

USE OF CADAVERIC FASCIA LATA TO CORRECT GRADE IV CYSTOCELE

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ABSTRACT

We describe a modification of the cadaveric prolapse repair and sling – CaPS technique that uses the sling surgery principles to correct grade IV cystocele. In this modification, the central and paravaginal defects reconstitution are performed using cadaveric fascia lata fixed over rectus abdominis muscle, eliminating the need of pubic fixation by screws, as proposed by the original technique. The modification described, besides presenting the benefits of CaPS, i.e., not using impaired tissues to reconstruct vesical support, and lower risks of perineal hypercorrection, also reduces the probability of complications of bone fixation.

Key words: bladder; bladder diseases; prolapse; surgery; prostheses and implants; voiding dysfunction
Int Braz J Urol. 2003; 29: 48-52

INTRODUCTION

In grade IV cystocele bladder exteriorization occurs beyond the vaginal introitus, representing the maximum degree of anterior vaginal wall prolapse (1). It is a frequent medical problem, and it is difficult to correct because it shows a large incidence of recurrence, with urinary incontinence and posterior vaginal wall prolapse induction (1).

Although it may develop as the only feature of a pelvic prolapse, grade IV cystocele generally occurs combined to other defects such as enterocele, rectocele, vaginal vault prolapse or uterine prolapse. In this context a weakness of pubocervical fascia occurs, with loss of bladder support (central defect), or in its attachment to the pelvic wall (lateral defect) (2). The surgery should try to repair these defects, since simple anterior colporrhaphy shows high recurrences rates (2).

Using weakened structures to correct prolapse shows approximately 50% of recurrence and development of urinary incontinence. Analogous to abdominal wall hernia repairs, flaps of varied organic

and synthetic materials have been used to correct perineal defects (3,4). Also, because of the risk of incontinence development, combined sling procedure has been proposed to correct the prolapse (3). Kobashi et al. described cystocele repair with a cadaveric fascia lata segment that reinforces vesical support in its central portion and laterally acts as a sling fixed to pubis through small screws, technique known as CaPS (4).

The aim of this paper is to describe a modification of this technique, attaching the fascia with sutures tied over rectus abdominis muscle aponeurosis substituting pubis screws, eliminating thus the risks of bone fixation and screw cost (5).

SURGICAL TECHNIQUE

The patient is placed in lithotomy position under spinal blockade. A Foley catheter empties the bladder (Figure-1) and the vagina is medially incised 1 cm from urethral meatus, progressing to levator ani muscles. Through blunt dissection or with scissors all vesical wall is freed until the identification of pubocervical fascia (Figure-2).

The fascia used is obtained in a tissue bank (frozen and irradiated) and defrost during the surgery, resting in saline. In a T-fashioned segment, of about 8 x 6 cm, Vicryl™ 0 sutures are positioned at the ends of the superior portion that works as a suburethral sling. The sling has an 8 cm extension with 2 cm width. The sutures are elevated through cystopexy needles passage, and tied medially over the rectus abdominis muscle aponeurosis as in classic sling procedure. The remainder of the fascia, a 6 cm square, rests over bladder base. Using a haemostatic clamp between the fascia and the urethra, pressure over the bladder is avoided. The square portion of the fascia is laterally attached with 2 Vicryl™ 3-0 sutures in the level of pubocervical fascia initially in one side, adjusting fascial width when tying the contralateral side. The adjustment of these sutures is done without tension, and the central extremity is fixed as well with 2 Vicryl™ 3-0 sutures to levator ani muscles (Figure-3).

Cystoscopy is performed and, if there is any doubt about ureteral damage, and the ureteral meatus have not been catheterized yet, it may be done now. Redundant vaginal mucosa is resected and sutured with 2-zero simple catgut, or in presence of additional defects, such as rectoceles or vaginal vault prolapse, we may proceed to their correction (Figure-4).

A suprapubic cystostomy is positioned with a Foley 12F catheter maintained for 24 hours. If there is urinary retention, the catheter remains for additional 48 hours and, if necessary, intermittent catheterism is performed. For patients with large postvoid residual before the surgery, advanced age, or detrusor contractility impairment, the catheter is closed in the first postoperative day and removed when postvoid residual is under 50 mL.

COMMENTS

Support provided by the sling is essential to the success of grade III or IV cystocele correction. The anterior wall defect is not only central, but also by the separation of pubocervical fascia at the arcus tendineus level. Sling not only lift the bladder neck, but corrects lateral defect as well due to the scaring process.

Numerous studies have demonstrated the presence of occult urinary incontinence with 59% to 83% rates in urodynamic studies performed after cysto-

tocele reduction; thus urodynamic investigation is advised to investigate incontinence and voiding dysfunctions that may develop due to pelvic descent (5).

Using allogenic graft, as cadaveric fascia lata, favors the benefits of sling procedure combined to prolapse correction. In addition, avoids the risk of using an already weakened tissue to reconstruct pelvic structures, and avoiding the potential complications of using synthetic material (4,5). Another benefit of this technique is to avoid excessive correction of anterior vaginal wall that may incline to the development or the increase of posterior wall prolapse.

The techniques used in large cystoceles, anterior colporrhaply and needle suspensions, lead to 24% to 87% of failure to treat continence and prolapse recurrence (4). After a mean follow-up of 6 months we observe 65% of incontinence cure rate and 12% of incontinence improvement (5). The modification proposed shall present similar results, since it just simplifies the surgery without altering its basic principles. Until this moment this modification was successfully used in 4 patients, followed with a mean follow-up of 9 months (3-24 months).

One of the main issues raised about using cadaveric fascia lata is the possible risk of transmitting infectious diseases. Recently, the DNA content of 4 types of human fascia lata commercialized in the USA was analyzed, and all the tested material presented human DNA segments. It was concluded, however, that additional tests should be performed to assess the integrity of this genetic material and eventual risks (6). The main concern is that transmission of viral diseases by prions (slow acting viruses) could happen. Although there was no determination of this phenomenon until now, the theoretical risk is 1 to 3.5 million (6).

There is only 1 case of HIV transmission from negative donor reported in the literature. It happened in 1985, and the recipients of solid organs acquired the virus, but those that received fascia lata and tendons remained HIV-negative (6). The risk of acquiring HIV in organ transplantation from a screened donor is about 1 to 1,667,6000 to 1 to 8 millions which, comparatively, is lower than the risk of HIV transmission by blood transfusion (1 to 440,000 to 1 to 660,000) (6). Even if the risk is small, all patients should be informed about it.



Figure 1 – Cystocele. Ureteral meatus were catheterized in the beginning of the surgery.

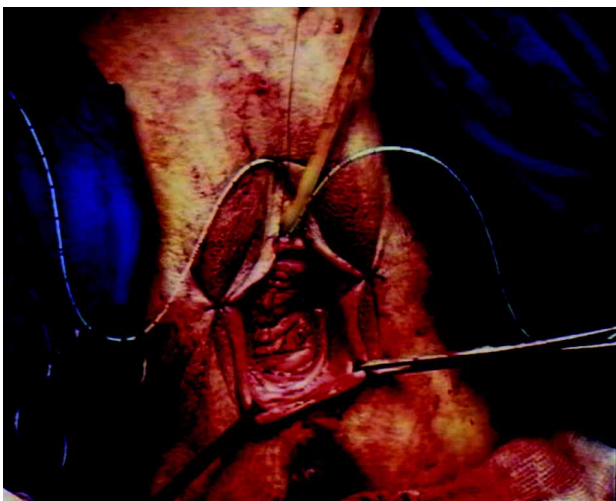


Figure 2 – Cystocele reduced until visualization of pubocervical fascia.

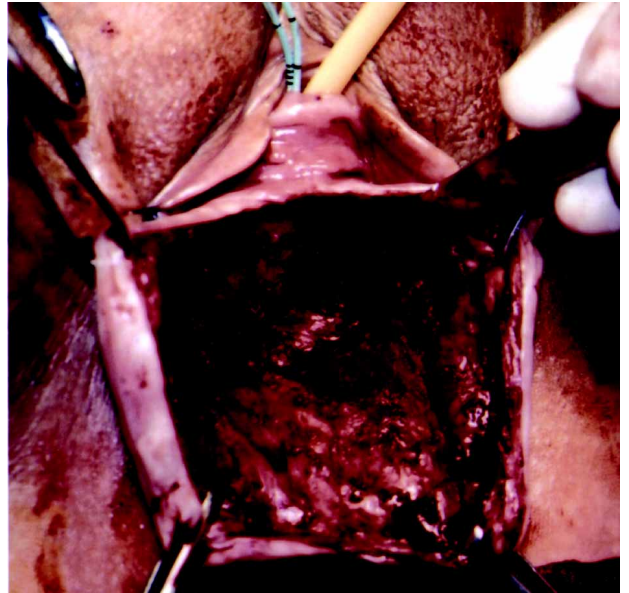


Figure 3 – After sling elevation, fascia lata is laterally attached to pubocervical fascia, and proximally attached to levator ani muscles.



Figure 4 – Corrected cystocele, initiating the repair of the additional prolapses.

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Received: July 15, 2002

Accepted after revision: December 10, 2002

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EDITORIAL COMMENT

Sling procedures have been consolidated lately as the ones which yield the best and most longstanding rates of cure for urinary stress incontinence. The genital prolapses associated certainly represent an additional challenge for the appropriated treatment of these patients, rendering the use of larger flaps an attractive alternative that may promote the cure of both conditions simultaneously.

The search for synthetic and biological material to substitute autologous fascia aims at yielding these procedures less invasive, the post-operative period less painful, and reducing the chance of complications related to the donor site.

Cadaveric fascia lata has been treated through several chemical and physical processes that include freezing lyophilization, gamma radiation, antibiotic

therapy, povidine, acetone, and hydrogen peroxide; usually these treatments are combined. The aim of these treatments is to destroy any infectious agent that could exist in the donor.

The authors raise the question about the risks of HIV transmission, and mention the possibility of prions involvement in the etiology of diseases as Creutzfeldt-Jakob syndrome (mad cow disease). Although the rarity of the event is evident in the reports in literature, it is important to point out that, independently of the sterilizing technique used, intact DNA is found in various fascia lata commercially available, according to Hathaway & Choe study recently published (1). The possibility of transmission of disease through genetic material present in these fasciae, as well as the mechanism through which this

infection would occur are not yet known. It is convenient to comment that the quality of fascial tissue available depends on the treatment it was submitted to in order to be sterilized. Recently, it became evident that some cadaveric fasciae commercially available demonstrated tensile resistance markedly inferior to autologous fasciae, and there are reports in the literature of early disruption of these materials, yielding failure to the surgical procedure.

Certainly these evidences cannot be minimized by the simple fact that we do not have many

case reports of diseases transmitted this way. We think that the choice of the biologic material should come from a joint decision of the practitioner and the patient, after appropriate information of the facts aforementioned.

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