



The effect of platelet-rich plasma injection on post-internal urethrotomy stricture recurrence

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Dear Editor,

We read the article “ The effect of platelet-rich plasma injection on post-internal urethrotomy stricture recurrence ” with great interest. The authors report results from a randomized controlled trial that included 87 men to investigate the effect of submucosal platelet-rich plasma (PRP) injection at the site of internal urethrotomy [1]. The participants were divided into two groups according to the intervention performed: internal urethrotomy with submucosal autologous PRP injection ($n=44$) and internal urethrotomy with submucosal normal saline injection ($n=43$). The authors concluded that PRP injection at the site of internal urethrotomy reduced the rates of recurrence of novel strictures and this effect lasted for 2 years. We would like to draw attention to one issue in this study.

Although urethral stricture is one of the oldest known urological diseases, there is still no definitive treatment [2]. Currently, PRP is used in several medical branches ranging from orthopedics to dermatology; however, its use in urology is limited. Although many adjuvant anti-fibrotic substances including mitomycin c, triamcinolone, colchicine and captopril have been injected into the urethra to prevent the recurrence of urethral stricture, none of them are currently used for therapeutic purposes [2]. In addition, the use of some markers has been suggested to predict urethral stricture after transurethral surgeries [3]. In this paper, the authors demonstrated that PRP injection at the time of internal urethrotomy decreased the recurrence rates of novel strictures.

PRP contains many growth factors, some of which might be beneficial for tissue healing, while some of them may lead to fibrosis and inhibit optimal tissue healing. PRP has been demonstrated to induce the proliferation and migration of fibroblasts, which contributes to increased collagen deposition and tissue fibrosis [4]. Transforming growth factor $\beta 1$ (TGF- $\beta 1$)—one of the major growth factor in PRP—plays a major role in the development of fibrosis in several organs [5]. In a study, Sangkum et al. [6] demonstrated that TGF- $\beta 1$ injection was found to be significantly related to collagen type III expression, which generated a successful rat model of urethral fibrosis. Besides, TGF- $\beta 1$ can promote collagen synthesis and fibroblast proliferation. Recently, Li et al. [7] have examined the effect of neutralized TGF- $\beta 1$ action within PRP to reduce fibrosis in the skeletal muscle. They demonstrated that customized PRP with neutralized TGF- $\beta 1$ significantly reduced fibrosis and induced muscle regeneration.

Although the scientific background in support of the use of PRP to prevent recurrent urethral strictures is scarce and its healing mechanism is still unknown, the use of PRP with neutralized TGF- $\beta 1$ action might present greater results to prevent the rates of recurrent urethral strictures.

Authors' contribution Protocol/project development: GM, KN.; data collection or management: GM, AN.; data analysis: GM.; manuscript writing/editing: GM, AN.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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