

URINARY CONTINENCE FOLLOWING VAGINOPLASTY

Hypothesis / aims of study

Feminizing genitoplasty entails vaginoplasty, clitoroplasty, introitoplasty and labioplasty.

Most of the literature focused on the cosmetic outcome of feminizing genitoplasty and its functional outcome in terms of clitoral sensation, adequacy of the vagina for sexual intercourse and orgasmic functions, with little reports on continence condition for patients who did vaginoplasty.

Most vaginoplasties include surgical dissection in the pelvis and perineum close to pudendal nerves, external urinary sphincter or pelvic nerve fibers between bladder and vagina and/or disruption of bladder supportive pelvic fascia; which all can cause urinary incontinence. We evaluated the functional outcome of vaginoplasty in terms of continence condition with correlation to the age of the patient at surgery, severity of clinical condition and surgical procedure used.

Study design, materials and methods

We started a prospective study on December 2000, and still ongoing. The study included the intersex patients who were surgically corrected and were followed up. The patients presented to the intersex clinic, and were co-managed by pediatric urologists and pediatric endocrinologists at our institute.

The study included 153 patients who were managed and followed up over a period ranging from 3 – 38 months, (mean 24.8 months). Patient ages at presentation ranged from 2 days up to 22 years.

All patients underwent the basic evaluation for intersex (history, family history, & antenatal history, general examination, sonography, genitography, karyotyping, and/or CT or MRI). Laboratories included (17-OH-Progesterone, testosterone, DHT and other steroid hormone precursors if needed).

Postoperative evaluation aimed at cosmetic & functional results. Evaluation of continence included history (using the validated Arabic version of ICIQ-SF for toilet trained patients, while in the non-toilet trained patients, evaluation of continence was difficult. They were followed up until the age of toilet training).

Patients who showed any type of voiding dysfunction underwent urine analysis & pelvic ultrasonography. Any UTI was treated & retaining capacity of the bladder was measured.

Patients were reevaluated at 3, 6, 9, & 12 months postoperatively, & those who were still having voiding dysfunction underwent ACU & urodynamic studies

Results

Analysis of patients data revealed that, of the 153 intersex patients; 76 (49.7%) did feminizing genitoplasty. Sixty one patients (80 %) patients were females with congenital adrenal hyperplasia (CAH) [21-hydroxylase deficiency], 6 (7.8%) patients had partial androgen insensitivity, 4 (5 %) had mixed gonadal dysgenesis, and 5 (6.5%) were true hermaphrodites.

Patients with low or low-intermediate vaginal confluence were managed with back cut vaginoplasty. Patients with intermediate or intermediate-high vaginal confluence were managed with mobilization of the urogenital sinus. Pull through vaginoplasty was reserved for patients with very high vaginal confluence (lying above the external urethral sphincter). Two patients with very high vaginal confluence have had previous failed surgery (not done at our hospital, with no data regarding the surgery)

Back cut vaginoplasty was performed in 11/76 (14.5%) patients, and it was not associated with any complications. It showed excellent cosmetic and functional outcomes in all patients. This technique carries no risk of harming the continence mechanisms, and it is a perfect vaginal reconstructive surgery when indicated.

Mobilization of the urogenital sinus was used in 49/76 (64.5%) patients. Eleven patients/49 (22.5%) developed mild urinary incontinence that resolved in most of them over three months. Eight patients/49 (16.3 %) had stress urinary incontinence (SUI), while 3/49 (6%) had mixed incontinence. The average incontinence episodes were 2.45 times per day. The average sum of the validated Arabic version of ICIQ-SF questionnaire was 9. In 4/49 patients (8%) mild SUI persisted for longer duration, but gradually improved over time, and only one/49 patient (2%) had persistent non improving mild SUI who was managed by bladder neck injection with bulking agent (Silicon Macropolymer).

Pull through vaginoplasty was used in 16/76 patients (21%). The urinary functional outcome was poorer. Ten/16 (62.5%) of the patients developed postoperative urinary incontinence. The average incontinence episodes were 3.3 times per day. The average sum of the validated Arabic version of ICIQ-SF questionnaire was 12.7. Three/16 patients (18.8%) developed mild SUI that resolved over the next 3 to 6 months spontaneously. Three/16 patients (18.8%) developed mild mixed incontinence that was persistent, these patients did not respond adequately to anticholinergics (oxybutinine), but responded to tricyclic-antidepressant (imipramine). Two/10 patients (12.5%) developed moderate mixed incontinence that was poorly responsive to medical treatment alone and required combination of anticholinergics and bladder neck injection with bulking agents. Another 2/10 patients (12.5%) developed severe total urinary incontinence. They needed bladder neck injection with bulking agents three times.

Interpretation of results

Mobilization of the urogenital sinus may lead to increased urethral mobility or pudendal nerve injury due to dissection of the urogenital sinus free from the symphysis pubis and all surrounding structures which may lead to SUI or mixed incontinence.

Pull through vaginoplasty is associated with dissection between the vagina and the urethra and the bladder at the level of the sphincter, the bladder neck, and the pelvic nerves running anterolateral to the vaginal wall which may lead to severe SUI up to total incontinence.

Concluding message

The incidence, type, and severity of incontinence were directly related to the type of surgical procedure, which depended on the severity of the clinical condition (level of vaginal confluence).

No complications developed following back cut vaginoplasty, and it is the safest procedure. Minimal SUI developed following mobilization of the urogenital sinus, but overall it is a safe surgical technique that might need some modifications.

Pull through vaginoplasty seems to be an unsafe procedure, with unacceptably high complication and incontinence rates. Cases with high vaginal confluence need alternative surgical approach that does not entail dissection of the vagina from the bladder (e.g. Passirini vaginoplasty or vaginal replacement by bowel, buccal mucosa, amnion, or peritoneum).

<i>Specify source of funding or grant</i>	Government
<i>Is this a clinical trial?</i>	Yes
<i>Is this study registered in a public clinical trials registry?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	Local ethics committees at both Bani Sweif & Cairo universities.
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes