

RECONSTRUCTION OF THE UPPER THIRD OF THE URETER WITH A TUBULARIZED PELVIS FLAP IN DIFFICULT CLINICAL SITUATIONS

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Congenital strictures of the ureteropelvic junction (UPJ) are currently considered to be a well-studied problem that can be surgically corrected with positive results in 90% of cases [1-3]. The leading treatment method here is a complete resection of the narrowed part of the urinary tract with the application of a pyeloureteral anastomosis at the level of healthy tissues of the pelvis and ureter. This principle was introduced by the American surgeons Anderson and Hynes. High efficiency contributed to its popularity and widespread recognition among urologists [4].

However, there are many clinical situations where it is impossible to perform a radical UPJ resection, to apply an adequate anastomosis between unchanged tissues or to perform it without significant tension. First of all, it is difficult to do with extended strictures of the upper third of the ureter. Even more problematic are situations of secondary hydronephrosis, complicated by severe inflammatory and cicatricial changes in the pelvis and ureter, especially in patients with imperative indications for preserving a kidney. The complexity of the surgical task increases significantly with the frequency of ineffective operations performed at the preliminary stage. The surgeon is usually forced to use unconventional approaches to restore patency of the upper urinary tract in such patients.

Ureteroplasty with a tubularized pelvis flap is a very rare option for urethral reconstruction. This surgical approach allows

replacing extended defects of the upper third of the ureter, and in some cases the entire ureter. Pelvic tubuloplasty can also be used to correct hydronephrosis associated with additional vessels to the lower pole of the kidney. Nowadays there are only a few reports on using tubular pyeloplasty in literary sources [5-10]. Not all indications for this type of reconstruction have been studied yet. Thus, not all possible methods for the pelvis flaps formation have been developed. This article presents the experience of using this surgical technique in two patients with complex clinical situations.

Material and methods. The 1st clinical case

A 24-year-old patient was admitted to the hospital because of complaints on periodic aching pain in the left lumbar region and in the left half of the abdomen, as well as systolic blood pressure increase to 135-140 mm Hg. From the anamnesis, it is known that 3 and 5 years ago she underwent open surgical interventions (antevasal pyeloureteral anastomosis and repeated pyeloureteral anastomosis) for left-sided hydronephrosis associated with additional lower-polar vessels. MDCT showed that the patient had a significant dilatation of the pelvis in the left kidney with its atony (Psoas symptom) (Fig. 1). The pelvoureteric junction was narrowed, poorly visualized. It was also crossed with a large additional artery and vein going to the lower pole of the kidney.

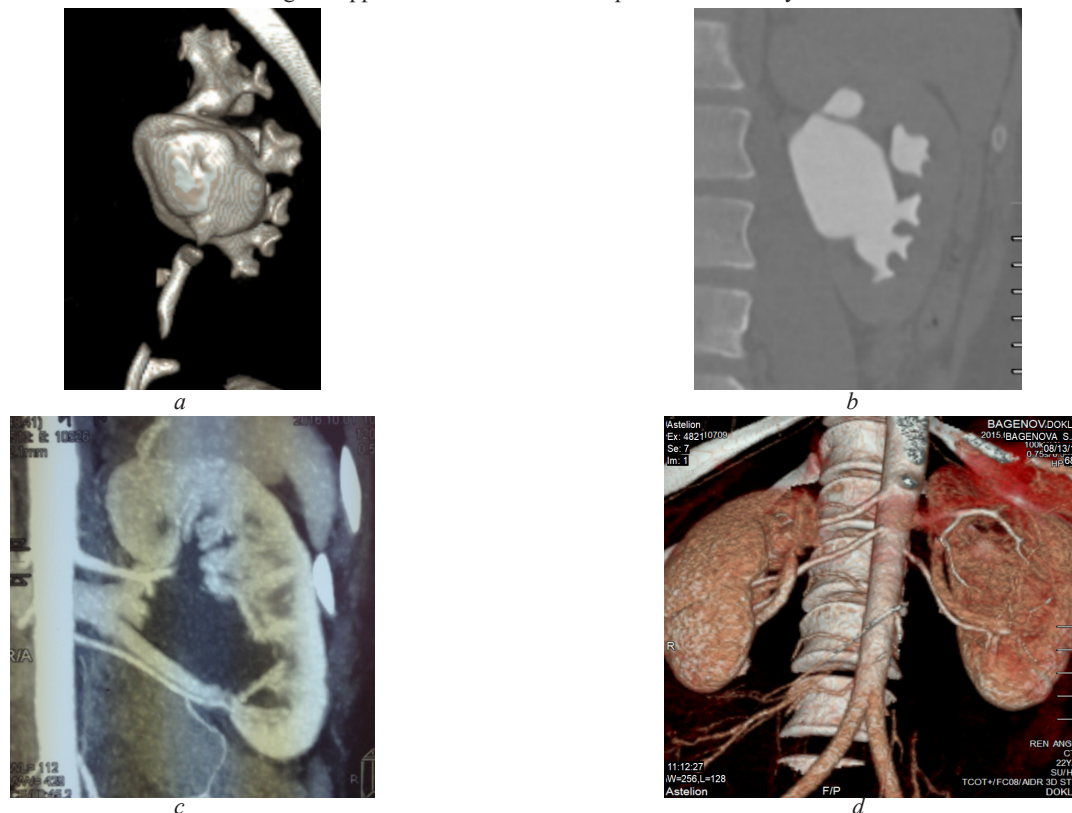


Fig. 1 Frontal MDCT reconstructions show signs of left hydronephrosis (a) and psoas symptom (b), as well as an additional lower-polar artery and vein (c, d)

We decided to perform pelvic tubuloplasty with displacement of the anastomosis zone below its intersection with the lower polar vessels. The operation was performed via thoracolumbar approach in XI intercostal space. After isolation of the kidney from the cicatricial adhesions, the ureter was cut off just below the UPJ. The pelvis wound in this area was sutured. UPJ was resected at the level of normal tissues of the ureter and sutured. The upper renal vessels were placed up with the help of vascular elevators. Next, we performed a longitudinal pelvis intersection in the direction from top to bottom. The upper part of the flap

had a width of at least 10 mm. The lower edge of the pelvis incision was 10 mm from the lower edge of the pelvis. The width of the base of the flap was about 20 mm. After turning down the flap over the lower polar vessels, its distal part was captured with forceps and pulled (Fig. 2 a). The pelvis was longitudinally sutured; the formed flap was tubularized by interrupted suture (Fig. 2 b). Further, an anastomosis was performed between the pelvic flap and the ureter approximately 2 cm below the lower polar vessels (Fig. 2 c, d). The postoperative period was without complications.

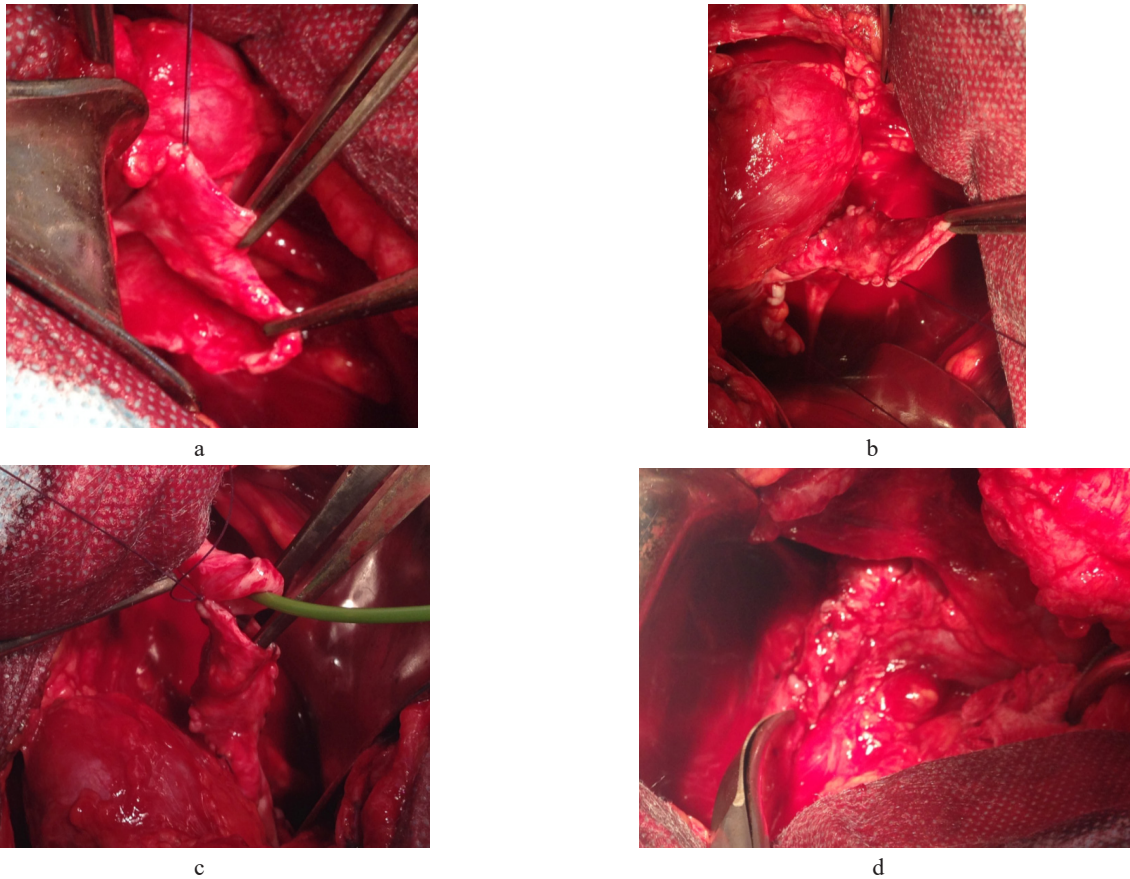
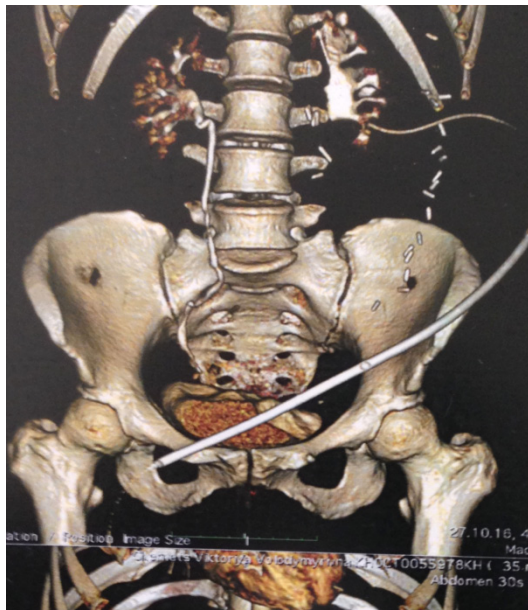


Fig. 2. Intraoperative pictures of the stages of pelvic tubuloplasty: a – formation of the flap and displacement it below the additional vessels; b – the flap is completely tubularized; c – anastomosis between the flap and the ureter; d – the final view of reconstruction



Fig. 3. Frontal MDCT reconstruction demonstrates the absence of obstructive changes in the upper urinary tract on the left. Arrows indicate the boundaries of the tubular flap of the pelvis



a



b

Fig. 4 a – frontal MDCT reconstruction in the excretory phase; b – antegrade pyeloureterography demonstrates a complete absence of UPJ patency on the left and an extended stricture of the upper third of the ureter (the boundaries of the stricture are indicated by arrows)

The ureteric stent was removed 2 months later. The patient did not complain during further observation. 6 months after surgery we performed MDCT, which showed a significant decrease in the size of the renal pelvis, and no obstructive changes in the UPJ and the ureter (Fig. 3).

The 2nd clinical case

A 35-year-old patient came to hospital for performing a left-sided nephrectomy as she had percutaneous nephrostomy and several previous inefficient operations related to left-sided hydronephrosis. We found out from the anamnesis that two years before she had undergone laparoscopic plastic surgery of the ureteropelvic junction complicated by anastomotic stricture. Subsequently, she underwent several endoureterotomy with prolonged stenting of the ureter, which did not bring positive effect. Six months ago, the patient underwent laparoscopic redopyeloplasty and it did not bring positive changes. Because of existing obstructive changes, the patient was performed a puncture nephrostomy on the left side. According to MDCT and antegrade pyeloureterography, there was a lack of patency of the pelvis-ureteric junction, and an extended stricture of the entire upper third of the left ureter (Fig. 4). We also noted that the renal pelvis was very big. Taking into account this fact, the patient was brought to the operating room to reconstruct the ureter with a tubular flap of the renal pelvis or with ureterocalicostomy. In case of impossibility to perform these techniques we planned to carry out nephrectomy.

After mobilization of the kidney and ureter from severe cicatricial adhesions, we isolated the pelvis carefully, and found out that the upper half of pelvis was not changed. We cut off the ureter from the pelvis-ureteric segment and started its sequential intersection at the level of the upper third in order to search for normal ureteral tissue. The latter was detected only at the level of the middle third of the ureter. In this area, the ureter was intersected and spatulated. Due to the considerable extent of the ureteral defect, even after complete mobilization of the kidney, it was impossible to perform ureterocalicostomy. Thus, we made a decision to perform reconstruction of the ureter with a tubularized flap of the pelvis.

Renal vessels were moved up by vascular elevators. After that we performed longitudinal incision of the pelvis in the direction from top to bottom. The upper part of the flap had the width of at least 10 mm. The lower edge of the pelvis incision was at the distance of 7 mm from the lower edge of the pelvis. The width of the flap base was 20 mm. The flap was turned down. Its distal part was captured by forceps and pulled. At this moment we found out that the length of the flap was 2 cm smaller than we needed for the ureter anastomosis. In this connection we made 3 shallow transverse incisions by the scissors on each side of the flap with an interval of 5-7 mm, retreating 5 mm from its base (Fig. 5). This maneuver allowed extending the flap by 2 cm. Further, we sutured the wound of the pelvis longitudinally. The formed flap was tubularized and connected to the ureter on the stent. The postoperative period was without any complications. Nephrostomy tube was removed after 2 weeks, ureteric stent - 2 months later.

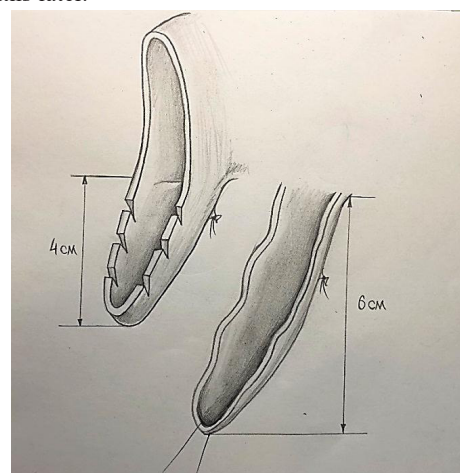


Fig. 5. Extending the flap with the help of multiple transverse incisions

The patient did not complain during further observation. MDCT performed 3 months after the operation showed a significant decrease in the size of the pelvis, no obstructive changes in UPJ, and a slight narrowing at the border of the upper and middle third of the ureter (zone of anastomosis) (Fig. 6).

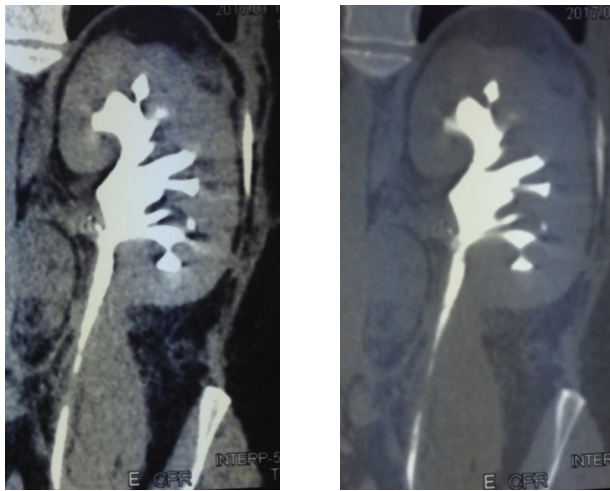


Fig. 6. Frontal MSCT reconstructions 3 months after surgery demonstrate good patency of the pelvis-ureteric segment and moderate narrowing of the ureter at the border of its upper and middle third (arrows indicate the boundaries of the tubular flap of the pelvis)

12 months after surgery MDCT revealed no obstructive changes in the upper urinary tract (Fig. 7).

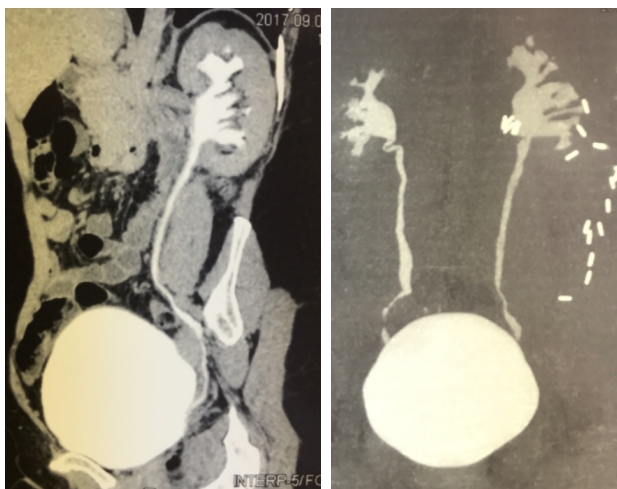


Fig. 7. Frontal and sagittal MDCT reconstructions 12 months after surgery represent no obstructive changes in the left ureter

Results and discussion. Restoration of the upper third of the ureter by the tissues of the renal pelvis has certain priorities over other methods of urethral reconstruction. First of all, the ureter is replaced with histologically identical material. Secondly, the flap is not completely cut off from the renal pelvis, but has a feeding leg. These features determine the success of this surgical technique.

One of the most important issues when using tubular flaps of the pelvis is the adequacy of their blood supply, especially in conditions of long-existing hydronephrosis. When the flap is rotated down, there can be corrugation and inflection of the

pelvic tissue, which can lead to its trophic violations. This question undoubtedly requires further study.

Antevasal pyeloureteral anastomosis is a standard surgical technique for the correction of hydronephrosis in patients with additional vessels going to the lower pole of the kidney. But it has a significant drawback – a new anastomosis is very often located at the level of the same vessel, but on the other hand. At the same time, a pathological effect of the vessel on the pelvis-ureteric junction remains. This circumstance can be considered the main cause of relapse in performing such operations.

This was the reason why two standard antevasal plasty of the pyelourethral junction did not lead to positive results in our first patient. Our experience shows that displacement the anastomotic zone below the lower polar arteries or veins with the help of tubular pyeloplasty can exclude the pathological effect of these vessels on it. Therefore, this reconstruction can be considered as a standard technique for the surgical treatment of hydronephrosis caused by uretero-vascular conflict. However, this requires practical confirmation, because there is no experience of using such surgical tactics presented in the world literature now.

The second clinical observation showed the possibility of reconstruction of an extended defect in the upper and middle third of the ureter by the tubular flap of the pelvis. The proposed technique for the formation of the flap allowed extending it by 2 cm and successfully performing an anastomosis between the flap and the ureter. The main advantage of this approach is the possibility of extending the flap not by reducing the width of its base, but by means of small transverse incisions at various points. This let us to save the blood supply to the flap.

Conclusion. Ureteroplasty with a tubularized pelvic flap is a very rare and complex option for urethral reconstruction. This surgical approach in case of large sizes of the renal pelvis allows replacing extended defects of the upper third of the ureter. Pelvic tubuloplasty can also be used to correct hydronephrosis associated with additional vessels to the lower pole of the kidney. However, the feasibility and safety of such surgical approach requires further study.

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SUMMARY

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Our experience shows that displacement the anastomosis below the lower polar arteries or veins by using tubular pyeloplasty can exclude the pathological effect of these vessels on it. Therefore, this reconstruction can be considered a standard

technique for the surgical treatment of hydronephrosis caused by uretero-vascular conflict. However, this requires practical confirmation, because there is no experience of using such surgical tactics presented in the world literature now.

The second clinical observation showed the possibility of reconstruction of an extended defect in the upper and middle third of the ureter by the tubular flap of the pelvis. The proposed technique for the formation of the flap allowed extending it by 2 cm and successfully performing an anastomosis between the flap and the ureter. The main advantage of this approach is the possibility of extending the flap not by reducing the width of its base, but by means of small transverse incisions at various points. This let us to save the blood supply to the flap.

Keywords: ureteral reconstruction, UPJ reconstruction, dismembered tubularized flap pyeloplasty

РЕЗЮМЕ

РЕКОНСТРУКЦИЯ ВЕРХНЕЙ ТРЕТИ МОЧЕТОЧНИКА ЗА СЧЕТ ТУБУЛЯРНОГО ЛОСКУТА ЛОХАНКИ В СЛОЖНЫХ КЛИНИЧЕСКИХ СИТУАЦИЯХ

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Пластика мочеточника тубуляризованным лоханочным лоскутом является весьма редкой операцией уретеральной реконструкции. Данный хирургический подход позволяет заместить протяженные дефекты верхней трети мочеточника, а в отдельных случаях и весь мочеточник. Тубулопластика лоханки используется также и для коррекции гидронефроза, связанного с добавочными сосудами к нижнему полюсу почки. Однако показания к этому виду реконструкции по сей день не разработаны и не изучены различные способы формирования лоханочных лоскутов, а в литературе присутствуют лишь единичные отчеты об использовании тубулярной пиелоуретеральной пластики. В статье представлен опыт использования данной хирургической техники у двух пациентов со сложными клиническими ситуациями.

У первом случае две стандартные антевазальные пластики пиелоуретерального сегмента не привели к позитивным результатам. Как показывает наш опыт, перемещение зоны анастомоза ниже перекреста с нижнеполярными артериями или венами за счет использо-

вания тубулярной пластики лоханки может исключить патологическое влияние на него этих сосудов. Поэтому тубулопластика лоханки может быть рассмотрена в качестве стандартной методики хирургического лечения гидронефроза, обусловленного уретеро-вазальным конфликтом, что требует практического подтверждения, так как на сегодняшний день в мировой литературе опыт использования такой хирургической тактики не описан.

Во втором клиническом случае показаны возможности реконструкции протяженного дефекта верхней и средней трети мочеточника за счет тубулярного лоскута лоханки. Предложенная методика формирования лоскута позволила его удлинить на 2 см и успешно выполнить анастомоз между ним и мочеточником. Основным преимуществом такого подхода является возможность удлинения лоскута не за счет уменьшения ширины его основания, а с помощью небольших поперечных надрезов в различных точках, что позволяет максимально сохранить кровоснабжение лоскута.

რეზიუმე

შარდსაწვეთის ზედა მესამედის რეკონსტრუქცია ფიალას ტუბულური ნაფლეთით რთულ კლინიკურ სიტუაციებში

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შარდსაწვეთის პლასტიკა ფიალას ტუბულიზებული ნაფლეთით წარმოადგენს ურეთრული რეკონსტრუქციის მეტად იშვიათ ოპერაციას წარმოადგენს. ეს ქირურგიული მეთოდი იძლევა შარდსაწვეთის ზედა მესამედის განვრცობილი დეფექტების, ცალკეულ შემთხვევებში კი – მთელი შარდსაწვეთის შეცვლის საშუალებას. ფიალას ტუბულოპლასტიკა, ასევე, შეიძლება გამოყენებული იქნეს თირკმლის ქვედა პოლუსთან დამატებითი სისხლძარღვებით დაკავშირებული პიდრონეფროზის კორექციისათვის. თუმცა, დღეს ჩვენებები რეკონსტრუქციის ამ სახეობისათვის ჯერ არ არის შემუშავებული, არ არის შესწავლილი ფიალას ნაფლეთების ფორმირების სხვადასხვა საშუალება, ლიტერატურაში მოიძიება მხოლოდ ერთეული ანგარიშები ტუბულური პიელოურეთრული პლასტიკის შესახებ.

ავტორები აღწერენ აღნიშნული ქირურგიული ტექნიკის გამოყენების გამოცდილებას ორ პაციენტთან რთულ კლინიკურ სიტუაციებში.

პირველი პაციენტის შემთხვევაში პიელოურეთრული სეგმენტის ორმა ანტეგრადალურმა პლასტიკამ დადებითი შედეგი არ გამოიღო. ავტორების გამოცდილებით, ანასტომოზის ზონის გადაადგილებამ ჯვარედინის ქვემოთ ფიალას ტუბულური პლასტიკის გამოყენებით შესაძლოა გამორიცხოს პათოლოგიური გავლენა სისხლძარღვებზე. ამიტომ, ფიალას ტუბულოპლასტიკა შეიძლება განხილულ იქნეს ურეთრეოგრაფიული კონფლიქტით გამოწვეული პიდრონეფროზის ქირურგიული მკურნალობის სტანდარტულ მეთოდად. თუმცა, აღნიშნული პრაქტიკულ მოითხოვს დადასტურებას, რადგანაც დღეს სამეცნიერო ლიტერატურაში ასეთი ქირურგიული ტექნიკის გამოყენების გამოცდილება არ არის აღწერილი.

მეორე კლინიკურ შემთხვევაზე დაკვირვებამ აჩვენა შარდსაწვეთის ზედა და შუა მესამედის განვრცობილი დეფექტის რეკონსტრუქციის შესაძლებლობანი ფიალას ტუბულური ნაფლეთით. ნაფლეთის ფორმირების შემთავაზებულმა მეთოდმა შესაძლებელი გახადა მისი დაგრძელება 2 სმ-ით და მასსა და შარდსაწვეთს შორის ანასტომოზის წარმატებით შესრულება. ასეთი მიდგომის ძირითად უპიტრატესობას წარმოადგენს ნაფლეთის დაგრძელების შესაძლებლობა არა მისი ძირის დავიწროების ხარჯზე, არამედ სხვადასხვა წერტილში მცირედი განივი ინციზიების ხარჯზე. ეს უზრუნველყოფს ნაფლეთის სისხლმომარაგების მაქსიმალურ შენარჩუნებას.

EARLY POSTOPERATIVE COMPLICATIONS IN PATIENTS DURING DENTAL IMPLANTATION

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Generalized parodontitis and caries complications lead to tooth loss in individuals of different age groups. As a result of this often there is a violation of the integrity of the dentition, which leads to functional disorders of the muscular apparatus, temporomandibular joint and cosmetic defects. This further causes alterations in the patients' socialization [1,28].

The restoration of the integrity of the dentition is an important component, which further leads to the harmonious functioning of the masticatory system and whole body. One of the primary key corrective segments in this process is dental implantation. [2,31]. Recent years, a considerable success has been achieved in this field, and has led to another stage in the development of modern dentistry [20,22,27]. An unresolved problem is the existence and functioning of both the implant and the orthopedic implant-supported structure [3,11,13].

But, unfortunately, there are quite a number of significant complications in the implantation process [4,5,25]. Most often, during the implantation operation, perforations of the maxillary sinus, nasal cavity and mandibular canal occur; damage to

the alveolar ridge, mandibular canal, and neurovascular bundle [12,17,18]. Most authors note the occurrence of bone necrosis, cleavage of the cortical bone plate, bleeding, damage of the oral mucosa. As the most common complication observed is an improper installation of the implant [15,16,30]. There are no data on the relationship and features of dental implant complications caused by previous diseases that led to tooth loss. There are practically no data on the peculiarities of complications arising in the initial stages of surgical treatment. Thus, the literature data are ambiguous, debatable and sometimes controversial. With this in mind, the issue of dental implantation is of particular importance and requires further development including different age groups [19,24].

Aim of the study is to improve the results of dental implantation and to avoid its complications based on identification of the causes of complications of dental implantations and developing preventative measures in people of different age groups.

Material and methods. 65 patients aged 35-60 years with secondary adentia were under our supervision. The main study