

**Research Article****Outcome of Management of Complex Posterior Urethral Disruption by  
Abdomino-Perineal Urethroplasty, OMH, Sudan**Ahmed A.M<sup>1</sup>, Nasr R.A<sup>2</sup>, Aamir H.A.<sup>3</sup>, Nyagan H.K. Sakit<sup>4</sup><sup>1</sup>Senior Registrar General Surgery (SMSB).<sup>2</sup>Urologist, Omdurman Military Hospital.<sup>3</sup>Professor of surgery, University of Bahri.<sup>4</sup>General Surgeon, University of Joba.**\*Corresponding author**

Ahmed A.M

Email: [abualrogal@gmail.com](mailto:abualrogal@gmail.com)

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**Abstract:** We present our short-term result of abdomino-perinealurethroplasty(APU) for complex posterior urethral disruption. This is a retro-prospective study conducted at Omdurman Military Hospital during the period from Jan. 2012 to Feb. 2015. It includes all male patients underwent (APU). Follow up consisted of clinical and radiological assessment. The mean age of the patients was  $35.4 \pm 16.7$  years. Pelvic fractures were seen in 20(44.4%). Twenty five(55.5%) of patients had underwent at least 1 prior procedure for stricture management,13(28.9%) patients had underwent previous perinealurethroplasty. In 11(24.4%) of our patients, the disease recurred and open surgical revision was required in 5(11.1%), and the other 6(13.3%) were managed by visual internal urethrotomy. In none of the other patients was a secondary procedure required. Thus, the primary success rate was 75.6% and the overall success rate was 88.9%. Incontinence was seen in 6 out of 45 patients (13.3%) of which 2 improved within 6 months of surgery with perineal exercises and the other 4(8.9%) remained incontinent. Abdomino-perinealurethroplasty is a safe procedure in traumatic complex posterior urethral disruption in children and adults. It allows wide exposure to create tension-free urethral anastomosis without significantly affecting urine stream or continence.**Keywords:** Stricture, urethroplasty, Urethra , Pelvic fracture , Urethrogram

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**INTRODUCTION**

The management of traumatic posterior urethral strictures remains one of the most difficult tasks in urologic practice [1].Management of urethral injuries remains controversial due to the variety of injury patterns, associated injuries and treatment options. In addition, most urologists have little experience with these injuries and there is a lack of randomized controlled trials [2].

**PATIENTS AND METHODS**

This is cross sectional, observational, a retro-prospective study, include male patients underwent abdomino-perinealurethroplasty for complex posterior urethral disruption in the period between Jan. 2012 - Feb.2015. Follow up consisted of clinical and radiological assessment.

**RESULTS**

A total of 45 male patients were included, the mean age of the patients was  $35.4 \pm 16.7$  years. The 20-29 year-age group was the most affected accounting for 16(35.6%). The causes of posterior urethral injury

included RTA 19(42.2%), gunshots 12 (26.7%), iatrogenic, as a complication of urethral catheterization 9 (20%), post prostatectomy 3 (6.7%) and post infection 2 (4.4%).Pelvic fracture was seen in 20(44.4%). The classical presentation in most of the patients was blood at the meatus and inability to void 35(77.8%). The stricture length was assessed by retrograde urethrocystogram, the long stricture being the most common in our series 20 (44.4%), short stricture11(24.4%) and complete obstruction 14(31.1%).25(55.5%) of the patients had underwent at least 1 prior procedure for stricture,13(28.9%) of the patients had underwent previous perinealurethroplasty. In 11(24.4%) of our patients, the disease recurred and open surgical revision was required in 5(11.1%), and the other 6(13.3%) were managed by visual internal urethrotomy. In none of the other patients was a secondary procedure required. Thus, the primary success rate was 75.6% and the overall success rate was 88.9%. Incontinence was seen in 6 out of 45 patients (13.3%) of which 2 improved within 6 months of surgery with perineal exercises and the other 4(8.9%) remained incontinent till follow-up.

**Table1: Age and mechanism of injury injury in the study population (n=45)**

Age	Mechanism of injury					Total
	RTA	Gun Shut	Iatrogenic	Post Infection	Post TVP	
<20 years	4	0	0	0	0	4
20 - 29 years	8	7	1	0	0	16
30 - 39 years	5	3	1	1	0	10
40 - 50 years	2	2	2	0	0	6
>50 years	0	0	5	1	3	9
Total	19	12	9	2	3	45

## DISCUSSION

Strictures of the posterior urethra represent a real surgical challenge, the problems involved in repairing these strictures are not only due to the inaccessible location behind the pubic bone, but more importantly because urosexual problems may result from inappropriate management [3]. In this study the ages most affected were between 20-29 years 16patients, the injury resulting from road traffic accidents in 8 patients and gunshot wounds in 7. Worldwide trauma is currently the sixth leading cause of death, accounting for 10% of mortalities; trauma has a predilection for young adults[4]. Historically, GU injury constituted a small portion of battlefield injuries, ranging from 0.7% to 8%, most of these wounds resulted from bullet injury. Now, projectile fragments from mortar shells, aerial bombs, rockets, and improvised explosive devices account for most modern battlefield urologic injuries [4]. The older age group aged more than 50yrs mostly sustained their strictures from iatrogenic injuries 5, post TVP 3 and post infection one patient. This age group is more susceptible to iatrogenic injuries following management of benign conditions of the bladder and prostate. Prostatectomy for benign disease, either transurethral (TURP) or open prostatectomy is nowadays a safe surgical procedure. One of the most common late complications of both procedures is the development of scar tissue within the urethra lumen. The most frequent site of stricture formation after prostatectomy is bulbar urethra. The exact incidence of strictures of the prostatic urethra after transurethral resection of the prostate or open simple prostatectomy for BPH is not clear, although it has been reported to range from 0.6% to 14% [5]. For management of these patients Some authors advocated complex abdomino-perineal approaches to perform urethroplasty and AUS implantation in one or two stages, whereas others performed a one- or two-stage prostatic stent and AUS implantation [5, 6]. In a study by Urology Department, Polycliniki Hospital, Athens, Greece, to evaluate the effectiveness of abdomino-perineal repair in treating complex and recurrent bladder neck prostatic urethra contractures after prostatectomy. The procedure included abdomino-perineal excision of the scared bladder neck-prostatic urethra and end-to-end anastomosis of the healthy bladder base tissue to the healthy urethra. They concluded that abdomino-perineal repair is an effective

surgical procedure for the management of recurrent and complex bladder neck-prostatic urethra contractures, although it is time consuming and requires in the majority of cases combined techniques in order to achieve optimal results. In their experience, the excision of bladderneck-prostatic urethra scar tissue is accomplished distally from the perineal route and proximally from the abdominal(retropubic) approach. So a tension-free anastomosis is achieved by distal mobilization of the bladder base from above and proximal advancement of membranous urethra through the perineal wound to meet the mobilized and reconstructed bladder base. All the patients had concurrent sphincter deficiency and received insertion of an artificial urinary sphincter, which was accomplished through the perineal approach. In addition, clam ileocystoplasty was performed simultaneously in 3 patients for intractable detrusor instability. In this study the sample size was very small three patients and results cannot be compared accurately with the above study but we agree that abdomino-perineal repair is the most adequate surgery for management of these cases although more cases are needed to further compare results. In this study one patient had a successful procedure with uneventful follow up; the second had a patent urethra on ascending urethrogram but developed permanent incontinence and awaits further management. That last patient developed obstruction early following surgery and was considered a failure treated with a second open repair. The majority of injuries in this study resulted from trauma(RTA and gunshot wounds) they were associated with pelvic fractures in 20(44%) of patients. Posterior urethral strictures are almost always post- traumatic, usually as a complication of a pelvic fracture [3]. While the majority of urethral injuries are associated with pelvic fractures, they occur in only about 5-10% of patients with pelvic fractures [7, 8], distraction-type urethral injury accompanies 10% of pelvic fractures after blunt trauma. In males the most vulnerable site is at the prostatomembranous junction, while in children they extend from the bulb into the distal prostatic urethra; however, in adults the well-developed prostate preserves the prostatic urethra during most injuries [8]. In this study we found that in young males, less than 20years the mean age was 12.5 all posterior urethral injuries resulting from RTA; initially managed by suprapubiccystostomy followed by abdomino-perineal

repair. All had a normal postoperative ascending urethrogram and no postoperative complications. Similar results were found in a study by Podestathe stricture-free rate of one-stage anastomotic repair with perineal and perineal-transpubic access was 84 and 100%, respectively [7]. The severity of injury in children is responsible for the need for this type of approach, it is agreed that urethral stenosis or obliteration in children most commonly results from pelvic fracture, straddle injuries or urethral manipulation, and urethral obliteration is almost inevitable in the presence of a urethral injury associated with pelvic fracture. In adults pelvic fracture urethral distraction injury usually involves the membranous urethra at some point between the apical prostatic and bulbous urethra, and perineal anastomotic repair represents the ideal treatment. However, in children the level of the traumatic posterior urethral distraction defect is less predictable. Boone et al noted that 3 distinct types of urethral injury (supraprostatic, transprostatic and prostatomembranous) are present in this population [7, 9]. Moreover, because of a small prostate violent pelvic injuries in childhood may be responsible for complete rupture of the membranous urethra as well as urethral disruption at the bladder neck. In addition, Glassberg *et al.*, described in children extension of the urethral disruption injury at the prostatomembranous junction into the proximal bulbar urethra, consequently the management of traumatic posterior urethral obliteration in childhood differs from that in adulthood and it requires special consideration of all factors associated with the injury for appropriate management of each case [7, 10]. In our case adequate mobilization and tension free anastomosis was achieved through the abdomino-perineal approach without the need for partial pubectomy. And we agree on the need for initial perineal exposure followed by change to a combined approach when it becomes apparent that additional exposure is needed. In a study by Koraitim on 27 year experience in anastomotic posterior urethroplasty he reported results that indicated success rates after anastomotic posterior urethroplasty range between 90% and 98%, which are in line with those of other studies demonstrating success rates of 96% and 97%. In his study he adopted a rather strict criteria for success versus failure. The results were classified as successful when the patient voided as before original trauma and the urethrogram showed a wide caliber urethra at the site of repair. The need for periodic dilation or optical urethrotomy was considered treatment failure. These high success rates were achieved whether the approach for urethral anastomosis was perineal, elaborated perineal or abdomino-perineal [3]. In this study the criteria were different, and the procedure was classified as a failure after one year of failed management including dilatation and VIU. The primary success rate was 75.6% and the overall success rate was 88.9%, which is less than other reported

studies, these results may be due to our shorter experience with the procedure and smaller sample size.

## CONCLUSION

Abdomino-perinealurethroplasty is a safe procedure in traumatic complex posterior urethral disruption in children and adults. It allows wide exposure to create tension-free urethral anastomosis without significantly affecting urine stream or continence.

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