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A new approach to the treatment of female stress urinary incontinence associated with genital prolapse

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Genital prolapse (GP) and stress urinary incontinence are some of the most pressing problems in urogynecological practice [1, 2] . According to the Women's Health Initiative Study, 41% of women aged 50-79 has some degree of genital prolapse. 34% of them have a cystocele, 19% - 14% have rectocele and/or prolapsed uterus [3]. Prolapse is the most frequent reason hysterectomy in women older than 50 years and it is 13 % of the causes of all hysterectomies in women of different ages. In the UK, genital prolapse occurs in 20% of women waiting for elective surgery in a hospital gynecological. In the analysis of risk factors for GP patients as the most important prognostic different these authors called accelerated labor, obstetric injuries, transferred surgery abdominal and pelvic organs, and chronic diseases associated with connective tissue dysplasia, overweight, age, hypoestrogenic conditions etc. [1].

Most of the interventions implemented to correct stress incontinence to reduce urethral hypermobility cystic segment by reconstructing physiological

mechanism consisting of the muscles and ligaments of the pelvic floor (slings and colposuspension) or an increase in urethral resistance (injectable agents) [4 , 5]. To carry out the paraurethral injection suggested a considerable amount of biological and inorganic materials, some researchers believe they lipografting good alternative, ie use of fat for soft tissue remodeling, provide support for cystic - urethral segment [6 , 7].

Our preliminary experimental studies have been promising in terms of reducing the intensity of inflammatory and degenerative changes in the zone of the contact with alloplastic material and biological tissues when platelet-rich plasma was applied [8].

The aim of this study was to evaluate the clinical effectiveness of various methods of surgical treatment of urogenital prolapse in women under University Clinics.

Material and methods. The study was conducted at the ONMedU Centre for Restorative and Reconstructive Medicine. The total sample included 60 women with urogenital prolapse, aged 35 to 52 years old. The total sample was randomly distributed in the following groups. Group I consisted of patients receiving standard treatment protocol, including using autoplasmic surgery (IA, n = 15, alloplastic surgery (IB, n = 15). Group II (n = 30) includes patients operated on using an improved method for plastics, including IIA - application lacunar introducing homologous adipose tissue in plastic PRP own tissues (n=15), IIB - TVT (tension-free vaginal tape) interference with the use of lacunar introducing homologous adipose tissue in plastic PRP own tissues . Disease duration averaged $4,2 \pm 0,2$ years.

Omission of the vaginal wall was found in 48 (80.0 %) patients, incomplete uterine prolapse - in 12 (20.0 %). All patients had a central defect pubotservikalnoi fascia as cystocele, 15 (25.0%) was determined rectocele. Among patients with type IIa dominated incontinence by ICS [9].

All patients underwent examination in accordance with the requirements of the clinical protocol, approved by the order of Ministry of Health of 15.06.2007 № 330 [10]. According to the testimony combined urofluometric study was conducted by the apparatus "Flow -K" (Ukraine) to determine the mandatory component incontinence or detrusor hyporeflexia, as well as for the assessment of urethral sphincter functions.

Treatment of all patients started with a course of training perineal muscles using biofeedback as a method of first-line treatment of incontinence.

Subsequently, patients underwent surgery in the following volume : patients I group performed front and rear with colporrhaphy and ureterocystoplastics, group II patients in addition to the surgery performed by the standard technique there was applied original method lipografting [11]. To this suspension was used in an amount of fat graft with 20-120 ml of platelet-rich plasma (depending on the degree of changes in the soft tissues of the pelvic floor) which is introduced into the soft tissue of the pelvic floor during the final stage further surgical intervention using microcannulas diameter 1.2 1.4 mm or two to four punctures.

Tackling adipose tissue for further autografting was performed as follows. Several punctures performed infiltration of subcutaneous fat in the patient area of the anterior abdominal wall, waist or hips Ringer microcannulas through infiltration. Then through punctures made earlier by aspiration microcannulas attached to a syringe capacity of 20.0 ml of adipose tissue aspiration is performed by longitudinal movements of the hand while generating a negative pressure in the syringe out-flow. The resulting suspension was treated with adipose tissue by sedimentation in a metal sieve, and then extracted with free lipids and the infiltration solution . Then the fat graft was carried in 50.0 ml syringe. To the treated fat graft added platelet-rich plasma, which was obtained by centrifuging the blood from the patient adding sodium citrate apparatus SmartPReP Platelet Concentrate System (Harvest Technologies, USA).

Subsequently the fat is mixed with autograft plasma rich in platelets, to obtain 5 % plasma- fat slurry and injected into the lacunar space as described above.

Statistical data processing was performed using Statistica 10.0 (StatSoft Inc., USA) [13].

Results and discussion.

Our own observations have shown that a comprehensive method of surgical treatment of stress urinary incontinence using lipografting gave good functional results. In particular, the normalization was achieved back vesicouretral angle (before surgery - $137,1 \pm 4,7^\circ$ alone , $167,7 \pm 3,3^\circ$ - with voltage , after the operation - $100,8 \pm 2,9^\circ$ in alone , $117,3 \pm 3,2^\circ$ - with voltage) . The described changes were statistically significant ($p < 0,05$).

Furthermore, the use of lipografting led to a marked reduction of the maximum urinary flow rate (Qmax) with up to $42,1 \pm 2,8$ $25,5 \pm 1,1$ ml / s (Fig. 1) by increasing the time to micturition from $9,9 \pm 0,6$ to $24,8 \pm 1,1$ s.

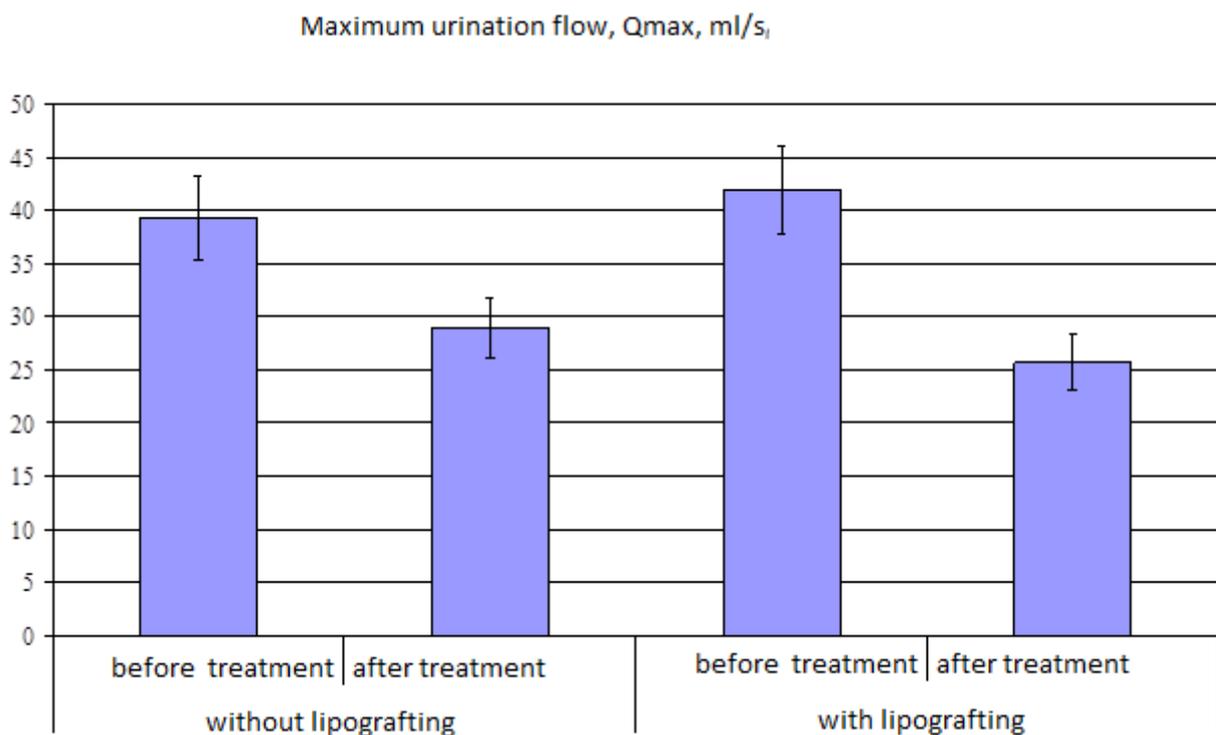


Fig. 1. The dynamic changes of urofluometric indices

Conclusions :

1. Surgical treatment of genital prolapse requires an integrated approach and a combination of individual choice in different ways to treat the disease, adequate types and severity of defects vaginal anatomy and dysfunction of the pelvic organs, taking into account the patient's age as well as the presence of gynecologic and extragenital pathology.
2. Proposed combined method of treatment of patients with genital prolapse affects all stages of pathogenesis, leading to normalization of topographic condition of uretrovesical segment and proximal urethra, restoring a single sphincter mechanism
3. Application of autotransplantation of adipose tissue in combination with a platelet-rich plasma into the paraurethral tissue significantly improved functional outcome of surgery.

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Abstract

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The study was aimed to evaluate the clinical effectiveness of various methods of surgical treatment of urogenital prolapse in women under University Clinics.

There was shown urgical treatment of genital prolapse requires an integrated approach and a combination of individual choice in different ways to treat the disease, adequate types and severity of defects vaginal anatomy and dysfunction of the pelvic organs, taking into account the patient's age as well as the presence of gynecologic and extragenital pathology. Proposed combined method of treatment of patients with genital prolapse effectively restored topographic conditions of uretrovesical segment and proximal urethra as wells as single sphincter mechanisms. Application of autotransplantation of adipose tissue in

combination with a platelet-rich plasma into the paraurethral tissue significantly improved functional outcome of surgical interventions.

Key words: stress urinary incontinence, genital prolapse, females, treatment