people and found that the left gland was 5.2 cm and the right one is 4.8 cm long. This finding has similarity with the mean length of adrenal gland of group B (21 to 30 years) of the present study. Bhargava B et al conducted studies on 20 adult subjects using Proton Emission Tomography and observed that the length of adrenal gland was 4 to 6 cm. This value is similar to the result of the present study. Runcie et al in their study by using ultrasonogram found that the length of the adrenal gland was 4 to 6 cm. The finding of the present study corresponds to their findings.

Conclusion
The results of the present study can be used as a standard reference length for the adrenal glands of Bangladesh people and to determine the abnormal evidences in Forensic and Pathologic corpus.

References

ROLE OF DOUBLE BREAST VASCULARIZED PREPUITAL DARTOS FLAP REINFORCEMENT IN SNODGRASS URETHROPLASTY
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Abstract
Introduction: The Snodgrass technique is the procedure of choice for mid and distal penile hypospasids. Urethrocutaneous fistula is the most common complication and vascularized flaps are used to reduce fistula rate.
Objectives: The objective of this study was to evaluate the effect of use of double breast vascularized prepubital Dartos flap in Snodgrass urethroplasty.
Materials and Methods: This prospective study was conducted on thirty patients of mid and distal penile hypospasids, who were operated at Dhaka Shishu Hospital Dhaka between the period January 2010 and July 2010. Snodgrass Urethroplasty was done in 15 patients (group-A) and Snodgrass urethroplasty with additional double breast vascularized prepubital dartos flap reinforcement was done in another 15 patients (group-B). The Dartos flap was fashioned into two halves longitudinally. One half placed transversely and another longitudinally over the neourethra in a double breast manner. The patients were followed up at 2 weeks, 2 months and 6 months after operation.
Results: The mean age of the patients was 4.38 ± 3.31 years in group-A, 5.34 ± 3.04 years in group-B. The mean operation time was 75 ± 11.47 minutes in group-A and 101 ± 13.84 minutes in group-B. In group-A, urethrocutaneous fistula was found in 6 (40%) patients and in one (6.7%) patient of group-B, which was significantly less (p=0.05). One (6.7%) patient developed mild penile torsion postoperatively in group-B. At 2 months after operation, 11 (73.3%) patients in group-A and 13 (86.7%) patients in group-B gained adequate urethral caliber.
Conclusion: The technique is safe and significantly reduces the incidence of urethrocutaneous fistula.
Keywords: Vascularized flap, Snodgrass procedure, urethrocutaneous fistula

Introduction
The Snodgrass technique is the procedure of choice for mid and distal penile hypospasids, as it is versatile, easy to do and has a good cosmetic outcome, with a vertically oriented meatus as in a normal circumcised penis. Urethrocutaneous fistula is the most common complication, and modifications of modification continue to reduce fistula rate. The Dartos flap is composed of vascularized subcutaneous tissue that is dissected from the dorsal prepubial and shaft skin. Vascularized flaps were used over the scrotum by different Surgeons. All these procedures reduced the rate of fistula. In the present study, the role of Double breast vascularized Dartos flap in Snodgrass urethroplasty was evaluated to reduce the urethrocutaneous fistula without compromising cosmetic outcome.

Materials and Methods
In this prospective study thirty patients with mid and distal penile hypospasids were operated at Dhaka Shishu Hospital of Sheba-Cengaagar, Dhaka between the period January 2010 and July 2010. Patients were divided into two groups. In group-A, 15 patients underwent Snodgrass
urethralplasty and in group-B, another 15 patients underwent Smoothead urethroplasty with double breast vascularized Darts flap reinforcement. In this modified technique after creating neourethra via Smoothead urethroplasty the de-epithelialized preputial flap was prepared as a transverse island flap. Trans-illumination was used to pinpoint the vascular supply. A longitudinal incision was made along the vascularized flap to create two halves. Those halves were de-epithelialized, the cutis was removed and the vascular pedicles were preserved. The halves were then vertically rotated over the neourethra, one to the right and the other to the left. Interrupted stitches were used to fix the flaps to the neourethra. The first flap was positioned longitudinally over the neourethra and second flap was transposed transversely exactly over the first flap covering it entirely. This approach creates a double breast flap on the neourethra. The glans and skin were closed conventionally. In all cases 5.0 PGA sutures were used. The urethroplasty was fashioned using a feeding tube (6 Fr or 8 Fr for younger patient, 10 Fr for older) and a compressive dressing was applied. Dressings were removed on 5th-7th postoperative day and stents were removed on 8th postoperative day. The patients were followed up after 2 weeks, 3 months and 6 months of operation. Statistical analysis was performed using SPSS for Windows version 13.0. Students t test and Chi-square test were used to test the level of significance.

Results
The mean (SD) age of patients of group-A was 43.83±3.31 years and that of group-B was 53.43±3.04 years. The mean operation time was 77 ± 11.47 minutes in group A and 101 ± 13.94 minutes in group B. The operation time ranged from 90 to 130 minutes in group B. Urethrocutaneous fistula was observed in 96 (49.4%) patients of group A and in 81 (67.7%) patient of group B. The difference is statistically significant (p=0.031). In group-B, 61 (67.7%) patient developed mild penile torsion. Two months after operation 11 (73.3%) patients of group A and 15 (88.7%) patients of group B, had adequate urethral caliber.

Discussion
Hypospadias surgery must satisfy the basic requirements of regular voiding and correct sexual function in adulthood. Nevertheless, maintaining a healthy structure of the penis must also be a primary objective. The optimal surgical outcome should be a penis that is normal in function and structure, having the typical look of a circumcised penis. It should be straight during erection, with a vertical manner of urinary stream.

Since 1995, the Snodgrass technique has widely been used by a large number of surgeons with good results. Urethral fistula is the most common complication in hypospadias surgery. The rate of fistula reported in literature is ranged from 7-27%. Many solutions are available to decrease the incidence of fistula, such as use of better suture materials, microsurgical techniques, magnification, silicone catheter or stents, reliable postoperative dressings and vascularized flaps to protect the neourethra. Using Smoothead urethroplasty in conjunction with a de-epithelialized layer of subcutaneous tissue to cover the suture line can help to prevent fistula formation. The double breast technique was derived from the concept that the largest part of a single flap of tissue is insufficient to cover the few millimeters of the neourethra width. Therefore overlapping the neourethra with 2 breast flaps would give better and thicker coverage, resulting in a better blood supply to all layers of the urethroplasty. Recently overlapping of the double dartos flaps on the neourethra has been reported. Kamal B A observed no fistula formation with double Darts flap. Mustafa El at reported the experience of a single surgeon, in which a "U" shaped flap was prepared and the neourethra was covered with 2 flaps overlapping the sutures. In that series 3 fistulas resolved spontaneously. Appignani A reported a new technique double cross flap protection during Snodgrass urethroplasty without fistula. However Wilkerson et al in a systematic review reported a fistula rate of 3.3% with darts flap. In the present series, one (6.7%) patient developed mild penile torsion. There are more chances of torsion in single flap as compared to double darts flap. Torsion may be grouped as mild (<45°), moderate (45°-90°) and severe (90°). Torsion of <30° does not require any corrective treatment.

Conclusion
Hypospadias repair is among the most difficult problem in Paediatric Urology, as it demands the construction of a well functioning urethra and a good cosmetic appearance. The study revealed that the occurrence of urethrocutaneous fistula is reduced by addition of vascularized preputial Darts flap over neourethra in double breast manner in Snodgrass urethroplasty. The double breast vascularized preputial Darts flap reinforcement is simple to perform, and the flaps used to protect the neourethra are easy to obtain and manipulate. Smoothead urethroplasty with double breast flap reinforcement can be done in cases of mid and distal penile hypospadias.

References
urethral stricture and in group B, another 15 patients underwent Stamey urethroplasty with double urethral incision and Dartos flap reinforcement.

In this modified technique after creating urethrotomy via Stamey urethroplasty the diplosialized ventral part of the urethra was prepared as a transverse island flap. Ischememia was used to prevent the vascular supply. A longitudinal incision was made along the vascular flap to create two halves. Those halves were diplosialized, the cut was removed and the vascular pedicles were preserved. The halves were then rotated centrally over the urethrotomy, one to the right and the other to the left. Interrupted stitches were used to fix the flaps to the neourethra. The first flap was positioned longitudinally over the neourethra and second flap was transposed transversely exactly over the first flap covering it entirely. This approach creates a double dartos flap on the neourethra. The glans and skin were closed conventionally. In all cases 5.0 polyglycatin sutures were used. The urethroplasty was fashioned using a feeding tube (6 Fr or 8 Fr for younger patient, 10 Fr for older) and a compressive dressing was applied. Dressings were removed on 5th-7th postoperative day and stents were removed on 8th postoperative day. The patients were followed up after 2 weeks, 3 months, 6 months and 6 months of operation:

Statistical analysis was performed using SPSS for Windows version 13.0. Students T test and Chi-square test were used to test the level of significance.

Results
The mean (S.D) age of patients of group A was 43.83 ± 31.74 years and that of group B was 53.34 ± 30.04 years. The mean operation time was 75 ± 11.47 minutes in group A and 100 ± 13.84 minutes in group B. The operation time ranged from 90 to 130 minutes in group B. Urethrocutaneous fistula was observed in 96 (40.4%) cases of group A and in 81 (67.7%) patient of group B. The difference is statistically significant (p<0.01). In group B, 0.1 (6.7%) patient developed mild penile torsion. Two months after operation 11 (73.3%) patients of group A and 15 (68.7%) patients of group B had adequate urethral caliber.

Discussion
Hypospadias surgery must satisfy the basic requirements of regular voiding and correct sexual function in adulthood. Nevertheless, maintaining a healthy structure of the penis must also be a primary objective. The optimal surgical outcome should be a penis that is normal in function and structure, having the typical look of a circumcised penis. It should be straight during erection, with a vertical orientation. The Snodgrass technique, in so-called 'guillotine' type of neourethra, has led to the creation of a double dartos flap that can be reduced by addition of vascularized preputial Dartos flap over neourethra in double dartos flap to the Snodgrass technique. The double dartos flap is the most common complication in hypospadias surgery. The rate of fistula reported in literature is ranged from 7-70% [2]. Many solutions are available to decrease the incidence of fistula, such as use of better suture materials, microsurgical techniques, magnification, silicone catheter or stents, reliable postoperative dressings and vascularized flaps to protect the neourethra.

Using Stamey urethroplasty in conjunction with a deep-seated layer of subcutaneous tissue to cover the suture line can help to prevent fistula formation [3]. The double dartos technique was derived from the concept that the largest part of a single flap of tissue is insufficient to cover the few millimeters of the neourethra width. Therefore overlapping the neourethra with 2 hemi-flaps would give better and thicker coverage, resulting in a better blood supply to all layers of the urethrotomy. Recently overlapping of the double dartos flaps on the neourethra has been reported. Kamal B A observed no fistula formation with double Dartos flap [4]. Mustafa et al reported the experience of a single surgeon, in which a "U" shaped flap was prepared and the neourethra was covered with 2 flaps overlapping the suture line. In that series 3 fistulas resolved spontaneously [5]. Appignani et al reported a new technique double cross flap protection during Stamey urethroplasty without fistula [6]. However Wilkinson et al in a systemic review reported a fistula rate of 3.3% with dartos flap [7].

In the present series, one (6.7%) patient developed mild penile torsion. There are more chances of torsion in single flap as compared to double dartos flap [8]. Torsion may be grouped as mild (<45°), moderate (45°-90°) and severe (90°) [9]. Torsion of <30° does not require any corrective treatment [10].

Conclusion
Hypospadias repair is among the most difficult problem in Paediatric Urology, as it demands the construction of a well functioning urethra and a good cosmetic appearance. The study revealed that the occurrence of urethral fistula in patients with uncorrected prepuce can be reduced by addition of vascularized preputial Dartos flap over neourethra in double dartos flap. The double dartos flap reinforcement is simple to perform, and the flaps used to protect the urethra are easy to obtain and manipulate. Stamey urethroplasty with double dartos flap reinforcement can be done in cases of mild and distal penile hypospadias.

References