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Failed vaginoplasty: a successful novel blend of minimally invasive approaches

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ABSTRACT

Objective: To evaluate outcomes of a novel blend of techniques for treating vaginal contractures secondary to previous conventional constructive surgeries.
Study design: Balloon vaginoplasty and scar tissue hydrolysis/hydro-disintegrations (BV/STH) were performed for three cases with vaginal scars after previously failed vaginoplasties. The outcomes measured were operative complications, vaginal depths as measured by a calibrated vaginometer, and functional outcomes as measured by changes in the penetration and satisfaction (P/S) scores on a 0–100 point visual analog scale.
Results: BV/STH was performed successfully for 3 women with previously failed vaginoplasties. They included a case with a previous partial thickness skin grafting, one with previous labial flaps and one with previous amnion membrane graft. Preoperative P/S scores ranged from 20 to 30 points. Initially BV was done in addition to multiple snips of the scar tissue with a 2 mm scalpel. No operative complications were reported but we failed to achieve progressive increase in vaginal depth after day 4. Scar tissue was injected with a mixture of lidocaine and normal saline. Progressive increase in depth was dramatically improved after scar hydro-disintegration. The depths of the resultant neovaginas were 10, 11 and 11.6 cm. Postoperative P/S scores increased up to 90.
Conclusions: BV/STH was successfully performed as a revision surgery for blind vaginas with fibrosis. This report highlights a wider range of possible applications of balloon vaginoplasty.

1. Introduction

Balloon vaginoplasty (BV) was introduced by El Saman and co-workers as scar-less procedure resulting in construction of a neovagina which mimicked nature and was cosmetically appealing. Furthermore, BV procedures had minimal reported complications and were associated with very early initiation of coital activity [1–9]. In addition, the depth and width of the neovagina was amenable to control by using different traction/distension schedules [4].

Most conventional reconstructive surgeries are dependent on creating a surgical space and then covering the raw surface of the space with various grafts or auto-implantation of a bowel segment [10–18]. Consequently, excessive scar tissue formation might follow dissection and contractures of scar tissue might distort the neovagina, resulting in stenosis or failures, with complication rates of up to 20% [18].

The present report represents the first application of BV as a revision surgical procedure for cases with previously unrewarding conventional reconstructive surgeries complicated by marked neovaginal shrinkage due to excessive scar tissue formation resulting in contractures.

2. Materials and methods

This work was conducted as a prospective study at the Woman's Health Hospital, Assiut University, Egypt, after obtaining institutional review board approval.

Three cases with blind vaginal pouches complicated by scarring and contracture due to previous surgeries were referred to our center. A thorough history was taken, with preoperative measurement of penetration and satisfaction (P/S) scores for the couples. Careful examinations with objective measurements of the vaginal depth were done. We counseled the couples for having the BV procedure with the expectation of getting suboptimal outcomes due to excessive scar tissue. Written consent was taken and patients were prepared for surgery.

The procedure was carried out in the laparoscopy unit. The surgical field was sterilized and draped with the patient in the dorsal lithotomy position. Laparoscopy was performed using a 5 mm intra-umbilical port. Then the locally manufactured customized inserter was passed through an infra-umbilical 4 mm puncture and directed to the pelvic floor (Fig. 1). An 18-gauge silicon-coated balloon catheter was threaded by a silk suture that was fixed to the caudal

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Fig. 1. A long metal inserter with gauge 18 silicon coated Foley is being inserted under laparoscopic monitoring.

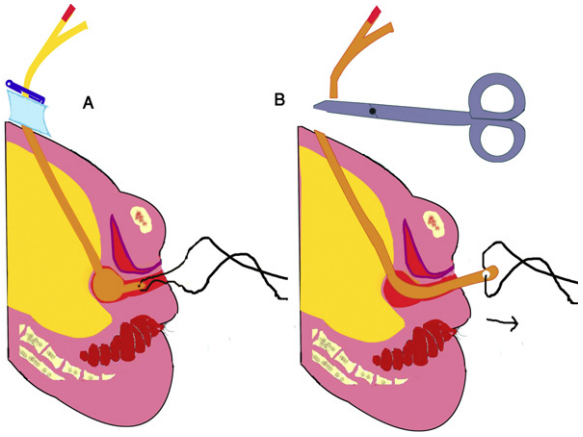

Fig. 3. (A) Catheter pulled up supported in place with its balloon inside the vaginal opening. (B) Removal of the catheter by cutting its stem.

end of the inserter. Under laparoscopic monitoring, the inserter was passed, penetrating the pelvic floor and extracted through the vaginal dimple. The silk suture was cut near the inserter to leave the remaining silk suture as a long string attached to the catheter tip (Fig. 2). The scar tissues were palpated and a 2 mm scalpel was used for making multiple cuts along it. The cuts were made in a way to weaken the scar tissue so the distance between each two adjacent snips was 2–3 mm. Subsequently, the balloon was inflated with 20 ml and traction was initiated and maintained as described in the original series. Initial traction was done until disappearance of the balloon within the vaginal inlet, followed by 1–2 cm daily increase on catheter traction (Fig. 3A). Support of the catheter in place after traction was done using a supporting plate placed over a dressing on the abdominal wall (Fig. 4).

The initial operative procedure passed without any complications but we failed to achieve progressive postoperative increase in vaginal depth after day 3, with balloon rupture in one case. We used to leave the silk suture at the catheter tip as a long string, as shown in Fig. 5, to facilitate retrieving the retracted catheter tip in the event of balloon rupture. The balloon catheter was changed on day 4 by cutting its stem to remove the bifurcated end at the abdominal site (Fig. 3B). Then a new catheter was threaded to the silk suture which was fastened to the stem of ruptured balloon catheter. The ruptured catheter's stem was extracted from the neovagina followed by the silk suture with the threaded new catheter. The scar tissue was injected with a mixture of 50/50% lidocaine hydrochloride and normal saline. A total of 20–40 ml of the mixture was injected. The mixture was directly injected into the scar tissues which were recognized by palpation. The scar tissues felt like inelastic cords that were easily distinguished from normal yielding vaginal tissues.

Progressive increase in the depth was dramatically improved after scar tissue hydro-disintegration or hydrolysis. Pain scores and P/S scores were measured by 0–100 point visual analog scales. Postoperative pain scores were measured both at rest as well as during dressing, increasing distension and traction. Each dressing episode was started with breaking the cord clamp, applying antiseptic to the catheter stem from the abdominal site and pulling

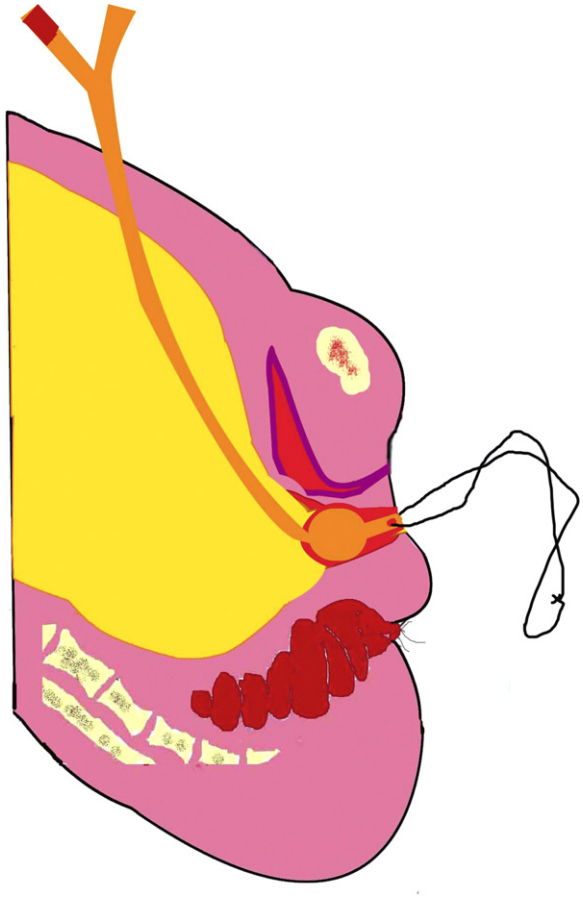

Fig. 2. Catheter in place with silk string at its tip.

Fig. 4. Supporting plat above the dressing over the abdominal wall.