

Treatment of urethral strictures with balloon dilation: A forgotten tale

Konstantinos Stamatiou¹, Georgios Christopoulos¹, Hippocrates Moschouris², Dimitrios Zavradinis¹, Michalis Kiltenis², Athanasios Marinis¹

¹ Urology Dpt, General Hospital "Tzanio", Piraeus, Greece;

² Radiology & Interventional Radiology Dpt, General Hospital "Tzanio", Piraeus, Greece.

DISCUSSION

The use of catheters with incorporated dilation balloon (Fogarty type) does not actually represent a widely used practice in urology. In the majority of the cases, they have been used in managing congenital strictures of the ureteropelvic junction. Relatively uncommonly, they have been used as an auxiliary medium for the removal of foreign bodies from the ureter or the prevention of calculi reflux during nephrolithotripsy (3, 4).

Recently, they were used in the diagnosis of ureteral strictures during laparoscopic pyeloplasty (5), as well as in the dilatation of a strictured anastomosis of ureter and neobladder⁶. Several reports of antegrade and retrograde balloon dilatation of the urethra exist in the literature while only few clinical studies of urethral strictures treated with balloon dilatation have been published up to date (7-12). Unfortunately, the majority of the studies done for balloon dilatation are anecdotal studies and lacks follow up (8).

According to the existing evidence, dilations are commonly performed in every day clinical practice however they show the highest recurrence rates while their outcomes are the less satisfying to the patients. On the other hand open urethroplasty shows the lowest recurrence rates and its outcomes are the most satisfying to the patients (2).

Although it is the current gold standard against which the traditional treatments are compared, this technique requires skills, expertise and equipment, often not available in the resource limited settings. For the above reasons, most patients with urethral stricture are offered optical internal urethrotomy (2). Despite its popularity, internal urethrotomy also shows high failure rates and can be challenging and frustrating for the surgeon.

In fact, potential problems like excessive bleeding, presence of blood clots, infection related lesions, excessive damage to urethra may reduce visibility increasing thus the operative time. Moreover it may not be suitable for long and post-inflammatory strictures (3). Finally (and most importantly) it requires anaesthesia (3).

Since balloon dilation is a minimally invasive technique that it doesn't require anaesthesia has a potential to offer an alternative to direct vision internal urethroplasty to elder and unfit for surgical treatment patients. Of note,

it dilates by radial application of forces against the stricture, avoiding the potentially shearing forces associated with sequential rigid dilation. Since it reduces the possibility of an iatrogenic urethral trauma, it reduces subsequent spongiofibrosis and potentially may lead into improved therapeutic outcomes. However, success rates vary and long term results are still generally low. Factors associated to unsuccessful outcome are not clearly investigated however they could be similar to that of the ureteral dilatation treatment failure: age of strictures, length of stricture and aetiology. According to the existing literature, the best response to balloon dilatation occurs in those cases with a short interval between the injury or lesion and the dilatation (preferably < 3-6 months). Similarly, in strictures > 2 cm there is less fibrosis and therefore less resistance to dilatation.

Of note, conditions associated with tissue devitalisation and ischaemia have been recognized as the most important adverse factors affecting response to dilatation (8).

On the other hand, being reproducible, non-invasive and safe (given the low complication rate), balloon dilatation may be offered to elder and unfit for surgical treatment patients multiple times. Alternatively, subsequent to initial dilation, the management of these patients may include intermittent placement of a urethral catheter to maintain patency.

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