



Letter to the Editor

Hypospadias surgery and translational medicine



Dear Editor,

I read the article "Do the materials matter? A review of the literature and analysis of the materials properties of urethral stents for hypospadias repair" published by Rowe et al. [1]. First, I would like to thank the authors for introducing a new perspective on the importance of urethral stent properties in hypospadias surgery. This study is a good example of "translational medicine" using biomedical engineering. There are also gaps between basic science and the clinical-surgical scientific studies. We have previously shown the details of the normal anatomy of the glanular urethra, including the fossa navicularis and the septum glandis [2]. One of our studies was another example of translational research in hypospadias surgery and demonstrated the importance of anatomical features of the male urethra from a biophysical point of view. We studied the flow dynamics of urine as a biological fluid and hypothesized that the fossa navicularis and the septum glandis play a role as a flow control valve [3].

In the authors' study, it is difficult to understand the conclusions from the comparison of the thermal and mechanical properties of the stents materials and the fistula rates in the reviewed literature comparing outcomes after hypospadias surgery. As a rule, prosthetic stents should be anatomical in order to be able to draw conclusions after their use in surgical treatments. All types of stents used in hypospadias surgery are designed to form a uniform tubularization of the neourethra. However, the male urethra is not a uniform tubular structure and the structural properties of the glanular urethra (fossa navicularis) has been overlooked in hypospadias surgery for decades [4,5]. I consider the uniform tubularization of the neourethra to be the greatest delusion in pediatric surgery and pediatric urology and the reason for almost all complications in

hypospadias surgery. It should be more appropriate to question and study the shape of a urethral stent as a prosthetic material than to analyze its thermal and mechanical properties in the results of hypospadias surgery. Designing a new type of stent can be another topic for translational research in hypospadias surgery and biomaterials engineering.

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