Aim: To investigate the efficacy of topical testosterone treatment on the microvessel density (MVD) of hypospadiac prepuce.

Materials and methods: The prepuces of 20 healthy children undergoing routine circumcision served as the control group, while the prepuces of 20 children undergoing hypospadias repair served as the hypospadias group. The hypospadias group was further divided into 2 equal subgroups (n = 10) as the hypospadias with or without testosterone treatment groups. The mental locations were coronal and subcoronal in all of the patients with hypospadias. The prepuces were stained by immunohistochemical methods using panendothelial cell antigen CD31 in order to assay their MVD. The statistical analysis among the groups was done using one-way analysis of variance.

Results: The MVD was significantly lower in the hypospadias without treatment group than in the control group (37.16 Å ± 18.20 vs. 58.75 Å ± 24.98; P = 0.037). Preoperative testosterone treatment increased the mean MVD to 51.92 Å ± 10.21 in the treatment group, but it was not statistically significant (P = 0.116).

Conclusion: Topical testosterone treatment prior to hypospadias surgery restores defective MVD in the prepuce, but this desired effect is unsatisfactory with a single application of a high dose of testosterone.

Key words: Hypospadias, testosterone, prepuce, microvessel density