

ODESSA NATIONAL MEDICAL UNIVERSITY

Department of urology and nephrology

GUIDELINES
of independent work of students

Academic discipline “Urology”

The theme of independent work of students: Urogenital fistulas in women.

Academic discipline “Urology”

Level of higher education: Second (Master’s)

Knowledge field: 22 "Health Care"

Specialty: 222 "Medicine"

Program of professional education: Medicine

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Protocol № 1
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Class № Urogenital fistulas in women 1hr

1. Theme actuality.

Vagino-vesical and ureterovaginal fistulas - probably, the most serious urological complications of gynecologic operations. In developing countries (the countries of Africa and South East Asia) most often meet obstetric fistulas. According to clinic of Mayo, among more than 300 operations concerning the genitourinary fistulas executed in the mid-nineties of the last century, 82 % of fistulas have been bound to transferred earlier gynecologic operations, 8 % - with obstetric interventions, 6 % - with radical therapy, 4 % - with traumas and wounds.

Frequency of formation of genitourinary fistulas after gynecologic operations makes 0,05-1,0 % (Dowling et. al., 1986, Schwatz 1992, Andersen et. al., 1993). The majority of cases of development genitourinary fistulas are bound from a radical hysterectomy. Under the data (Baltzer et. al., 1980) frequency of vagino-vesical and ureterovaginal fistulas after carrying out 1092 ~ 1232 on Vertgejmu has made 0,3 % and 1,4 % accordingly.

Constant urine leak causes an excoriation and a covering ulcers of a vagina and a skin of external genitals. Due to a constant unpleasant smell of urine patients constantly are in a condition of alarm which proves them to depression.

Urogenital fistulas essentially worsen quality of a life of patients, frame preconditions for adaptive behaviour (coping-behaviour by Maslou), necessity of constant careful hygiene, use of linings define, wearings of dark clothes. Presence of fistulas frames conditions for recurrent infectious-inflammatory complications from outside organs of sexual and urinary system. The compelled features of behaviour of patients on urogenital fistulas lead to deep disturbances of social mutual relations, disorders of a family and sex life of such patients.

All aforesaid, undoubtedly, defines a high urgency of the given theme and causes necessity of its detailed studying.

2. The educational purposes.

And. As a result of independent study of this theme students should know:

- Signs (symptoms) of urogenital fistulas;
- The basic and auxiliary symptoms of urogenital fistulas;
- Pathogenetic mechanisms of implication of symptoms of urogenital fistulas;
- The reasons of formation of fistulas;
- Clinical implications of urogenital fistulas;
- Features of clinical and radiological diagnostics at urogenital fistulas;

- Indications for conservative and operative treatment of patients with urogenital fistulas;
- Criteria and features of conservative therapy at urogenital fistulas;
- Kinds of operative measures and the basic stages of operative treatment of patients on urogenital fistulas;
- The basic agents of preventive maintenance of obstetric and gynecologic fistulas.

B. Student should be able:

- To collect the anamnesis taking into account features of symptoms of urogenital fistulas;
- To survey the patient taking into account reliability of each of methods of diagnostics of urogenital fistulas;
- To estimate datas of laboratory, to make the plan of inspection taking into account differentialno-diagnostic problems;
- To carry gynecologic investigation of the patient;
- To spend roentgencontrast (excretory or infusional urography, retrograde pyeloureterography) inspection and to estimate its result.

3. Materials for аудиторной preparations of students.

3.3. Interdisciplinary communications of a theme, base knowledge, abilities.

No	Discipline	Knowledge	To be able
	2	3	4
1)	Anatomy	Bladder, vagina, uterus, ureter: the form, a building, topography of a small basin and mutual relations with the next organs;	
2)	Topographical anatomy with operative surgery	Anatomy and topography of a bladder, ureters, uterus and vaginas. Operative accesses to organs of urinary and female sexual system	
3)	Propaedeutics of internal illnesses	Clinical symptoms (complaints and physical inspection) and laboratory signs of diseases of the bottom urinary ways.	
4)	Pharmacology	Pharmacodynamics of medical preparations	

5)	Biochemistry	Pharmacodynamics of different kinds of substances, their allocation with urine.	
6)	Normal physiology	Function of the bottom urinary ways in norm	
7)	Faculty therapy	Diagnostic value of the given laboratory blood analyses, urine.	To spend an estimation of laboratory researches
8)	Radial diagnostics	Performance and estimation of results экскреторной urographies, retrograde пилоуретерографии, cystographies, fistulographies.	
9)	Urology	Semeiology of diseases of the bottom urinary ways	

3.2 Contents of a theme.

The theme contents in the detailed variant.

Aetiology

The reasons of development of obstetric fistulas

Principal cause of formation of obstetric fistulas many experts see in not qualified conducting sorts (Caen Д.В. 1986, Hedlund H, Lindstedt E., 1987). Promoting factors are delicacy of patrimonial activity and fixing labours. An appreciable role plays anatomically and functionally narrow basin (Krasnopolsky Century II, Bujanova S.N., 1994), and also an operative delivery at a wrong choice of a method or disturbance of technics of operation. A bright example is the Cesarean section in conditions when the hemostasis is carried out without a direct vision or with the overflowed bladder during operation. The immediate surgery apropos «a hypotonic uterine bleeding» after vulval sorts can become the reason of formation of obstetric fistulas. This operation, as a rule, proceeds at the changed topografo-anatomic mutual relations of interfacing organs and in the conditions of deficiency of time.

In rare instances genitourinary fistulas can result from a trauma of urinary organs during medical abortion. Usually it put a curette or dilators of Gegara. At criminal abortions various instruments instead of a uterus neck are wrongly entered into an urethra, with drawing of a mechanical trauma to it and a bladder, with the subsequent formation of a fistula.

In a drawing the zone of the maximum compression of a bladder and possible localisation of vaginovesical fistulas is presented at vulval sorts (Turner-Warwick R., Chapple C., 2002)

The reasons of development of gynecologic fistulas

1. Gynecologic operations:

- Hysterectomy (Вертгейма);
- Supravaginal ablation of a uterus;
- Vulval operations (concerning abaissement, cysts, anomalies).

Not distinguished damage of a bladder during "a difficult" hysterectomy can be the reason of formation of a fistula. Risk factors are интраоперационное the bleeding and bad visualisation of tissues. Abundantly clear that, the good exposition and a hemostasis allow to notice in time damages of a bladder and to eliminate it during operation without any negative consequences. In most cases in a burrowing results rasping stupid диссекция a bladder that causes деваскуляризацию and an ischemia or not distinguished «скальпирование» its walls.

The seam of a wall of a vagina passing through a bladder wall leads to an ischemia, a necrosis and a burrowing.

Occurrence of an ureterovaginal fistula is caused by damage of an ureter which, as a rule, takes place at a ligation pelvic ligament or uterine vessels.

2. Radial fistulas result from the high exposure dose, insufficient protection of tissues, individual fabric sensitivity to radial influence. The radial therapy spent concerning malignant formations of organs of a small basin, can cause occurrence of the so-called "delayed" postradial genitourinary fistulas. Terms of formation of such fistulas fluctuate from one month till several years. The burrowing can occur to relapse of cancer process and without it.

3. Oncologic fistulas result from germination in urinary ways of the formations which are starting with genitals. Some kinds of a cancer of a neck of a uterus, a vagina, appendages concern such neoplasms.

4. Foreign matters in the urinary ways, entered for the purpose of a masturbation or left at tool interventions, and also vagina foreign matters (for example, uterine rings) can be the reason of formation of fistulas.

5. Violent sexual intercourse, especially at anomaly of genitals (a vagina atresia - a coitus penourethralis).

6. Influence of various chemical factors. Clinical situations when into a bladder or surrounding tissues wrongly enter strong solutions of acids, alkalis and other substances (at various blockade, paracervical anaesthesia during abortion) are known. In the literature patients with

vagino-vesical fistulas after erroneous introduction in a neck of a uterus of liquid ammonia instead of a solution of Novocainum for abortion anaesthesia are described.

7. Genitourinary fistulas can be caused a tuberculosis of genitals, a syphilis, a typhoid, at diffusion of pathological process on urinary ways.

8. An immediate trauma, wound urinary and genitals.

Clinic

Classical implication of disturbance of integrity of walls of a bladder and vagina is consensual allocation of urine from a vagina. The acute beginning of an incontinence of the urine, arisen right after "a difficult" hysterectomy should guard in respect of a probable burrowing. At some vagino-vesical fistulas sick of first sign blood occurrence in urine (hematuria) is.

At the majority of patients the total incontinence of urine (lying and standing) is observed. However at a part of patients the urine incontinence amplifies in a standing position or during any physical activity. It can enter the doctor in defined delusion concerning presence at such patients of a stressful incontinence of urine. The formed vagino-vesical fistula is not accompanied by any general symptoms. In later period patients can complain of pains in the field of a bladder and a vagina. At patients with ureterovaginal fistulas along with an urine incontinence liftings of temperature, a nephralgia on the party of a fistula, disorder of a gastroenteric tract can become perceptible. Inflammation symptoms are bound to obstruction of an ureter and a pyonephrosis, and also with presence urinary затека in zones of defect of an ureter.

About 15 % of genitourinary fistulas have no clinical implications in the first 30 days. Moreover, in some cases occurrence of an incontinence of the urine, bound to genitourinary fistulas can not be shown some months. Usually it concerns postradial fistulas. For surgical (not radial) fistulas characteristic loss of urine can gradually accrue from several linings in day to a total incontinence of urine (even in a prone position). The dysuria appears at joining of an infection of urinary ways and formation лигатурных stones in a bladder.

Diagnostics

Vaginal examination

After ascertaining of the fact of consensual loss of urine on the basis of complaints of a sick and careful estimation of the anamnesis the vaginal examination is carried out.

At survey in mirrors fast enough filling of a cavity of a vagina with a free liquid (urine) becomes perceptible. In doubtful cases it is necessary to remember possibility of biochemical research of a vulval transudate. Level of the creatinine, the liquid received from a vagina is defined and compared to level of a serumal creatinine. If creatinine level in a vulval liquid considerably exceeds serumal, it confirms presence of a genitourinary fistula and a liquid is urine. The vaginal

examination allows to estimate the sizes and fistula localisation, mobility of a forward wall of a vagina, degree of a perifocal edema and an inflammation mucous vaginas. At fistulas of the big sizes diagnostics does not represent difficulties on the basis «survey in mirrors». At fistulas of small diameter and insignificant leakage of urine carrying out of "painting" assay is shown. Into a bladder enter 200 ml of a normal saline solution with addition of one ampoule – 5 ml of 0,4 % indigocarmin. Vagina on all length crumbly tamponned, the patient ask to resemble within 10-15 minutes. If the lowermost wad, the most probable diagnosis – a stressful incontinence of urine is painted. The staining of the top wads assumes presence of a vaginovesical fistula. If there is an ureterovaginal fistula gets wet, but the internal wad is not painted.

Laboratory researches

The accompanying infection of urinary ways is taped at microscopy of an urocheras and crops. For an estimation of total function of kidneys the biochemical blood analysis with definition of level of urea, a creatinine, electrolytes is shown.

Intravenous urography

The X-ray inspection allows to tap obstruction of ureters and ureterovaginal fistulas. At the combined puzyrno-mochetochnikovo-vulval fistulas contrast "stasis" in an expanded ureter, a hydronephrosis or extravasation of contrast preparation in the field of distal department of an ureter is defined.

Cystography

In the presence of a vaginovesical fistula it is defined leakage a contrast preparation through a fistula for bladder limits at its retrograde filling.

Not less valuable method of inspection is the contrast vaginography (Caen Д.В., Godunov B.N. 1988). The catheter of Foly is entered into a vagina with great volume of a cylinder (Godunova B.N.'s obturator earlier was applied). To the patient give position of Trendelenburga, entering on a catheter of a contrast agent of 150-200 ml which gets through a fistula into a bladder. Retrograde filling of an ureter and cavitory system of a kidney at a vaginography specifies in presence of an ureterovaginal fistula

Cystoscopy

Cystoscopy allows to define a locating and quantity of fistulas, their relation to ostiums of ureters and a triangle of Leto, a condition of tissues in a fistula circle. The majority of vaginovesical fistulas bound to a hysterectomy are localised at once for inter-ureter cord. To spend cystoscopy it

is necessary with a preliminary stypage of a vagina for the prevention вытекания urine. The fistula aperture is represented in the form of crateriform retraction with presence of rugosity. At fistulas of the big sizes during cystoscopy the wad entered into a vagina is visible.

It is desirable to carry out cystoscopy at patients with genitourinary fistulas under intravenous anaesthesia.

Retrograde ureteropyelography

Retrograde ureteropyelography is the most exact method of revealing of ureterovaginal fistulas. Retrograde ureteropyelography it is necessary to do when results of intravenous urography are doubtful or fistula localisation remains not defined. In some cases retrograde ureteropyelography it is carried out from both parties for an exception of bilateral damage of ureters.

Treatment of patients with genitourinary fistulas

Conservative therapy

Conservative methods of treatment of vaginovesical fistulas are applied at "punctual" to 3 mm in diameter fistulas. In a bladder the constant urethral catheter of Foleja № 12-14 is established. The patient prescribes a strict confinement to bed. Wads are entered into a vagina with синтомициновой an emulsion. Duration of conservative treatment makes 6-8 weeks, however only in rare instances fistulas are closed independently. According to Caen Д.В. (1986) if within 10-12 days it does not become perceptible tendencies to fistula healing, it is necessary to refuse conservative therapy. In these cases the urethral catheter needs to be removed to achieve стихания signs of an inflammation round a fistulous course. During the subsequent period antibacterial preventive maintenance as long antibacterial therapy does not prevent an infection of urinary ways but only leads to formation of steady forms of microorganisms is recommended acidation of urine, instead of. Appointment during this period esthrogentherapy (locally or per os) promotes that vagina tissues become more «soft and pliable» that is a necessary condition for successful surgical treatment of fistulas. Hormonal therapy is obligatory at women with an atrophic vaginitis and at patients in a postmenopause. For treatment of the dermatitis bound to constant allocation of urine, trays with permanganate of a potassium and zinc Pasta are recommended. It is necessary to remove a visible suture material and ligature stones from fistula area. At the fistulas formed after radial therapy concerning malignant neoplasms, for a relapse exception the biopsy and histological research of edges of a fistula is carried out.

Definition of terms of surgical closing of a fistula.

Pledge of successful closing of a fistula – absence of an inflammation of tissues in a fistula circle when demarcation of necrotic tissues and a cicatrisation are finished or did not begin. Therefore "surgical" (not radial) damages of urinary system can be corrected at once, under condition of their revealing within 48-72 hours. If the fistula is taped in later terms, it is necessary to sustain a time interval sufficient that signs of a perifocal inflammation and an edema have passed. Before reconstructive operation the fistula should be well epithelised, the vagina wall should be soft and pliable. At patients with the recurrent fistulas, transferred тазовую а phlegmon (complication urinary затека) and at patients with postradial fistulas фистулопластика is carried out not earlier than 6-8 months after a burrowing.

Surgical treatment of vaginovesical fistulas

For successful surgical closing of a fistula necessarily observance of key rules. Principles rational фистулопластики are formulated for the first time Sims J. (1952) also remain fair in modern reconstructive surgery of genitourinary fistulas.

Excising of all scar-changed tissue

"Splitting" of tissues in a fistula zone on an accessible extent that it would be possible to compare wound edges without a tension.

Closing of defects of a bladder and vagina seams in various directions

Surgical access for closing of a vaginovesical fistula can be carried out through a vagina, a bladder, an abdominal cavity or the combined method. Now abdominal access is always accompanied by bladder opening, therefore basically it is possible to speak about two accesses – vulval and abdominal or about their combination.

The overwhelming majority of vaginovesical fistulas including highly located, opening in a vagina cult can be eliminated at vulval access. The vulval method provides wide mobilisation of edges of a fistula without drawing of an additional trauma to a bladder. Access through a vagina is easier and more safe for the patient, however, each surgeon specialising in area of reconstructive surgery of the bottom urinary ways should own both accesses. Indications for abdominal access of closing of vaginovesical fistulas are: (1) fistulas of the big diameter, (2) fistulas immediately adjoining on ostiums of ureters, (3) highly located fistula in the narrowed vagina, (4) combined пупырno-mochetochnikovo-vulval fistulas.

The combined vulvo-abdominal access is applied at patients with the expressed cicatrical changes of the tissues, the fixed fistula to a symphysis or pubic bones, and also patients with postradial fistulas.

Key rule of reconstructive surgery of genitourinary fistulas is that the first operation has the best chances of effective closing of a fistula. Before operation it is necessary to receive the informed consent of the patient in which the course and possible complications of surgical treatment (damage of ureters, a rectum, a bleeding are discussed during operation, infectious complications, relapse of a fistula and probability of that fistula elimination will appear impossible).

Technics of operations concerning vaginovesical fistulas

Vulval access

The patient is in position for a lithotomy. The catheter of Foleja is entered into a bladder. At this stage of operation the decision is made and cystostomy and a catheterization устьев ureters is if necessary carried out троакарная. The back mirror is entered into a vagina and the self-keeping retractor is established.

In the drawing resulted more low the stage vulval fistuloplastic (in a bladder the catheter of Foleja is established, into the right ureter it is entered ureteral catheter) is presented.

After the fistulous aperture is accurately identified mucous vaginas stitched by 3-4 seams in a circle of a fistula for a necessary traction. With that end in view it is possible to use also a catheter of Foleja (8-12) entered into a fistula from outside vaginas with exaggerated cylinder.

Bordering or other form the cut exsects a fistula. By means of acute and blunt dissection of the forward wall of a vagina separates from a subject fascia. Defect of a bladder is closed by an absorbed material (vicril 3/0) in a vertical direction. The pubotservikalnaja fascia is taken in викрилом 3/0 in a horizontal direction. Excess mucous vaginas is exsected, and the wound of the mucous is taken in by an absorbed material (vicril 2/0) without crossing of a line of the previous seams. The wad is entered into a vagina with betadin.

At fistulas of the big sizes or when there are doubts concerning an excessive tension of tissues at closing a fistula, technique Martius can be used. Thus from the big sexual labium the flap from Adeps and fascicles of bulbocavernous muscles on a leg with conservation of blood supply at the expense of the top pudental artery undertakes. The wide tunnel under mucous vaginas between the big sexual labium and a fistula zone is formed. The flap on a leg is spent in this tunnel and fixed to fistula edges. Mucous vaginas it is taken in over a fatty flap.

Transabdominal access

The patient keeps within in modified lithotomic position. The catheter of Foleja is entered into a bladder. The abdominal cavity is opened with a lower-medial cut. At an omentoplasty

(epiploon leading on a feeding leg to fistula area) the cut of a forward abdominal wall proceeds up or the separate cut is carried out.

The space of Douglas is bared. The bladder will be mobilised and dissected, beginning from a bottom on a back wall on two half. Ostiums of ureters and a fistulous aperture are identified. Ostiums of ureters are catheterized for the prevention of their damage.

The fistula is exsected, then there is possible a separation of walls of a vagina and a bladder. The epiploon flap on a feeding leg is brought in a small basin without a tension, fistula areas are more distal. The vagina is taken in by absorbed seams (vicril 2/0). The Bladder is taken in 2-3 layer seam with epycystostome. In sloping places of an abdominal cavity drainage tubes for the closed system of an aspiration are established.

Conducting patients in the postoperative period

Intravenous introduction of antibiotics proceeds until the patient cannot pass to peroral reception. For reduction of imperative desires to an emiction are prescribed m-holinolytic drugs preparations (detrusitol, spasmex, oxybutinin). Drainages from a pelvic cavity leave, when the volume separated becomes minimum.

For 10-14 day the cystogram is carried out. At absence of extravasation of a contrast solution cystostome leaves. The urethral catheter of Foleja is left for 3-4 days for healing цистостомической wounds. At presence of contrast leakage an epycystostome is left for 2 weeks and cystograms repeat again.

Complications

Possible complications of reconstructive surgery of the big vaginovesical fistulas is development of a vesicoureteral reflux and de novo детрузорной instability. At a vesicoureteral reflux and hyperactivity of a bladder a use of antimuscarinic preparations is required.

At фистулопластике the big fistulas located close from orifices of ureters there is a danger of development of an obstructive ureterohydronephrosis. In such situations it is expedient to execute simultaneously closing of a fistula and an ureter reimplantation.

The most unpleasant complication is fistula relapse. If the given complication has occurred, after the certain period of expectation is carried out fistuloplactic with use of a flap from a fatty tissue of a sexual labium (operation of Martiusa), a flap from m. Gracilis.

Results and the forecast.

Frequency of successful closing of vaginovesical fistulas reaches 90 %. The surgeon operating fistulas always should realise that repeated operation more extensive and difficult than the first. It is sometimes better to change the initial plan of operation and to execute fistuloplastic with

additional strengthening of tissues in the field of a fistula at the expense of an epiploon, a fatty flap on Martiusu or use m. gracilis.

Frequency of successful results at plastic of postradial fistulas is not so optimistical and does not reach 85 %.

Vesicouterine fistulas

Formation of fistulas between a bladder and a uterus is bound, as a rule, to an obstetric trauma (wound of a bladder during a Cesarean section). The damage of the bladder which noticed in due time and has been taken in during a Cesarean section heals without what or consequences.

Occurrence of a hematuria during a menses (a symptom of Jussifa) can be the basic symptom of a vesicouterine fistula not leakage of urine, and. Report presence between a bladder and a uterus is better it is taped at a hystero-graphy.

Principles of surgical treatment of vesicouterine fistulas are similar to closing of vaginovesical fistulas. Both organs carefully allocate also both apertures take in with leading of a flap of an epiploon on a feeding leg. Sometimes at the big defects in its uterus it is more expedient to remove.

Treatment of ureterovaginal fistulas

Conservative treatment of ureterovaginal fistulas a little effectively. As a rule, at long existence of such fistulas the ureter lumen is stenosed, the ureterohydronephrosis develops, function of a corresponding kidney progressively decreases up to its full loss. The termination of allocation of urine from a vagina at sick with ureterovaginal fistula can be bound to a kidney defunctionalization.

The equipment concerns conservative methods of treatment. For a resorption and a ramollissement of a cicatrical tissue in the field of ureter damage the aloe extract, Lydasum, corticosteroids are used. At impossibility of retrograde introduction of a stent the nephrostomy and in the presence of urinary zateka its drainage is made percutaneous.

Reconstructive operations at ureterovaginal fistulas concern: ureterocystoanastamosis, operation of Boari, elongation of bladder with bracing to a lumbar muscle and intestinal plasty.

Ureterocystoanastamosis it is shown at fistulas of prevesical department of an ureter. The ureter is crossed cross-section within healthy tissues. It is necessary to make thrifty use of an ureter, the proximal extremity it is not necessary to take clamps and "skeletize" in order to avoid trophic disturbances, relapse of a fistula and stenosing of anastomosis areas. Ureter transplantation carry out, using one of anti-reflux techniques, more often a tunnel method.

When damage extends on all тазовый ureter department, are carried out operation of Boari or элонгация a bladder with bracing to a lumbar muscle. Last operation is surveyed now as more physiologic and the classical variant of operation of Boari is applied much more often, than.

If ureterovaginal fistulas are accompanied by extensive destructions of an ureter or as a result of inflammatory and radiation injuries the capacity of a bladder restoration of a passage of urine, probably, only by means of the isolated segment of an intestine, i.e. intestinal plasty of an ureter is sharply reduced.

Urethrovaginal fistulas

Urethrovaginal fistulas result from wounds of urethra during delivery and gynecologic operations and sometimes at a serious trauma with fracture of pelvic bones. In most cases these fistulas are complication of a forward colporrhaphy, excision of cysts of the vagina located in a forward part of a crest, paraurethral cysts or the diverticulum of an urethra localised in the field of an internal sphincter. In rare instances abscesses of paraurethral glands and the big glands of an entrance of the vagina, an actinomycosis of urethra also can lead to formation of urethral fistulas. New enough causal factor of formation of urethral fistulas is possibility of erosion of an urethra synthetic mesh implants which are widely applied now in surgical treatment of a stressful incontinence of urine.

The semiology depends on the size and localisation of fistulas. When the fistula settles down in distal department of the urethra, sick keep urine, but at an emission it is allocated through a fistulous aperture. As such patients do not have urine incontinence, the majority of them does not require surgical treatment. If the fistula is localised on the average and proximal department of an urethra, urine is consensually allocated both in vertical, and in horizontal position of the patient.

At surgical treatment of serious damages of an urethra it is necessary to solve two basic problems:

1. Closing of defect with restoration of "an urethral tube» (neourethra formation)
2. Restoration of deduction of urine.

The plasty of urethral fistulas presents certain difficulties as always there is a deficiency of tissues. Spontaneously they are closed very seldom. The choice of a way of correction уретровлагалищных fistulas depends on experience and preference of the surgeon. At the majority of old ways фистулопластики the neourethra is formed of a vagina flap (Ott D.O., 1914).

In another way urethroplasties use of the remained tissues of an urethra is. The principle of this way is based that at loss of a distal urethra of its wall are tightened upwards to proximal department. Advantage of a method is that urethra reconstruction by fibromuscular tissues with a plication of a periurethral and perivesical fascia over a puzyrno-urethral segment in the form of the

second layer in a greater degree promotes correction of an incontinence of urine, than a simple tube from mucous vaginas.

At deficiency of local tissues (mucous vaginas or the remained urethra) for neourethra formation can be used scrappy plasty from a mucous small sexual labium on a feeding leg.

Last resort in treatment of patients with urethra loss at an inefficiency of the transferred operations is the urine derivation in the isolated segment of an intestine.

Postradial fistulas

Change of tissues after radial therapy are not limited only to fistula area. Surgical treatment of fistulas after radial therapy assumes excising of impractical tissues and a plasty it is good well-vascularized tissues. If there is no involving in pathological process of ureters and a rectum for liquidation isolated postradial vaginovesical fistulas technique Martius H is applied. (1928). In cases of huge radial vaginovesical or vesico-recto-vulval fistulas the obliteration of a vagina by an epiploon flap on a feeding leg and supravescical derivation of urine with the mechanism of deduction or without it is carried out.

Preventive maintenance of genitourinary fistulas

I. Preventive maintenance of obstetric fistulas

1. The correct organisation of obstetric aid, the strict account of pregnant women with the burdened obstetric anamnesis, anatomically a narrow basin, wrong position and a large foetus.
2. Inspection of urinary system to sorts.
3. Accurate knowledge of topografo-anatomic mutual relations urinary and genitals
4. To warn an obstetric trauma of urinary system it is possible a planned Cesarean section which is a method of a choice anomalies of development of genitals.

II. Preventive maintenance of gynecologic fistulas

1. Timely gynecologic inspection, revealing of early forms of malignant neoplasms.
2. Carrying out of routine inspections, use of a colposcopy, a biopsy, the cytologic research, ultrasonic. It is impossible to suppose occurrences of patients with a prelum of ureters and a bladder and fistulas in the field of the breaking up tumour which has sprouted in a bladder.
2. Careful gynecologic and urological inspection of patients before operation.
3. Carrying out of planned operations in the first phase of a menstrual cycle when the tonus of vessels above also is less expressed an edema of tissues and a venous stasis.

4. Ability to identify an ureter. It has white color, on its surface appear through thin blood vessels, at a touch the ureter wall is reduced by the instrument.

5. The hemostasis should be carried out only at a direct vision, it is impossible to take in a tissue clamp ad mass.

6. In hard cases when rubtsovo-inflammatory or tumoral processes break topography тазовых organs, before operation it is necessary to catheterize ureters and to empty a bladder.

7. Ability in time to distinguish a trauma of urinary organs, correctly to estimate its character and to choose an adequate way of elimination.

3.3. The recommended literature

The basic

6.2. Information necessary for the formation of knowledge - skills can be found in textbooks:

1 Voizianov AF, tube O. Urology : Textbook - 2 ed . , Pererobl . and add. - D. Dnieper - VAL, 2017. - 830 p.

2. Voizianov SO, Gzhegots'kyi MR , Shulyak OV Petrishin JS, Mysakovets AG, AA Story Urology: textbook Lviv : World 2017, 304 p.

3. Pasechnykov SP, Mitchenko M., A. Glebov Ciprofloxacin in the treatment of urinary tract and male genitalia // zdorovja men. - 2018 . - № 1. - S. 128 - 134. 4.Urology (practical skills for interns).Study guide /ed. by V.P.Stus and S.P. Pasechnikov / Dnipro: LLC «Accent PP», 2017.-282 p.)

4.Urology:S.P.Pasechnikov,V.M.Voizianov,V.M.Lesovoy end. By.S.P.Pasechnikov.- Vinnytsia:Nova Knyha,2016.-400p.

5. European Association of Urology Guidelines. 2010 edition.

3.4. Materials for self-checking.

3.5.1. Questions for self-checking:

1. What principal causes of occurrence of urogenital fistulas in gynecologic practice?
2. What percent of occurrence of genitourinary fistulas according to the reasons of their formation?

3. List the basic methods of radiological diagnostics of urogenital fistulas according to diagnostic value and type of fistulas.

4. List the basic and auxiliary symptoms of urogenital fistulas.

5. You know what clinical implications of urogenital fistulas?

6. What indications to conservative and operative treatment of patients with urogenital fistulas are?

7. What criteria and features of conservative therapy at urogenital fistulas?

8. What kinds of operative measures and the basic stages of operative treatment sick of urogenital fistulas?

9. What basic agents of preventive maintenance of obstetric and gynecologic fistulas?

3.5. Test problems for self-checking.

1. Urogenital fistulas can appear because of:

- A. Hysterectomies
- B. Appendektomii
- C. Nadvaginalnoj of ablation of a uterus
- D. Operations Bilrot-2.
- E. Operations of Holsted

2. The hematuria which coincides in due course a menses is a pathognomonic symptom:

- A. A bladder Stone
- B. Ureterovezikalnoj of a fistula
- C. The Stone of the bottom third of ureter
- D. The Vesicouterine fistula
- E. Kidney Tumours

3. Urological complications of a Cesarean section:

- A. A vesicouterine fistula
- B. Ligature bladder stones
- C. A dressing of an ureter and disturbance of function of a kidney
- D. An ureter stone
- E. A bladder diverticulum

4. Research of a vulval transudate at suspicion on a vaginovesical fistula is a useful method of diagnostics owing to studying:

- A. pH of transudate
- B. Fiber maintenances
- C. Maintenances of formulated elements of a blood
- D. Creatinine maintenances
- E. Alkaline phosphatase maintenances

5. The reasons of formation of urogenital fistulas are:
 - A. Violent sexual intercourse
 - B. Germination of a tumour of genitals in a bladder
 - C. Radical therapy concerning malignant neoplasms of organs of a small basin
 - D. Gynecologic operations
 - E. Specific processes (a tuberculosis, a syphilis) urinary system

6. Clinical signs of vaginovesical fistulas:
 - A. Consensual allocation of urine from a vagina
 - B. In a total incontinence of urine
 - C. Intensifying of an incontinence of urine in position standing or during physical activity
 - D. Hematuria
 - E. Pain in the field of a bladder

2. Methods of diagnostics of urogenital fistulas
 - A. Excretory urography
 - B. Cystoscopy
 - C. Vaginal examination
 - D. Clearance of a creatinine of a blood
 - E. Radioisotope renography

8. Surgical accesses at operations concerning vaginovesical fistulas:
 - A. The vulval
 - B. The vesical
 - C. The abdominal
 - D. The combined
 - E. The transrectal

9. Possible complications of reconstructive surgery of vaginovesical fistulas:
 - A. A vesicoureteral reflux
 - B. Fistula relapse
 - C. A hyperactive bladder
 - D. Renal insufficiency

E. A renal colic

10. Possible complications of long existence of ureterovaginal fistulas:

- A. A stenosis of a lumen of an ureter
- B. Ureterohydronephrosis formation
- C. A progressive depression of function of a kidney
- D. An acute cystitis
- E. A bladder lithogenesis

3.6. Subjects УДРС and НДРС from the given theme.

Developers:

Head of Department of Urology and Nephrology, Professor F.I. Kostev,
Professor of the Department of Urology and Nephrology Yu.M. Dekhtyar
Professor of the Department of Urology and Nephrology M.I. Ukhal
Associate Professor of the Department of Urology and Nephrology I.V. Rachok
Associate Professor of the Department of Urology and Nephrology L.I. Krasiliuk
Associate Professor of the Department of Urology and Nephrology M.V. Shostak
Associate Professor of the Department of Urology and Nephrology R.V. Savchuk
Assistant Professor of the Department of Urology and Nephrology S.V. Bogatskyi
Assistant Professor of the Department of Urology and Nephrology O.M. Kvasha

Recommended literature.

Basic:

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Information resources:

University website <https://onmedu.edu.ua>

Library library.odmu.edu.ua

1. <https://uroweb.org/>

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