INTRODUCTION: The goal of hypospadias surgery is to provide a functionally and cosmetically normal penis. Whether this goal will be to the patient’s satisfaction depends largely on the original anatomy, surgical technique and surgeon’s experience. It has been suggested that androgen administration is associated with better outcomes in hypospadias repair; however, few studies have included control groups and the issue is still controversial.

PURPOSE: To evaluate the effects of parenteral testosterone administration on the results of hypospadias repair in children with untreated hypospadias.

MATERIALS AND METHODS: A total of 182 children with midshaft or distal hypospadias and a mean age of 30 months (range 18-52 months) were enrolled in this study. Consecutive children were randomly allocated to the study group (testosterone administration) (Group 1, n = 91) or control group (Group 2, n = 91). Only children with a flat urethral plate were included in this study. The control group did not receive any pre-operative treatment. Children with a previous history of hypospadias repair and any proven endocrine disorder were excluded. The study children received 2 mg/kg testosterone enanthate monthly for two months before surgery. Tubularized incised plate (TIP) urethroplasty, with or without chordee correction, was performed for all children in both groups by the same urologist. Hypospadias repair was performed 4 weeks after the second dose of testosterone administration. Postoperative complications were recorded, including: urethrocutaneous fistulas, urethral diverticula, meatal stenosis, and glanular dehiscence. The mean stretched penile length and circumference were measured at baseline and at 1 month and 2 months post operation. All children were examined every month for any adverse affects to testosterone treatment, like pubic and axillary hair, and height acceleration, up to 3 months post operation.

RESULTS: An increase in penile length (from 28.1 ± 2.2 mm to 38.5 ± 2.6 mm) (P = 0.001) and penile circumference (from 35.1 ± 1.6 mm to 45.5 ± 2.2 mm) (P = 0.001) were noticed in all but four children in Group 1. The actual values for increase in penile length in the study group were, 22.0%, 35.0% and 36.0%, at postinjection months 1, 2 and 3, respectively (P = 0.01, P = 0.001 and P = 0.001, respectively) (Figure). The actual values for increase in penile circumference in the study group were, 16.0%, 27.0% and 29.0%, at postinjection months 1, 2 and 3, respectively (P=0.01, P=0.001 and P =0.001, respectively). The overall complication rates were significantly higher in Group 2 [12 children, 13.18%] compared to Group 1 (five children, 5.45%) (P=0.03). Urethrocutaneous fistula was the most common complication in both groups (four children [4.39%] in Group 1 and seven children [7.69%] in Group 2) (P=0.02), followed by meatal stenosis (one child [1.09%] in Group 1 and three children [3.29%] in Group 2) (P=0.03). All children in Group 1 developed pigmentation of the genitalia, and scant pubic hair appeared in 14 of them. These side effects disappeared by the 3 months postoperation follow-up visit.

DISCUSSION: Tubularized incised plate urethroplasty is a popular reconstructive method for hypospadias repair and is widely accepted by pediatric urologists. It is a reliable and simple technique with low complication rates. Testosterone administration before hypospadias repair decreases complication rates, reduces the need for reoperation and results in better cosmetic outcomes. Some studies have demonstrated temporary side effects like pubic hair growth and aggressive behavior, which gradually became normalized after treatment cessation. Nowadays, many pediatric urologists administer testosterone prior to hypospadias surgery; however, this can be variable.

CONCLUSION: Parenteral testosterone administration before hypospadias repair is beneficial in decreasing complication rates.