Actas Urol Esp. 2016;40(4):258–262

Actas Urológicas Españolas

www.elsevier.es/actasuro

SURGICAL TECHNIQUE

Is approximated de-epithelized glanuloplasty beneficial for hypospadiologist?☆

M. ZakiEldahshoury*, **W. Gamal**, **E. Salem**, **E. Rashed**, **A. Mamdouh**

Departamento de Urología, Sohag University Hospital, Sohag, Egypt

Received 19 July 2015; accepted 3 November 2015
Available online 18 March 2016

KEYWORDS
Hypospadias;
Approximated glanuloplasty;
Urethroplasty;
Hypospadiology;
Hypospadias repair

Abstract
Objective: Further evaluation of the cosmetic and functional results of approximated de-epithelized glanuloplasty in different degree of hypospadias.
Material and methods: This study included 96 male patients (DPH = 68 and MPH = 28). Patients selected for repair with glans approximation should have wide urethral plate and grooved glans. All cases were repaired with the classic TIP and glans approximation technique. Follow up was for 1 year by clinical examination of the meatal shape, size and site, glans shape, skin covering, suture line, urethral catheter, edema and fistula in addition to parent satisfaction.
Results: Mean operative time was 49 ± 9 min. As regards the functional and cosmetic outcomes, success was reported in 95.8%, while failure was in 4.16% in the form of glanular disruption in two patients and subcoronal urethrocutaneous fistula in another two patients.
Conclusion: Glans approximation has many advantages, good cosmetic and functional results, short operative time, less blood loss, no need for tourniquet.

PALABRAS CLAVE
Hipospadias;
Glanuloplastia aproximada;
Uretroplastia;
Hipospadiología;
Reparación de hipospadias

¿Es la glanuloplastia con desepitelización beneficiosa para el hipospadiólogo?

Resumen
Objetivo: Evaluar los resultados estéticos y funcionales de glanuloplastia con desepitelización aproximada en diferente grado de hipospadias.
Material y métodos: Este estudio se realizó en 96 pacientes varones (DPH = 68 y MPH = 28). Los pacientes seleccionados para la reparación con la glanuloplastia de aproximación deben tener placa uretral amplia y glande ranurados. Todos los casos fueron reparados con la técnica clásica y la de aproximación glandar. El seguimiento fue de un año, mediante un examen clínico de la forma del meato, tamaño y sitio, forma del glande, cubierta de piel, línea de sutura, sonda uretral, aparición de edema y fístula, además de la satisfacción de los padres.

☆ Please cite this article as: ZakiEldahshoury M, Gamal W, Salem E, Rashed E, Mamdouh A. ¿Es la glanuloplastia con desepitelización beneficiosa para el hipospadiólogo?. Actas Urol Esp. 2016;40:258–262.

* Corresponding author.
E-mail address: m.eldahshoury@gmail.com (M. ZakiEldahshoury).

2173-5786/

Resultados: El tiempo operatorio promedio fue de 49 ± 9 min. En cuanto a los resultados funcionales y cosméticos el éxito se informó en el 95,8%, mientras que el fracaso fue de 4,16% en forma de interrupción glandar en 2 pacientes y fístula uretrocutánea subcoronal en otros 2 pacientes.
Conclusión: La técnica de aproximación glandar tiene muchas ventajas, buenos resultados cosméticos y funcionales, tiempo operatorio corto y menos pérdida de sangre, no habiendo necesidad de torniquete.

Introduction

Classically, hypospadias repair involves orthoplasty, urethroplasty, glanuloplasty, scrotoplasty and urine diversion. Over years, many techniques have evolved for hypospadias repair with various modifications in each of these steps.[1] Originally, granuloplasty is carried out by creating glanular wings through dissecting the plane between the glans and the tunica albuginea. The elevated glanular flaps are then rotated medially to cover the tubularized urethral plate and restore cosmetically acceptable glans.[2] Wingless glanuloplasty was first described by Zaontz, who created this technique for repair of 24 patients with glanular and coronal hypospadias.[3]

The idea of glans approximation (wingless glanuloplasty) arises from the development and anatomy of the glandular urethra by dorsal growth of the urethral plate into the genital tubercle with ventral growth, fusion of the urethral folds, and also the paucity of glandular tissue ventrally over the urethra.[2]

The original wing glanuloplasty is carried out by dissection of glandular wings through the plane between the glans and the tunica albuginea that covers both corpus cavernosus, the elevated glandular flaps are rotated medially to cover the tubularized urethral plate and restore cosmetically acceptable glans.[3] This technique was based upon the principles of development and anatomy of the glanular urethra that involves dorsal growth of the urethral plate into the genital tubercle with ventral growth, fusion of the urethral folds and the paucity of glanular tissue ventrally over the urethra.[4] Good glandular closure is the corner stone to avoid glandular disruption, restoring cosmetically acceptable glans and normal urethral meatus.[4,5]

Hoebeke and De Sy stated that glans approximation is an extra tool for the surgeon interested in hypospadias with encouraging postoperative results.[6] Previous articles had published this technique only on a little number of cases. Lacy et al. had repaired 13 cases with hypospadias using glans approximation.[7] Gittes et al. also used glans approximation technique to repair 37 cases.[8] Hoebeke treated 20 cases with hypospadias with glans approximation[6] and Zaontz also treated 24 cases with hypospadias with glans approximation.[3] The aim of this study is to present the functional and cosmetic outcomes of approximated glanuloplasty technique in 96 male patients with different degree of hypospadias.

Material and methods

This study was carried out on 96 male patients with hypospadias (DPH = 68 and MPH = 28) during the time from January 2010 to January 2014. The age range for these patients was from 1.8 to 15 ys, (mean = 3.2 ys). Two patients had history of use of local androgen cream elsewhere for 1 month of duration 3 months ago. Patients selected for this study were those with wide urethral plate >8 mm and grooved glans. Verbal and written consent were taken from parents and one adult patient. Follow-up was for 1 year by history and clinical examination of urine stream, urethral meatus, glans shape, skin covering, suture line, edema, fistula, residual chorde, glanular disruption, and complete failure of repair.

Surgical technique

Preoperative prophylactic third generation cephalosporin injection was administered to all patients. All patients were operated under general anesthesia with caudal block. Midglans suture passed through the dorsum of the glans for traction. All cases were repaired by the classic TIP but without creation of glandular (wings) flaps, U shape incision was carried around the urethral plate with de-epithelization of 3 mm of width on each glandular half (Figs. 1A and B, 2 and 3). Chordee corrected either by degloving alone ($n = 35$) and degloving and modified Nesbit ($n = 44$). There was no need for the use of Tourniquet in all cases.

Dorsal urethral plate incision was created in all cases. Tubularization of urethral plate had been started by midglans suture using 6/0 Vicryl sutures and the repair started from proximal to distal in two layers. Closure of the glandular urethral segment by 1st layer suture through the epidermis and two further sutures to approximate the glandular halves through the sub-epidermal glandular tissue and the third layer passed through the glanular epidermis for glanular closure (Figs. 1C and 4). The tubularized urethral plate was augmented with a layer of dartous fascia (de-epithelized single Byars' flaps) without extension of dartous to the glans. Skin closure using preputial skin is created without overlapping sutures. Slightly compressive dressing was carried out. Urethral catheter was left in 3–5 days in all cases (Fig. 4).

Results

The mean operative time was 49 ± 9 min. Successful cosmetic and functional results were reported in 92 (95.8%) patients. Failure rate was 4.16% in form of glandular disruption in two patients (2.08%) that repaired after 3 months with the same technique without recurrence and subcoronal fistula reported in another two patients (2.08%) that repaired using multilayer closure after 3 months with no