. Lopatkin illustrates location of bladder in small pelvis, and its volume equals 400-500 ml. In case of overflow of its volume increases hydrostatic pressure, and bladder walls become thin. The thinner bladder wall is due to a chronic urine delay, the greater is atrophy of bladder muscles and easier is rupture. That is why bladder ruptures are more frequent in case of senile atrophy of bladder, prostate adenoma, certain pathologies of bladder (diverticulas, tubercular ulcers, cancer, etc.).

A weak point and mobile part is cupula (top or bottom) of bladder, in this place rupture takes place in 35 % of cases, and it happens on bladder wall in 42 % of events. In peaceful times a combined trauma with damage of other internal organs leads to heavy complications that result in death of patient, death rate equals 20 %. During war death rate equals 4,4 % in case of isolated damage of bladder.

Of all intraperitoneal injuries bladder rupture among mature population happens in 5–12 % of cases, and in 4,4–11,5 % of cases – among children. Bladder traumas are divided into open injuries (12–33 %) and closed traumas (67–88 %), penetrating, non-penetrating, intraperitoneal, extraperitoneal, complete and incomplete damages of bladder. As in case of "non-complicated" form of trauma ruptures usually happen at the top and back wall, they are mostly intraperitoneal, in other words, do not lead to ruptures of other regions of urine-discharging ways or organs of stomach cavity.

Among all patients who experienced surgery from traumatic damages of stomach organs, bladder traumas form 2 % of cases.

Intraperitoneal complete ruptures of bladder happen in 25 % of cases along sanital or longitudinal direction, can be single or multiple and have no definite shape. In case a rupture happens in sanital direction, bleeding is almost absent, the reason of that is lack of large vessels in this area, and small ones contract quickly in tissues of bladder. In case of intraperitoneal rupture concentration of urine increases as it is absorbed by stomach walls and internal organs, at the same time, protein exchange is disturbed, chemical reaction takes place, it causes aseptic

peritonitis, in case of secondary infection it transforms into pus peritonitis. Such kind of peritonitis leads to death of patient in case medical assistance is not provided to them urgently. Complete and incomplete ruptures of bladder peritoneal clinic symptoms might not display immediately. In case of intraperitoneal ruptures of bladder signs of peritonitis develop in 10–12 hours since the moment of trauma. Signs of urine intoxication and urosepsis that are revealed on days 2–3 after trauma are also lethal unless an urgent surgery is carried out.

Extraperitoneal rupture is observed among patients with fractures of pelvis bones in 55–57 % of cases, among those 36–39 % are closed intraperitoneal ruptures, and 6 % are combined type of traumas. No less heavy extraperitoneal ruptures are complicated by fractures of pelvis bones and heavy shock, from which is often hard to remove. Nitrous slag is accumulated, proteins break down, sodium of potassium, chlorides, organic acids increase in their volume, acidosis emerges. Water-salt exchange is disturbed. As a result of nitrous intoxication uraemia grows. A patient suffers from weakness, sleepiness, vomiting, diarrhea, edema, short breath, headaches, skin itching, memory loss, ammonia breath.

After three days of urine peritonitis nephritic deficiency takes place. Tongue becomes dry, the patient is thirsty, they feel sickness, urea and creatine concentration in blood samples increases up to 100–200 and 12–15 mg/ml. Rupture of bladder usually happens in longitudinal direction as longitudinal muscles of detrusor are significantly more solid than transversal ones. Bladder damages in case of fractures, on the contrary, often create holes of incorrect shape.

Combined ruptures of bladder happen in case of vast injuries, compression of pelvis ring, and bladder overflow. In case there is complicated damage there is no clear localization of rupture, therefore, ruptures can be intra- and extraperitoneal, though the latter are more common. A special form of ruptures is damage that some authors refer to bladder damage, and others – to damage of urethra. We speak of disconnection between the bladder and urethra.

According to bibliographic data, iatrogenic damage of bladder can happen in 0,23–0,28 % of gynaecological surgeries, in other cases iatrogenic trauma happens in 30 % of cases. In case iatrogenic damage of bladder happens during surgery, it is determined faster than other damages of urinal-discharge channels.

Demonstrative medicine is found upon cystoscopy, retrograde cystography, emunctory urography (cardiotrust, venographin, solution of Sergosin, 2- or 3-atomic X-ray-contrast liquids), standard radiography of computer tomography.; mostly R-gram of pelvis bones, for example, in case of determination of its fractures, can suggest a conclusion of extraperitoneal rupture. In about 60 % of cases damage of bladder, cause by counterhit, is observed in the area across place of fracture and near it. Extraperitoneal ruptures of bladder form 54–56 % of all cases of bladder rupture. Combined intra- and extraperitoneal ruptures happen in 5–8 % of cases of bladder rupture. Usually they are determined during surgery. Intra-peritoneal rupture of bladder is determined with ultrasound inspection and common introduction of catheter into bladder. Without operative intervention intraperitoneal bladder ruptures usually end in lethality.

Clinic

Closed injuries of bladder have no typical clinic image. During the first hours after the damage patients are usually shocked, though cases are described when even after a heavy trauma of bladder shock condition was not established and patients walked to the hospital. Shock, as well as pain is not a specific sign of bladder rupture and can be caused by damage in other organs.

The basic symptom of bladder rupture is deficiency of urination that is expressed in ceasing act of urination, painful tenesmus in area of bladder and straight bowel. Blood drops discharge from urethra is not typical for bladder damage, as it can also be observed in case of urethra damage. Unlike rupture of bladder, ruptures of urethra usually cause significant urethrorragy and strong urges for urination.

In case of extraperitoneal ruptures pressure of urohaematoma in surrounding tissue causes a false urge for urination and discharge of blood drops from urethra. Palpation of stomach usually reveals sharp painfulness in the area of symphysis, above the bosom a painful blunting of percutory sound and tension of front stomach wall in its lower departments is defined. Direct-bowel or vaginal inspection through straight bowel or vagina reveals stagnation of tissues, and it indicates to urinal infiltration, on days 2–3 after trauma symptoms of urine leakages and urine infiltration into the bladder-surrounding tissue are observed. Emerge skin redness and edema of hypodermic fiber in the area of symphysis, lower

part of stomach, scrotum, and penis. These areas become extremely sensitive under palpation and in motion. Urine infiltration can spread into the area of small pelvis, perineum, straight bowel, thighs. The developing urosepsis leads to death even in case of extraperitoneal damage. As damage of bladder is often combined with fractions of pelvis bones, symptoms of pelvis bone fracture are also observed in these cases. In case of any pelvis bone fracture it is necessary to establish if there is no simultaneous damage of bladder and urethra.

In cases of intraperitoneal rupture general symptoms of peritonitis can be observed. They are caused by discharge of urine into stomach cavity and stomach growth: pains in the area of bladder with irradiation into inguinal areas, tension of the front stomach wall. Lack of urine and presence of blood in urine during catheterization is caused by sealing of bladder wound by epiploon or bowel loops, besides, in certain cases condition of a patient might improve, and diagnostics will become complicated. An important symptom of bladder rupture in such cases is lack of definite limits of dullness for percussion sound.

In case of intraperitoneal rupture of bladder thenesmus and disuric sign might not be present if urine discharges freely into stomach cavity, and a sharp pain emerges along with urination disturbance and development of peritonitis. Condition of patients degenerates rapidly. The symptoms are: sickness, vomiting, delay of stool and gases. If much time passes since the moment of rupture, along with urine exudate liquid accumulates in stomach cavity. Bowel peristalsis is not heard through auscultation. Patient's temperature increases, tachycardia develops.

In case of open damage of bladder urine discharges from the wound, and the whole image is clear. Urine peritonitis happens together with secondary infection, signs of pus intoxication, the latter can result in abdominal sepsis, urosepsis, and poly-organ deficiency. In case the rupture is combines with pelvis bones fracture, intraperitoneal bleeding is possible. Late diagnostics can complicate treatment.

Diagnostics

Diagnosis of bladder damage is based upon the data of anamnesis, the described clinical symptoms, and hematuria in urine analysis. In order to confirm the diagnosis data of catheterization, cystoscopy, cystography, emunctory urography, and R-graph of pelvis bones is used. During

catheterization of bladder urine either does not discharge at all, or discharges as a thin stream with addition of blood. Sterile liquid, introduced into bladder through catheter, does not discharge back or discharges as a thin stream. In case of intraperitoneal rupture of bladder, after catheter is advanced deeper into it, a large amount of turbid bloody liquid (urine, blood, exudate from stomach cavity) can discharge unexpectedly. Cystoscopy is implemented for intraperitoneal rupture in rare cases when other methods of diagnostic aren't able to provide clear information, and can be applied only in for partial or small damages, when bladder can be filled for examination. Ultrasound examination produced a mistake in 10 % of cases. The leading part in diagnostics plays cystography: leakages of contract roentgen liquid outside of bladder are registered.

In verification of an open damage of bladder a great significance have probes with colorants (solution of indigocarmine-methylene blue) that confirm discharge of urine from the wound.

Treatment

According foreign scientists, only intraperitoneal ruptures require surgery, all other types of ruptures are treated conservatively. Of course, every problem of treatment is solved individually for a given patient, especially when there is a possibility to use modern medical technology.

A special feature of surgery for intraperitoneal rupture of bladder is that the damage can happen not only in bladder itself. Therefore, during laparotomy it is necessary to begin with revision of stomach organs and urination system. If less than 2 hours pass since the injury of bladder, and urine peritonitis has not yet happened, treatment can be limited to introduction of microirrigators for introduction of antibiotics, the wound is closed completely with placement of epicystectomy. In case urine peritonitis has happened, drainages are left in 4 places for washing, 8-10 liter of sterile isotonic solution of natrium chloride are introduced through the higher drainages during post-surgical period, the washing liquid is discharged from stomach cavity through the lower drainages.

Conclusion

Our article presents a rare case of 10-days old closed trauma of bladder that was received by patient in alcoholic intoxication. On insistence of medical assistant the patient was delivered to therapeutic department of railroad hospital with diagnosis cirrhosis of liver, ascites. A simple

method of examining the patient – catheterization of bladder established the diagnosis: rupture of bladder, urine peritonitis, intoxication. During the surgery a complete isolated intraperitoneal rupture of bladder cupula was established. Other pathologies of stomach cavity organs and pelvis bones were not registered. Post-surgical adequate treatment led the patient to a complete recovery of the patient.

During the period of 50 years of work in surgical department of our railroad hospital we have operated patients with different ruptures of bladder that were found in literature, but were actually faced with for the first time. Intraperitoneal complete rupture of bladder, complicated by 10-days urine peritonitis was not found in the accessible literature. Severity of the patient's condition was evaluated adequately by our specialists who even called specialists in for consultation. Guided by the practical experience, pre-surgical diagnostics of bladder damage, well-maintained pre-surgical preparation in reanimation department, and surgery itself: sanitation of stomach cavity with drainage, closure of bladder cupula wound with placement of epicystectomy, post-surgical treatment, and the corresponding adequate post-surgical treatment has led us to a positive result. According to the received data, after the surgery the patient continued working until retirement and now is having a well-deserved rest.

Deduction

An article in this rare case with a 10-day prescription of closed injury with isolated full intraperitoneal rupture of the bladder dome. In the surgical ward of our hospital operated with bladder ruptures, which are listed according to the literature, but with the opportunity to meet for the first time. At the insistence of linear paramedic after 10 days the patient was brought to us on the train with a diagnosis of cirrhosis, ascites. Intraperitoneal rupture of the bladder, complicated urinary peritonitis day 10, which in the available literature we have not found. When the first patient diagnosed Lab. Because of the severity of the patient's physicians to be vigilant and after consulting experts in the ICU preoperative preparation, operation: reorganization of the abdominal cavity with drainage, wound closure of the bladder dome overlay epistostomii, postoperative care and adequate treatment, based on practical experience, has led to a positive outcome. On long-term results of surgical treatment of the patient lives, now in retirement.

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