

Comparing Absorbable and Nonabsorbable Sutures in Corporeal Plication for Treatment of Congenital Penile Curvature

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Purpose: To compare the outcome of corporeal plication using absorbable versus nonabsorbable sutures for the treatment of congenital penile curvature.

Materials and Methods: Thirty-eight men older than 15 years old with congenital penile curvature were enrolled in the study. Patients were randomly divided into two equal groups based on the suture material (Nylon versus Vicryl) used in corporeal plication. Patients were followed up for a mean period of 8.1 ± 1.4 months (range, 6 to 9.1 months). A standardized questionnaire was used to evaluate long-term outcome and patient's satisfaction.

Results: Thirty-five patients (17 in Vicryl group and 18 in Nylon group) completed the study. Mean age of the patients and degree of penile curvature were not significantly different between the two groups ($P = .74$). Postoperatively, 15 (88.2%) and 16 (88.9%) patients in Vicryl and Nylon groups had 75% or greater correction in penile curvature, respectively ($P = .61$). Patient's satisfaction rate differed between two groups (82% in Vicryl group versus 66% in Nylon group), which did not reach statistical significance ($P = .44$). Palpable sutures were reported by 7 (39%) patients in Nylon group and only 1 (6%) in Vicryl group ($P = .04$). Shortening of penile length was reported by 3 (16.7%) patients in Nylon group and 4 (23.5%) in Vicryl group ($P = .69$).

Conclusion: Corporeal plication technique using absorbable suture provides reasonable success rate with less frequent palpable suture knots.

Keywords: suture techniques, urologic surgical procedures, cosmetic techniques, male, penis

Urol J. 2011;8:302-6.
www.uj.unrc.ir

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Received October 2010
Accepted March 2011

INTRODUCTION

Congenital penile curvature (CPC) has an incidence of approximately 0.6%.⁽¹⁾ Acquired penile curvature is much more common than CPC.⁽²⁾ In acquired condition, inflammation and fibrosis resulting from autoimmune disease or repeated trauma can lead to plaque formation on the tunica albuginea, and subsequent penile curvature.⁽³⁾ Congenital penile curvature is

caused by length disproportion of the corpora cavernosa and corpora spongiosa.⁽⁴⁾

Congenital penile curvature usually causes a few, if any, symptoms. However, in some patients severe penile deviation of the erect penis can cause pain during sexual intercourse and interferes with intromission.⁽²⁾

Various surgical techniques have

been proposed to treat penile curvature with the aim of achieving the best possible outcome with minimal complications. Two most commonly used methods include Nesbit procedure and corporeal plication.⁽⁵⁾

Nesbit procedure was the standard method for treating penile curvature.⁽⁶⁾ Due to technical complexity and considerable morbidity of the Nesbit procedure, corporeal plication was introduced in 1973.⁽⁷⁾ Traditionally, nonabsorbable sutures have been used for corporeal plication, and are thought to cause certain complications.⁽⁸⁾ Hsieh and colleagues suggested using absorbable suture for corporeal plication to reduce suture-related complications.⁽⁹⁾ To the best of our knowledge, we compared for the first time the results of corporeal plication using absorbable versus nonabsorbable suture for treating CPC.

MATERIALS AND METHODS

This prospective study was carried out following approval by the local ethics committee, and written informed consent was obtained from each participant. Eligible study participants were men older than 15 years old with CPC who referred to Shahid Labbafinejad Medical Center between 2005 and 2008. Exclusion criteria included having a history of penile surgery, Peyronie’s disease, pain, and/or chordee associated with hypospadias.

Patients were considered as candidates for surgery because of difficulty in sexual intercourse or being severely concerned with the appearance of their penile curvature. Thirty-eight patients were recruited in the study pre-operatively and were randomly (computerized random-number generator) divided into two equal groups based on the suture material (Nylon versus Vicryl) used for corporeal plication.

All the patients were evaluated with a general medical history, sexual history, and physical examination pre-operatively, and were instructed to present a photograph of the curvature. Data including degree and direction of the penile curvature were recorded prospectively. Degree of curvature was measured using artificial erection during surgery.

All the patients underwent corporeal plication using 2-0 Vicryl or Nylon suture under the supervision of one attending urologist using the modified technique explained by Thiounn and associates.⁽¹⁰⁾ All procedures were performed on an outpatient basis.

Postoperatively, patients were instructed to have sexual abstinence for 8 weeks. Patients were followed up for a mean period of 8.1 ± 1.4 months (range, 6 to 9.1 months). To evaluate long-term outcome and patient’s satisfaction, we used a modified form of the standardized questionnaire previously designed and deployed by Chien and Aboseif.⁽¹¹⁾ Patients answered the questionnaire by telephone interviews (Appendix). We used Student *t* test and Fisher’s Exact test to analyze our findings. *P* values less than .05 were considered statistically significant.

RESULTS

Of 38 subjects included, 35 patients completed the study. Seventeen (48.6%) and 18 (51.4%) patients were treated with Vicryl and Nylon sutures, respectively. Mean age of the patients and degree of penile curvature were not significantly different between the two groups (*P* = .74). Pre-operative data are illustrated in Table.

Postoperatively, 15 (88.2%) patients in Vicryl and 16 (88.9%) patients in Nylon group had 75% or greater correction of penile curvature

Demographic and clinical characteristics of the study groups.

Variables	Nylon Group	Vicryl Group	<i>P</i>
Age, y (mean ± SD)	35.1 ± 11.9	33.6 ± 13.9	= .74
Penile Curvature, Degree (mean ± SD)	54.2 ± 15.6	56.5 ± 10.6	= .061
Curvature Direction, No.			
Ventral	12	10	
Dorsal	1	2	= .54
Right Lateral	4	2	
Left Lateral	1	3	

($P = .61$). Two patients in Vicryl group and 1 patient in Nylon group were not sexually active before and after the surgery. The remaining patients in both groups had sexual intercourse pre and postoperatively. Although there was a difference in patients' satisfaction rate between two groups (82% in Vicryl group versus 66% in Nylon group), the difference was not statistically significant ($P = .44$). Palpable sutures were reported by 7 (39%) patients in Nylon group and only 1 (6%) in Vicryl group ($P = .04$). Shortening of penile length was reported by 3 (16.7%) patients in Nylon group and 4 (23.5%) in Vicryl group ($P = .69$).

DISCUSSION

The Nesbit procedure, originally described in 1965, was formerly considered as the method of choice for treating penile curvature. Initially, Nesbit reported three subjects who underwent the procedure with successful results.⁽⁶⁾ Later, several studies reported success rates of 96.2% and 100% for the procedure for treating both congenital and acquired penile curvature, respectively.^(12,13) However, the procedure is time-consuming and has a high incidence of complications, such as hematoma, glans numbness, de novo erectile dysfunction, and over-correction.⁽¹⁴⁾ Various modifications have been made in the original technique to decrease the complications.

In 1973, Horton and Devine introduced the corporeal plication technique to treat penile curvature.⁽⁷⁾ Plication surgery has been reported to have high success rates, generally between 80% and 95%, compared with the Nesbit technique.⁽¹⁵⁾ Furthermore, it is a simpler and less invasive procedure with fewer complications. Bleeding, hematoma, penile numbness, erectile dysfunction, and over or under correction occurs less frequently.

Chien and Aboseif reported 25 patients with CPC who underwent corporeal plication. They achieved a success rate of 95% in a mean follow-up period of 18 months.⁽¹¹⁾ Another study with a larger studied population described corporeal plication in 106 subjects, which resulted in excellent straightening in 91% of patients with a mean follow-up of 69.3 months.⁽¹⁶⁾

Most surgeons use nonabsorbable sutures (Nylon or Prolene) in corporeal plication to avoid suture breakage, which may potentially lead to recurrent curvature.^(11,16,17) However, using nonabsorbable suture does not prevent suture breakdown completely, as it is reported to occur in between 6% and 50% of patients.^(10,18) It should be noted that suture failure does not necessarily lead to recurrent deformity.

Hsieh and coworkers reported recurrent curvature in only half of the patients who developed suture failure.⁽¹⁵⁾ On the other hand, about a third of patients have discomfort due to the suture material.⁽⁸⁾ Suture granuloma, palpable knots, and pain during erection are complications related to the suture material. Lee and colleagues reported that 51% of their patients who underwent plication using braided polyester suture felt palpable indurations (suture knots) on the penis.⁽¹⁶⁾ Van der Horst and associates reported that 88% of their patients who received tunical plication with nonabsorbable polypropylene sutures could palpate the suture, and 40% had discomfort during erection. Using nonabsorbable polytetrafluoroethylene in the same study, 50% of patients could palpate the sutures and 10% had discomfort during erection.⁽⁸⁾

In 2001, Hsieh and coworkers introduced a modified tunical plication technique using absorbable polyglactin sutures. Ten of their 11 patients were very satisfied with the procedure, and had less morbidity in comparison with the Nesbit technique. They instructed the patients an 8-week period of sexual abstinence to prevent suture failure due to increased tension on the tunica albuginea during sexual intercourse.⁽⁹⁾ Later, Hsieh and associates reported 103 patients with CPC who underwent the above-mentioned technique. Of their patients, 57% had a straight erect penis and 28.9% had curvature of 15 degrees or less postoperatively. Suture-related complications were rare in their study. They mentioned that the scars formed in the suture region after absorption of the suture (8 weeks postoperatively) prevents curvature recurrence.⁽¹⁵⁾

To the best of our knowledge, this is the first study comparing the success rate, morbidity, and patient's satisfaction after corporeal

plication using absorbable Vicryl suture versus nonabsorbable Nylon suture. Our results show that both groups have high success rates. Patient's satisfaction was higher in Vicryl group, but the difference was not significant probably due to small sample size. Suture-related complication, palpable knot, was significantly lower in Vicryl group than Nylon group.

CONCLUSION

We concluded that corporeal plication technique using absorbable suture has a high success rate with less frequent suture-related complications.

CONFLICT OF INTEREST

None declared.

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APPENDIX

"Postoperative patient's questionnaire"

Name:				
Age:				
Date of surgery:				
Kind of suture:	Vicryl 2-0 <input type="checkbox"/>	Nylon 2-0 <input type="checkbox"/>		
Degree of curvature:				
Direction of curvature:	Ventral <input type="checkbox"/>	Dorsal <input type="checkbox"/>	Right lateral <input type="checkbox"/>	Left lateral <input type="checkbox"/>
Were you sexually active with intercourse prior to the surgery?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Do you have any difficulties during sexual intercourse?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
If yes, how long have you had difficulties with sexual intercourse prior to the surgery?				
Are you currently sexually active?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
If yes, how satisfied are you with your surgical results?	100% <input type="checkbox"/>	75% <input type="checkbox"/>	50% <input type="checkbox"/>	25% <input type="checkbox"/>
Has the curvature of your penis been corrected?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
If yes, please quantify.				
Do you notice any changes in your penile length?	Became shorter <input type="checkbox"/>	Became longer <input type="checkbox"/>	No change <input type="checkbox"/>	
Do you notice any foreign body or suture materials in your penis?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		