Results

In this study, 35 Memokath stent were used for 35 patients. Patients were categorized into two groups:

Group 1: **Included 27 patients with acute urinary retention due to BPH and were considered to be at high risk for surgical intervention.**

***Group II*:** **Included 8 patients with Recurrent Urethral stricture disease (7 bulbar and 1 penile stricture).**

Group 1: (BPH).

Baseline patient data:

All patients presented with acute urinary retention. Their ages ranged from 75-90 year (80.50±3.34). Prostate size ranged from 35-120 cc (68±3.5). Prostatic urethral lengh (measured by transrectal ultrasonography) ranged from 25-50 mm(33.7±7.29).

Parameter / Frequency	Age (yr)	Prostatic size (cc)	Prostatic urethral length (mm)
Mean	**80.50**	**68**	**33.7**
SD±	**3.34**	**23.50**	**7.29**
Minimum	**75**	**35**	**25**
Maximum	**90**	**120**	**50**

Table (7): Demographic distribution of the preoperative parameters as regard Age, prostatic size and prostatic urethral length.

Figure(58): Age, Prostate size and Prostatic urethral length.

Further assessment of these patients revealed associated co-morbidity rendering them unfit for surgery in the form of IHD or COPD or IHD/COPD.

Patients presented with refractory AUR had undergone urethral catheterization to relieve the retention and to measure the residual urine.

QoL and IPSS were assessed.

Parameter / frequency	IPSS	QoL	Residual urine volume (ml).
mean	**26.33**	**5.29**	**548.88**
SD±	**2.49**	**0.77**	**54.23**
minimum	**23**	**4**	**450**
maximum	**30**	**6**	**680**

Table (8): Demographic distribution of the preoperative parameters as regard the IPSS, QoL and Residual urine volume (RU).

The IPSS ranged from 23-30 (26.33±2.49), the QoL from 4-6(5.29±0.77), the residual urine volume from 450 to 680 (548.88±54.23). (*table 8).*

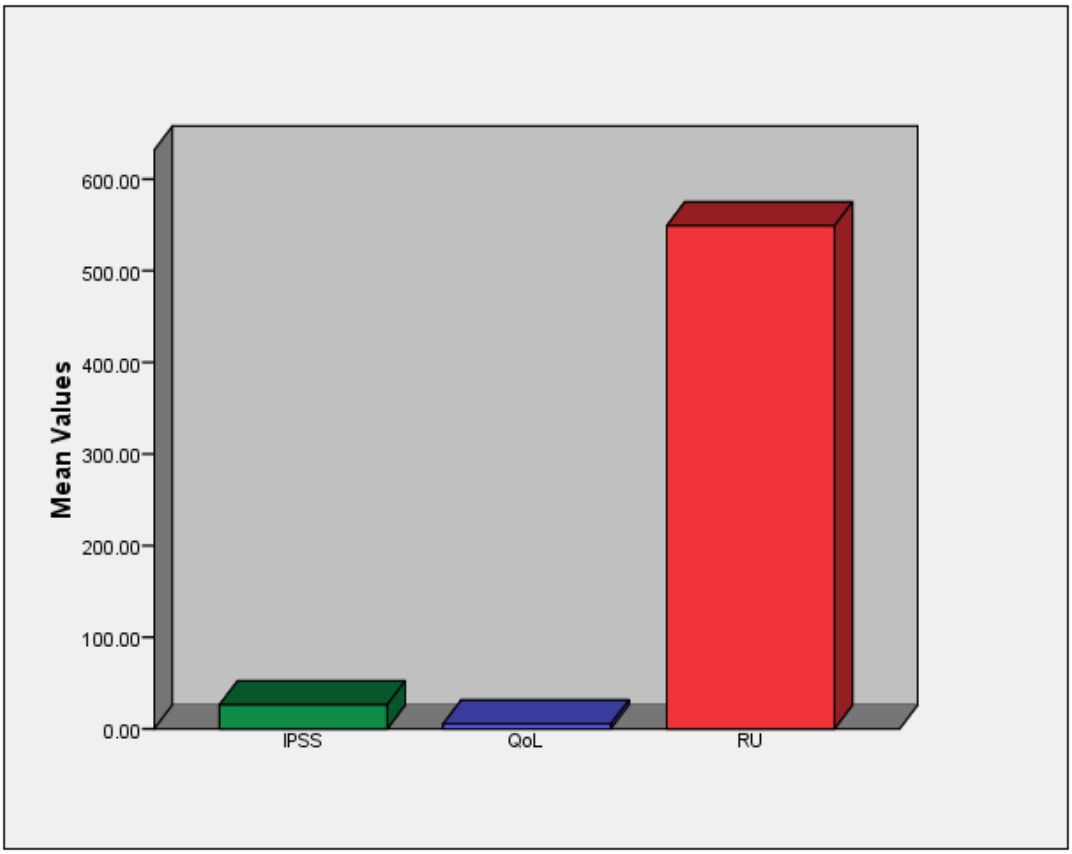


Figure (59): The preoperative IPSS,QoL and RU.

The technique:

All patients were treated as day case and all stents were inserted successfully under local urethral anaesthesia and saddle block with mild sedation in some irritable patients.

We used the standard technique in 21 patients (85.18 %) and our modified technique using the URS in 6 patients (14.81 %). The operative time ranged from 20-40 min (27.4±5.77). The stent length ranged from 5-7 cm (5.5±0.69).

Intraoperative complications	No (27)	%
Migration into the bladder	**2**	**7.4**
Migration into the anterior urethra	**3**	**11.1**
Bleeding per urethra	**1**	**3.7**

Table (9): The intraoperative complications.

There was minimal intraoperative difficulties in the form of migration into the anterior urethra in 11.1%, migration into the bladder in 7.4% and bleeding per urethral in 3.7% of cases.*(table 9).*

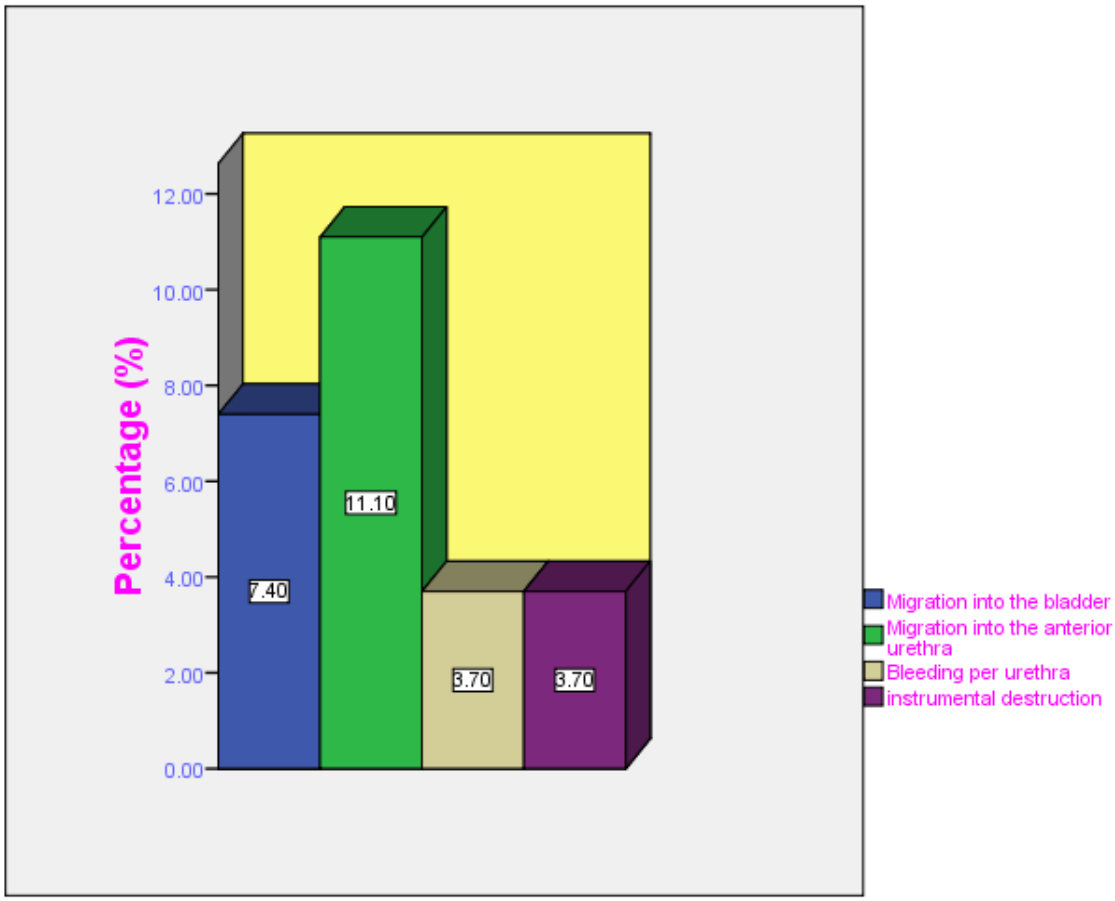


Figure (60): The intraoperative complications.

Regarding the intraoperative complications, there was 7.4% migration into the bladder and 11.10% migration into the anterior urethra and 3.7% bleeding per urethra.

All patients were followed up from 6-12 months (8.29±1.72) with Qmax, QoL, IPSS and PVR at 2 weeks, 1 month, 3 months and 6 months postoperatively.

With comparison to the data obtained preoperatively regarding these parameters, revealed the following:

The Follow up:

	preoperative	2 weeks postoperative	paired (t)est	p value
Qmax (ml/s)	0.0±0.0	11.37±2.96	19.93	< 0.05
QoL	5.29±0.77	2.18±0.86	15.96	< 0.05
PVR (ml)	548.88±54.23	31.29±14.25	53.63	< 0.05
IPSS	26.33±2.49	12.92±1.97	34.74	< 0.05

Table (10): Demographic distribution of the the Mean, ±SD, paired (t)est and p values of the Qmax, QoL, PVR and IPSS in the preoperative versus 2weeks of insertion postoperative.

	preoperative	1 month postoperative	paired (t)est	p value
Qmax (ml/s)	0.0±0.0	12±3.18	19.65	< 0.05
QoL	5.29±0.77	1.44±0.46	21.09	< 0.05
PVR (ml)	548.88±54.23	27.03±12.18	51.63	< 0.05
IPSS	26.33±2.49	11.29±2.35	36.83	< 0.05

Table (11): Demographic distribution of the the Mean, ±SD, paired (t)test and p values of the Qmax, QoL, PVR and IPSS in the preoperative versus 1month postoperative.

	preoperative	3 months postoperative	paired (t)est	p value
Qmax (ml/s)	**0.0±0.0**	**12±2.93**	**21.24**	**< 0.05**
QoL	**5.29±0.77**	**1.44±0.80**	**18.21**	**< 0.05**
PVR (ml)	**548.88±54.23**	**27.96±13.60**	**52.69**	**< 0.05**
IPSS	**26.33±2.49**	**11.29±2.53**	**29.95**	**< 0.05**

Table (12): Demographic distribution of the the Mean, ±SD, paired (t)test and p values of the Qmax, QoL, PVR and IPSS in the preoperative versus 3months postoperative.

	preoperative	6 months postoperative	paired(t)est	p value
Qmax (ml/s)	**0.0±0.0**	**11.81±2.78**	**22.02**	**< 0.05**
QoL	**5.29±0.77**	**1.44±0.50**	**23.16**	**< 0.05**
PVR (ml)	**548.88±54.23**	**28.7±14.71**	**51.51**	**< 0.05**
IPSS	**26.33±2.49**	**11.14±1.81**	**41.04**	**< 0.05**

Table (13): Demographic distribution of the Mean, ±SD, paired (t)test and p values of the Qmax, QoL, PVR and IPSS in the preoperative versus 6months postoperative.

The p values revealed significant improvement all parameters (QoL, PVR, IPSS) between the preoperative and postoperative at all follow up visits. *(tables 10,11,12,13).*

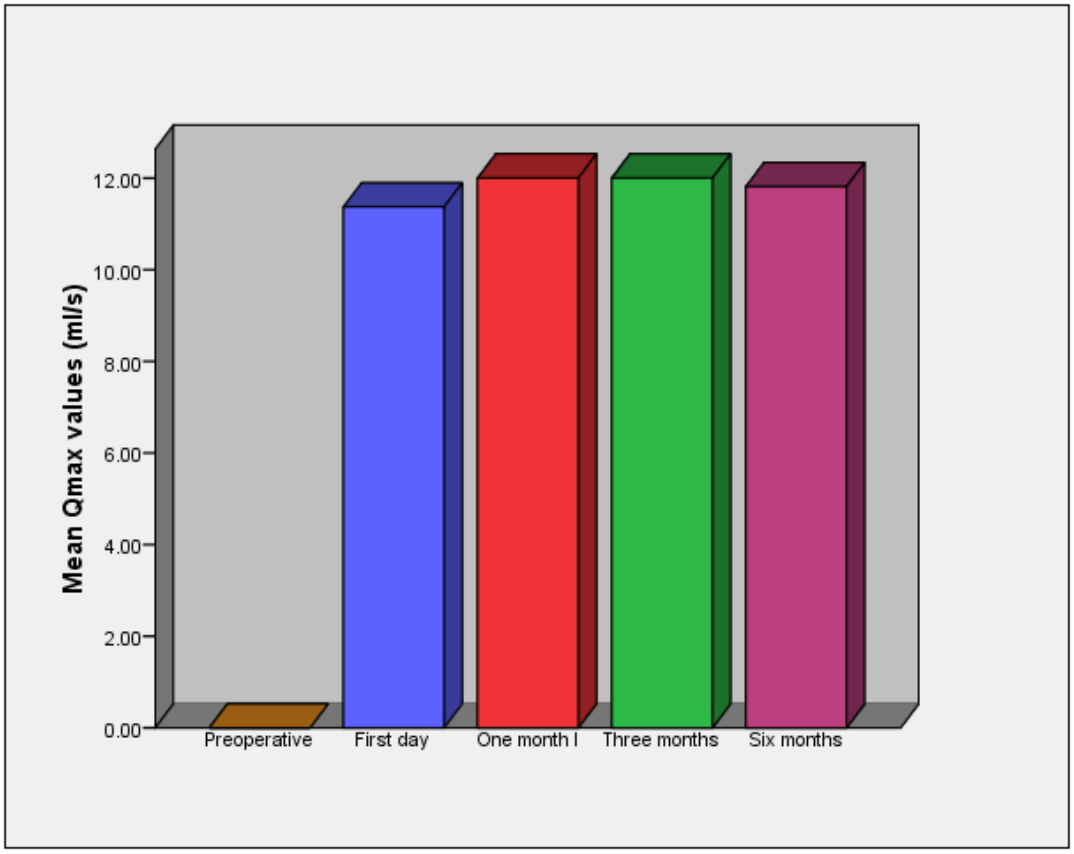


Figure (62): Mean QoL.preop., 2weeks , 1m, 3m and 6m postop.

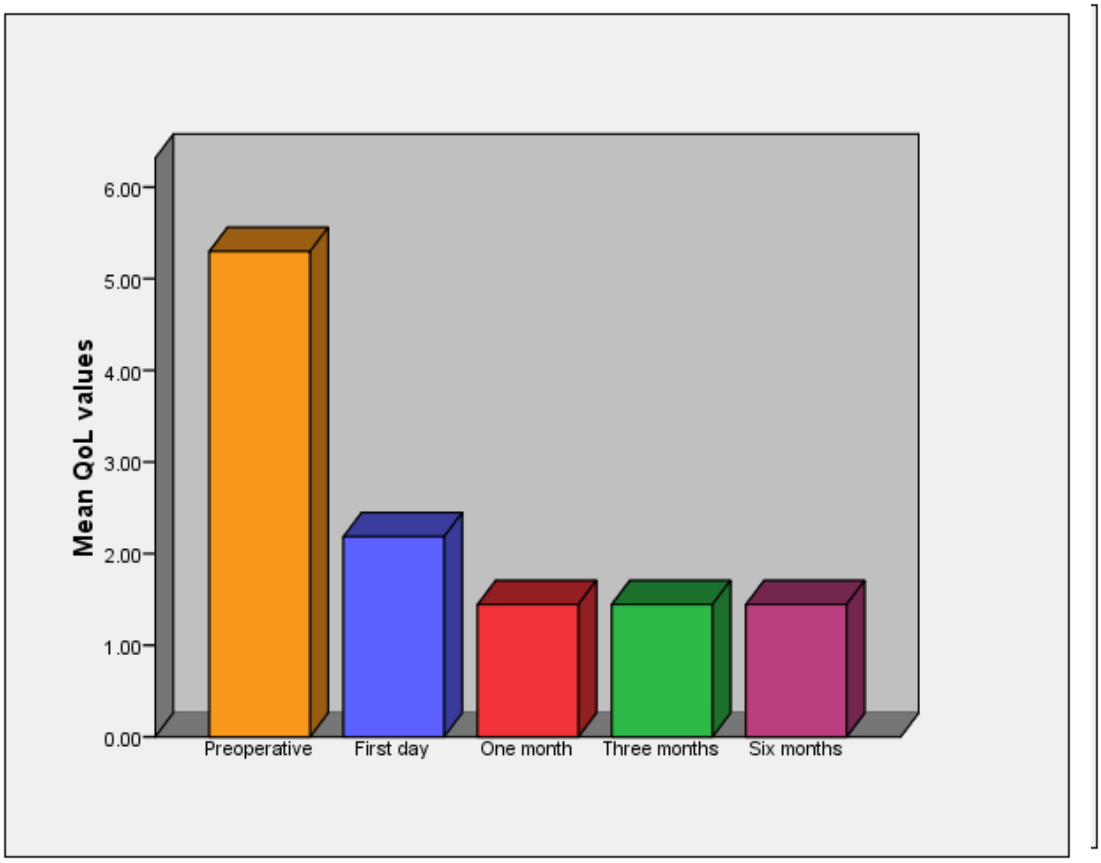


Figure (63): Mean IPSS preop., 2weeks, 1m, 3m and 6m postop.

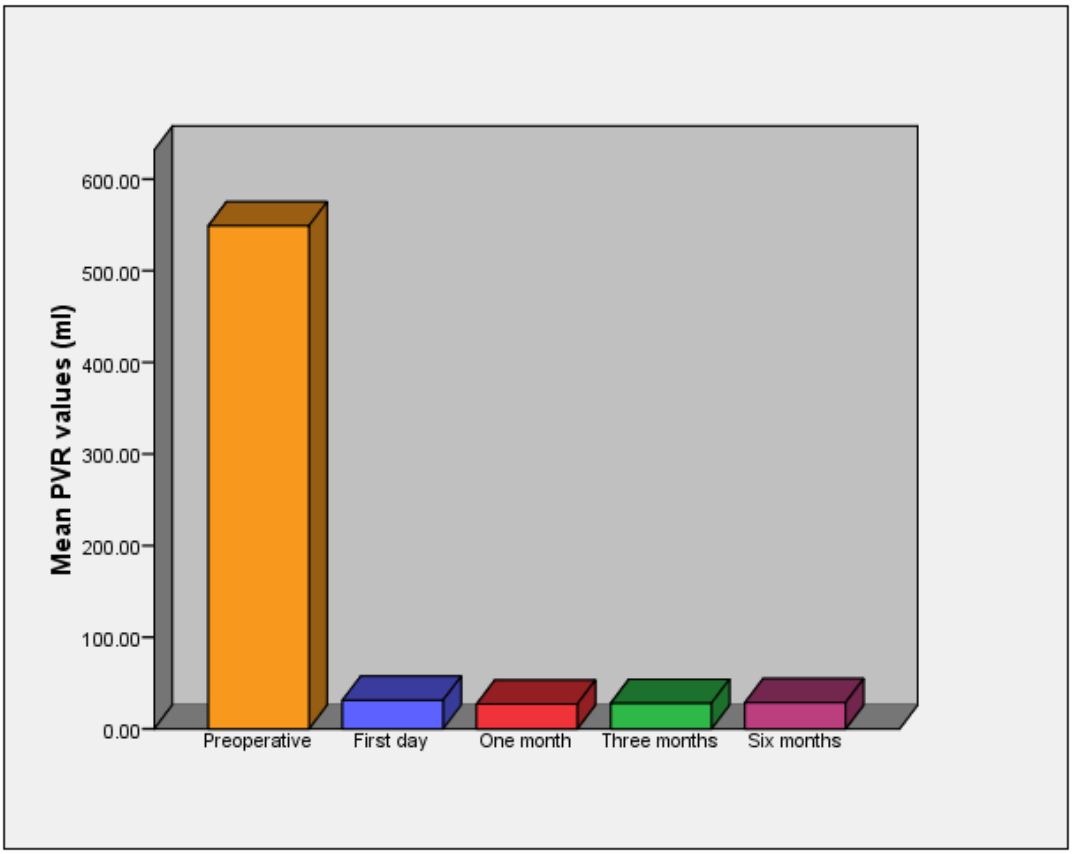


Figure (64): Mean PVR preop., 2weeks, 1m, 3m and 6m post

	Preop.	postoperative			
		2 weeks	1 month	3 months	6 months
Qmax	0.0±0.0 < 0.05	11.37±2.96 < 0.05	12±3.18 < 0.05	12±2.93 < 0.05	11.81±2.78 < 0.05
QoL	5.29±0.77 < 0.05	2.18±0.86 < 0.05	1.44±0.46 < 0.05	1.44±0.80 < 0.05	1.44±0.50 < 0.05
PVR	548.8±54.23 < 0.05	31.29±14.25 < 0.05	27.03±12.18 < 0.05	27.96±13.60 < 0.05	28.7±14.71 < 0.05
IPSS	26.33±2.49 < 0.05	12.92±1.97 < 0.05	11.29±2.35 < 0.05	11.29±2.53 < 0.05	11.14±1.81 < 0.05

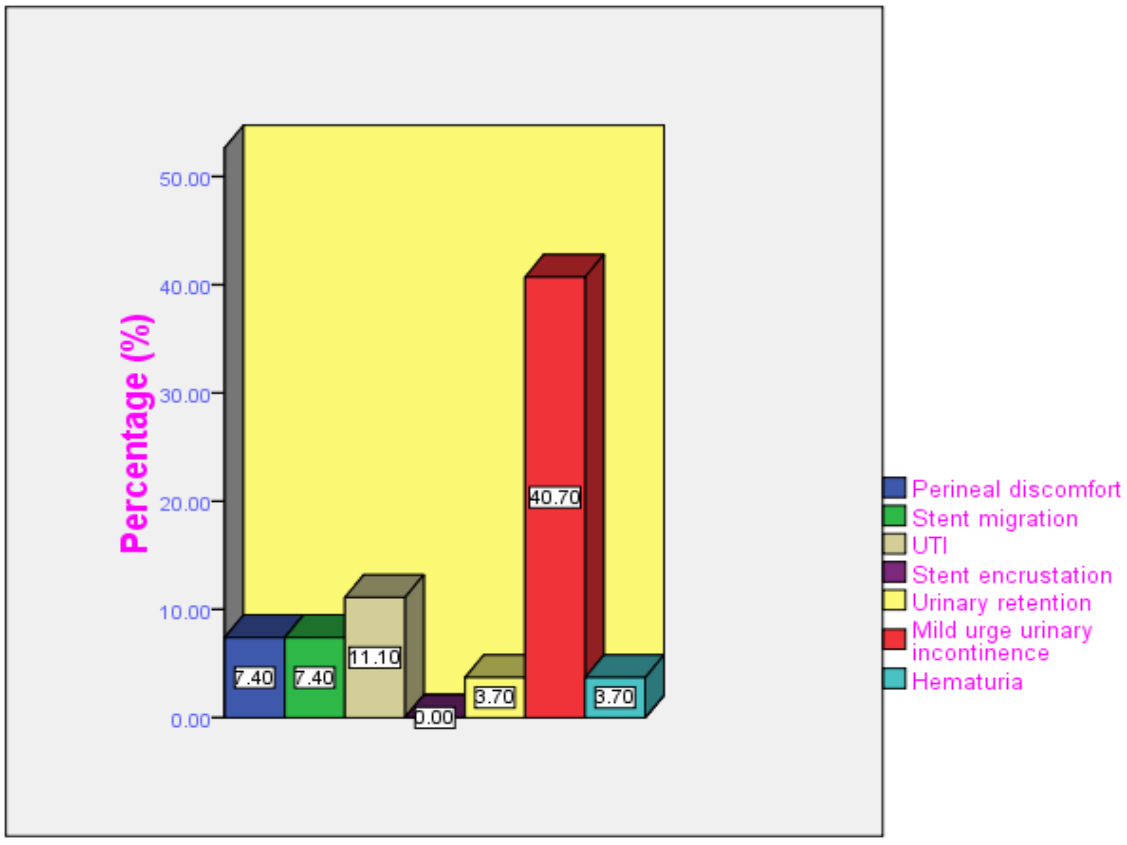
Table (14): Demographic distribution of the mean, SD± and p values of the Qmax, QoL, PVR and IPSS preoperatively and the day of insertion, 1m, 3m, 6m postoperatively.

P: the propability versus preoperative.

Post. Op.Complication	NO (27)	%
Perineal discomfort	2	7.4
Stent migration	2	7.4
UTI	3	11.1
Stent encrustation	0	0
Urinary retention	1	3.7
Mild urge urinary incontinence	11	40.7
Hematuria	1	3.7

Table (15): The postoperative complications.

There was minimal postoperative complications in the form of mild urge urinary incontinence in 40.7%, UTI in 11.1%, perineal discomfort and stent migration in 7.4%, urinary retention and hematuria in 3.7% of cases.*(table 15).*



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Regarding the mild urge urinary incontinence as it was the most significant one into all of the postoperative complications, the follow-up of it with long term anticholinergic intake revealed the following: (table 16).

	2wk	1m	3m	6m	Chi-square test	p value
+ve	11	4	0.00	o.oo	25.006	<0.05
-ve	16	23	27	27		

Table (16) The demographic distribution of the postoperative parameters as regard the mild urge urinary incontinence as the most significant one of the postoperative complications at 2 weeks, 1 month, 3 months and 6 months postoperatively.

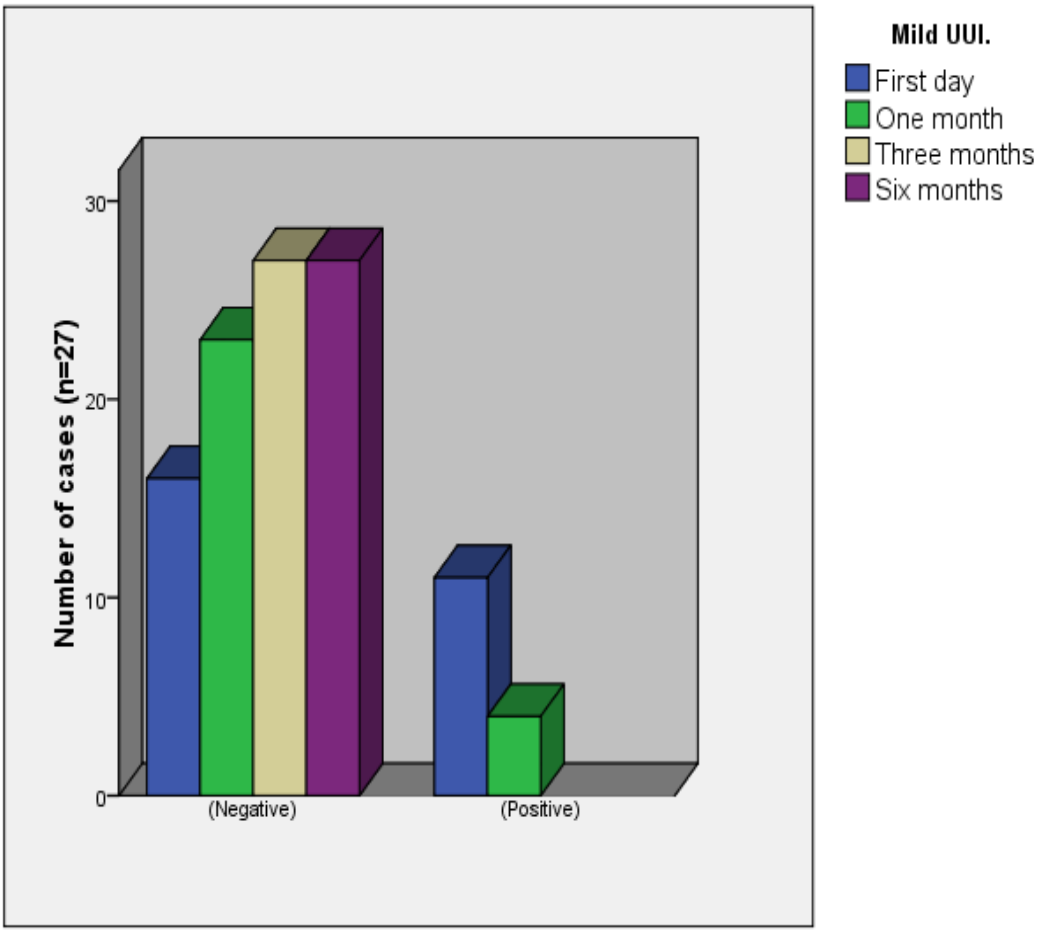

Figure (66): The follow up of mild urge urinary incontinence.

Group II: (Urethral stricture).

patients:

Eight patients were presented with symptoms of bladder outlet obstruction due to recurrent urethral stricture.

Baseline patient data

Ages ranged from 45-80 (62.5±24.74).

Previous operative intervention				
	VIU		Dilatation	
Frequency	**NO (8)**	**%**	**NO (8)**	**%**
None	**4**	**50**	**5**	**62.5**
Once	**2**	**25**	**1**	**12.5**
Twice	**2**	**25**	**1**	**12.5**
Triple	**0**	**0**	**1**	**12.5**

Table (17): Demographic distribution of the preoperative parameters as regard the previous operative intervention (Dilatation, VIU).

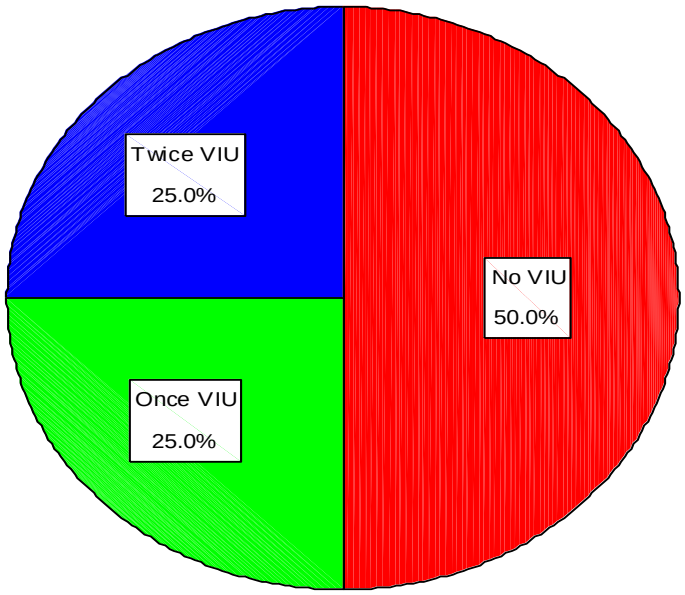

Figure (67): The previous visual internal urethrotomy.

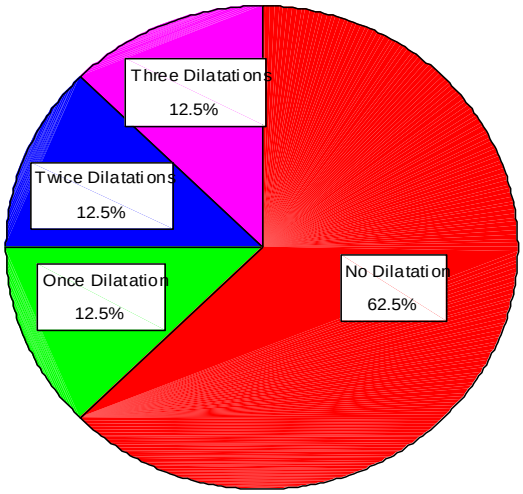

Figure (68). The previous dilatations.

	NO (8)	%
Iatrogenic	**2**	**25**
Idiopathic	**3**	**37.5**
Infective	**1**	**12.5**
Ttraumatic	**2**	**25**

Table (18): Demographic distribution of the preoperative parameters as regard the Aetiology of the urethral stricture.

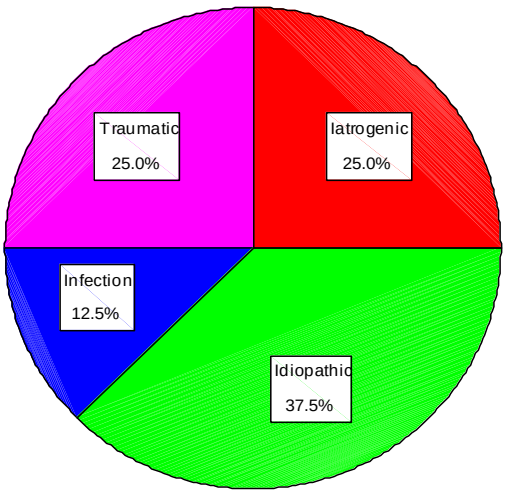

Figure (69): The aetiology of the stricture.

	NO (8)	%
Penile	**1**	**12.5**
bulbar	**7**	**87.5**

Table (19): Demographic distribution of the preoperative parameters as regard the site of the stricture.

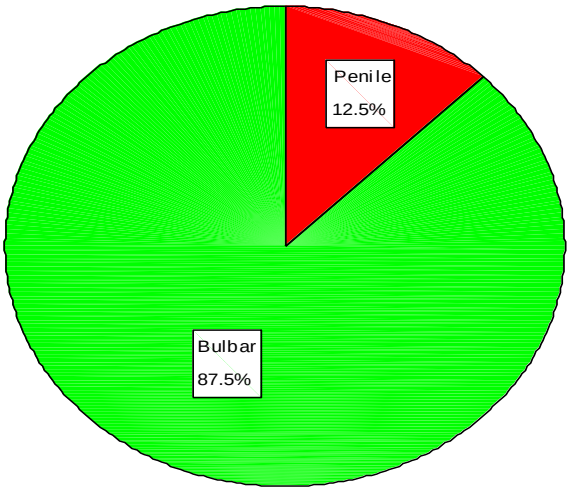

Figure (70): The site of the stricture.

The length of the stricture, measured during insertion, ranged from 2-5 cm (3.31±0.99).

The patient was assessed preoperatively with the Qmax, QoL and PVR as follow:

Parameters / **Frequency**	**Qmax (ml/s)**	**QoL**	**PVR (ml)**
Mean	**4.87**	**5.12**	**80.71**
Sd±	**2.41**	**0.64**	**10.96**
Minimum	**0.0**	**4**	**70**
Maximum	**8**	**6**	**100**

Table (20) The demographic distribution of the preoperative parameters as regard the Qmax, QoL and PVR.

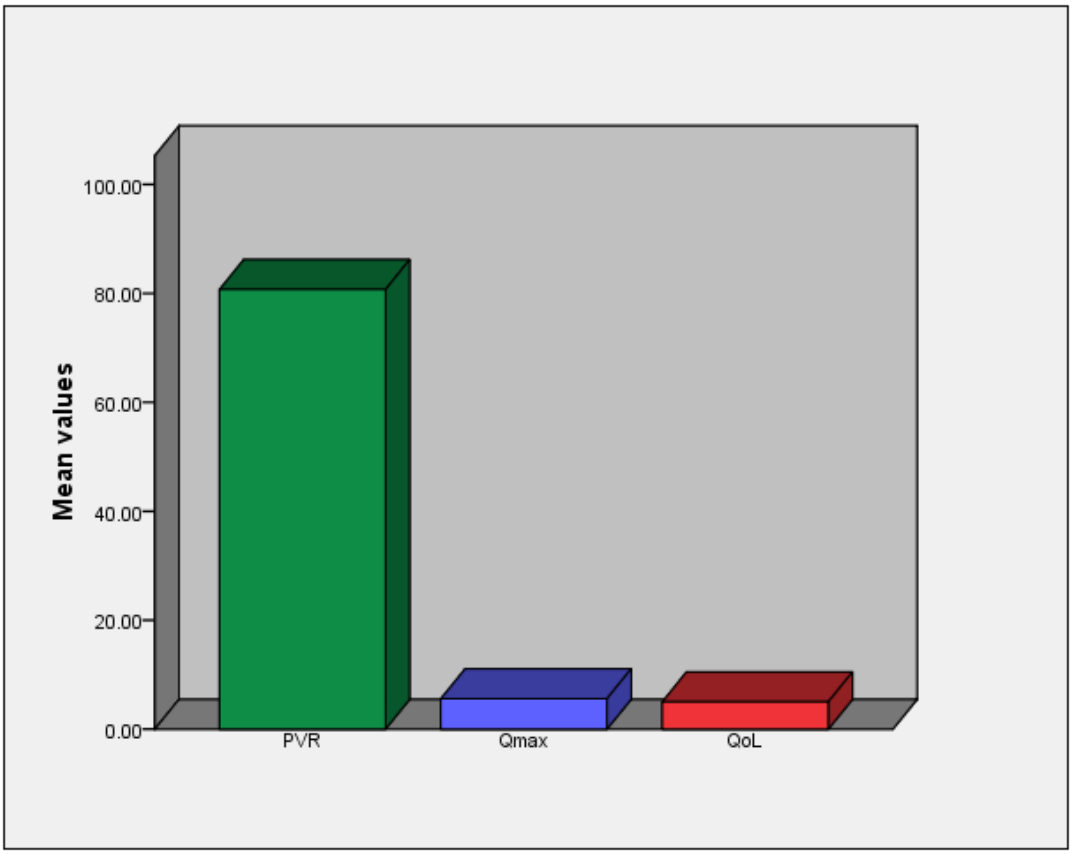

Figure (71): The preoperative values of Qmax, QoL and PVR.

The technique

Before memokath insertion, the strictures were treated by dilatation in 5 of 8patients (62.5 %) and by VIU in 3 of 8 patients (37.5 %).

All the stents were inserted successfully as a day case intervention. The operative time ranged from 20-40 mim (30±6.45) with no obvious intraoperative complications

Table (21): Demographic distribution of the intraoperative parameters as regard the operative time.

Parameter / Frequency	The operative time (min)
Mean	**30**
Sd±	**6.45**
Minimum	**20**
Maximum	**40**

The follow up:

All patients were followed up from 3-9 months (6.37±1.84) with Qmax, QoL and PVR at 2 weeks, 1 month, 3 months and 6 months postoperatively.

With comparison to the data obtained preoperatively regarding these parameters, revealed the following:

	preoperative	2 weeks postoperative	paired(t)test	P value
Qmax (ml/s)	**4.87±2.41**	**19.5±3.25**	**13.91**	**< 0.05**
QoL	**5.12±0.64**	**1.25±0.46**	**17.10**	**< 0.05**
PVR (ml)	**80.71±10.96**	**18.57±13.75**	**8.5**	**< 0.05**

Table (22): Demographic distribution of the Mean, ±SD, paired (t)test and p values of the Qmax, QoL, PVR in the preoperative versus 2 weeks postoperative

	preoperative	1 month postoperative	paired(t)test	p value
Qmax (ml/s)	**4.87±2.41**	**21±2**	**24.19**	**< 0.05**
QoL	**5.12±0.64**	**1.25±0.64**	**13.13**	**< 0.05**
PVR (ml)	**80.71±10.96**	**19.28±14.26**	**7.75**	**< 0.05**

Table (23) The demographic distribution of the Mean, ±SD, paired (t)test and p values of the Qmax, QoL, PVR in the preoperative versus 1 month postoperatively.

	preoperative	3 months postoperative	paired(t)test	p value
Qmax (ml/s)	**4.87±2.41**	**20.5±0.92**	**20.09**	**< 0.05**
QoL	**5.12±0.64**	**1.37±0.51**	**11.96**	**< 0.05**
PVR (ml)	**80.71±10.96**	**16.42±7.48**	**14.53**	**< 0.05**

Table (24) The demographic distribution of the Mean, ±SD, paired (t)test and p values of the Qmax, QoL, PVR in the preoperative versus 3 months postoperatively.

	preoperative	6 months postoperative	paired(t)test	pvalue
Qmax (ml/s)	**4.87±2.41**	**19.5±1.41**	**18.27**	**< 0.05**
QoL	**5.14±0.69**	**1.14±0.37**	**12.69**	**< 0.05**
PVR (ml)	**80.83±12**	**15±8.94**	**12.21**	**< 0.05**

Table (25) The demographic distribution of the Mean, ±SD, paired (t)test and p values of the Qmax, QoL, PVR in the preoperative versus 6 months postoperatively.

The p values revealed significant improvement all parameters (Qmax, QoL, PVR,) between the preoperative and postoperative at all follow up visits. *(tables 22,23,24)).*

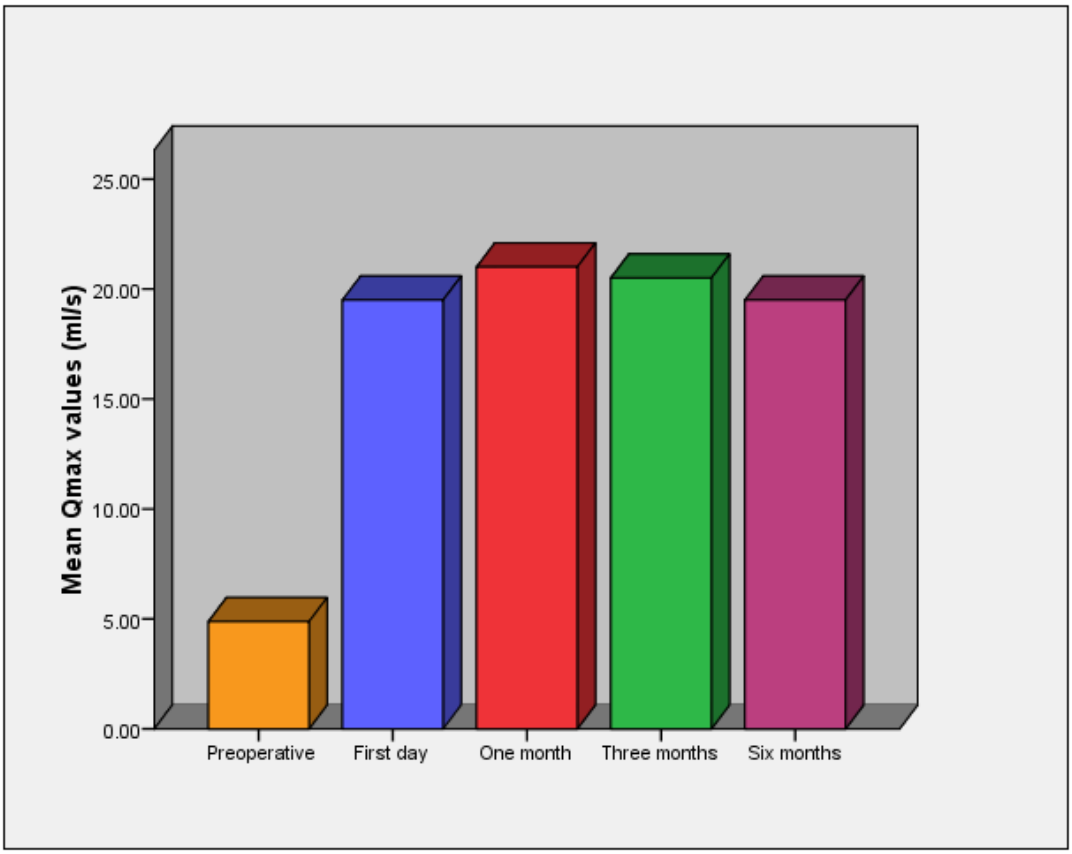

Figure (72): Mean Qmax preop., 2 weeks, 1m, 3m and 6m postop.

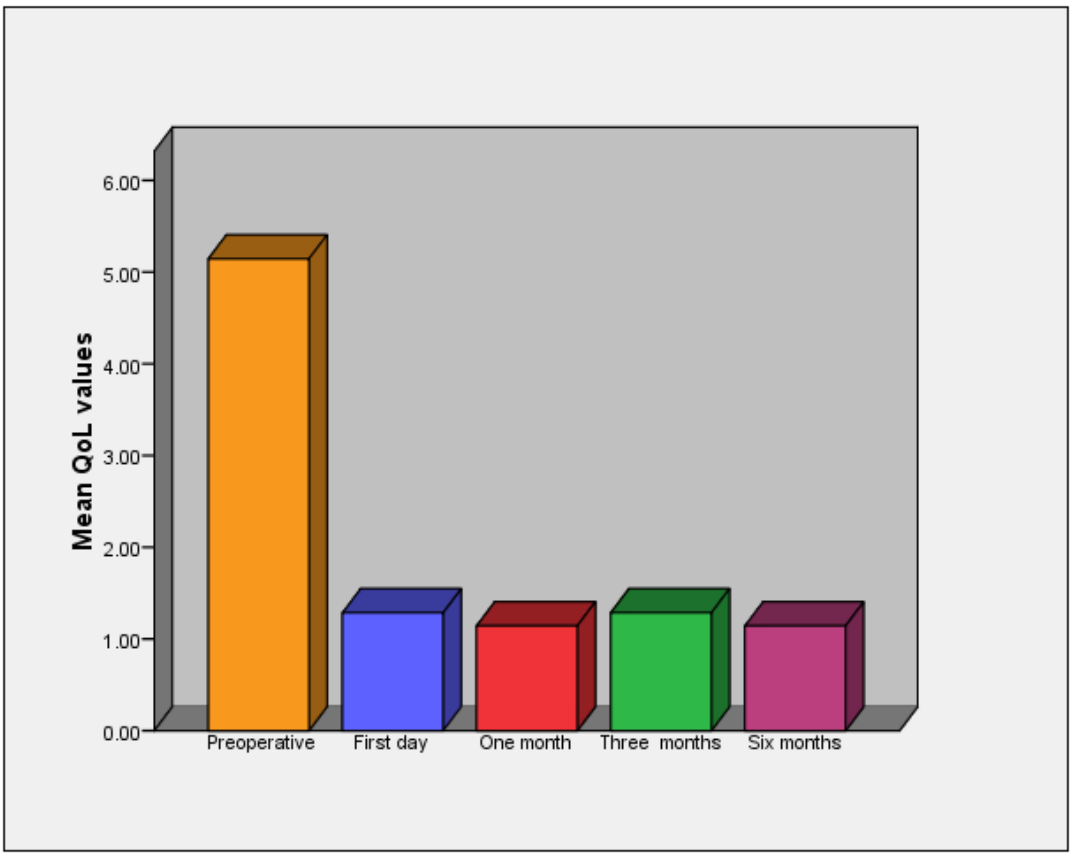

Figure (73): Mean QoL preop., 2 weeks, 1m, 3m and 6m postop.

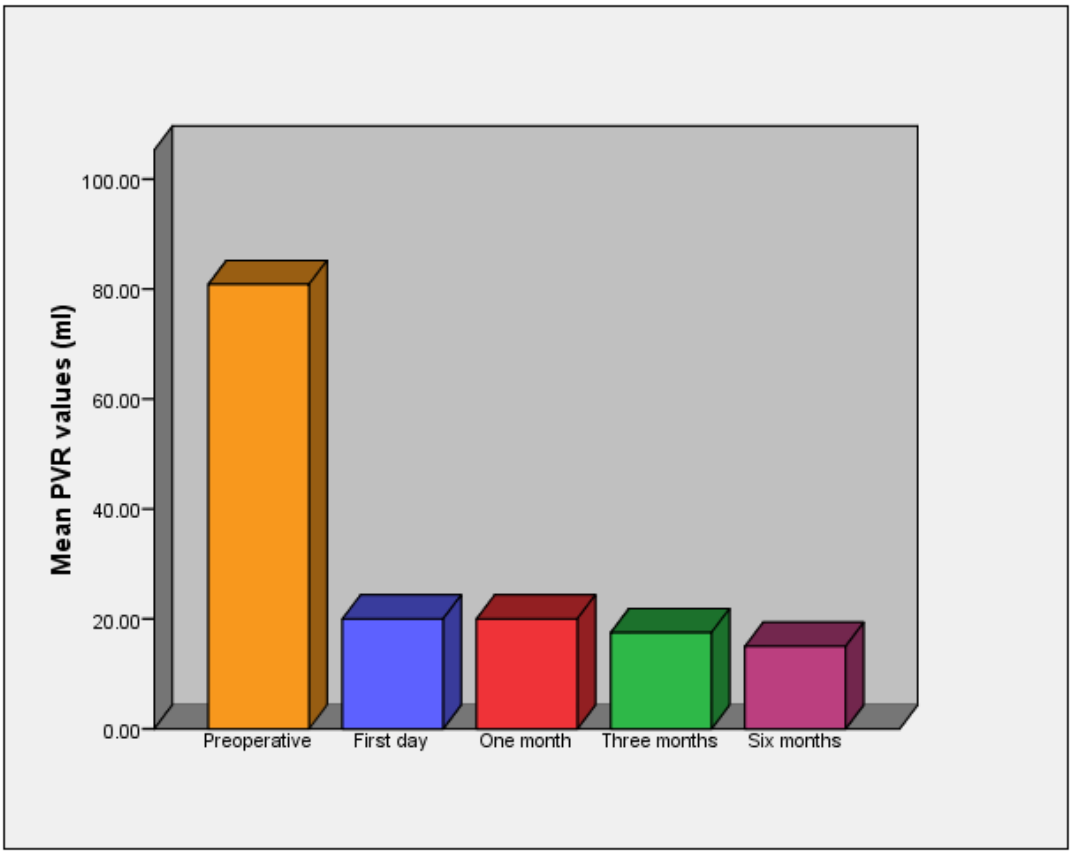

Figure (74): Mean PVR preop., 2 weeks, 1m, 3m and 6m postop.

	Preop.	postoperative			
		2 weeks	1 month	3 months	6 months
Qmax	4.87±2.41 < 0.05	19.5±3.25 < 0.05	21±2 < 0.05	20.5±0.92 < 0.05	19.5±1.41 < 0.05
QoL	5.12±0.64 < 0.05	1.25±0.46 < 0.05	1.25±0.64 < 0.05	1.37±0.51 < 0.05	1.14±0.37 < 0.05
PVR	80.7±10.9 < 0.05	18.57±13.75 < 0.05	19.28±14.26 < 0.05	16.42±7.48 < 0.05	15±8.94 < 0.05

Table (26): Demographic distribution of the mean, SD± and p values of the Qmax, QoL and PVR preoperatively and 2 weeks, 1m, 3m, 6m postoperatively.

P: the propability versus preoperative.

There was minimal postoperative complications in the form of mild perineal discomfort in 37.5%, UTI in 25% and bleeding per urethral and penile pain, stent migration and urinary retention in 12.5% of cases.*(table 27)*

	NO (8)	%
Bleeding per urethra	**1**	**12.5**
Penile pain	**1**	**12.5**
Perineal discomfort	**3**	**37.5**
UTI	**2**	**25**
Urinary incontinence	**0**	**0**
Urinary retention	**1**	**12.5**
Stent migration	**1**	**12.5**
Stent encrustation	**0**	**0**

Table (27): The postoperative complications

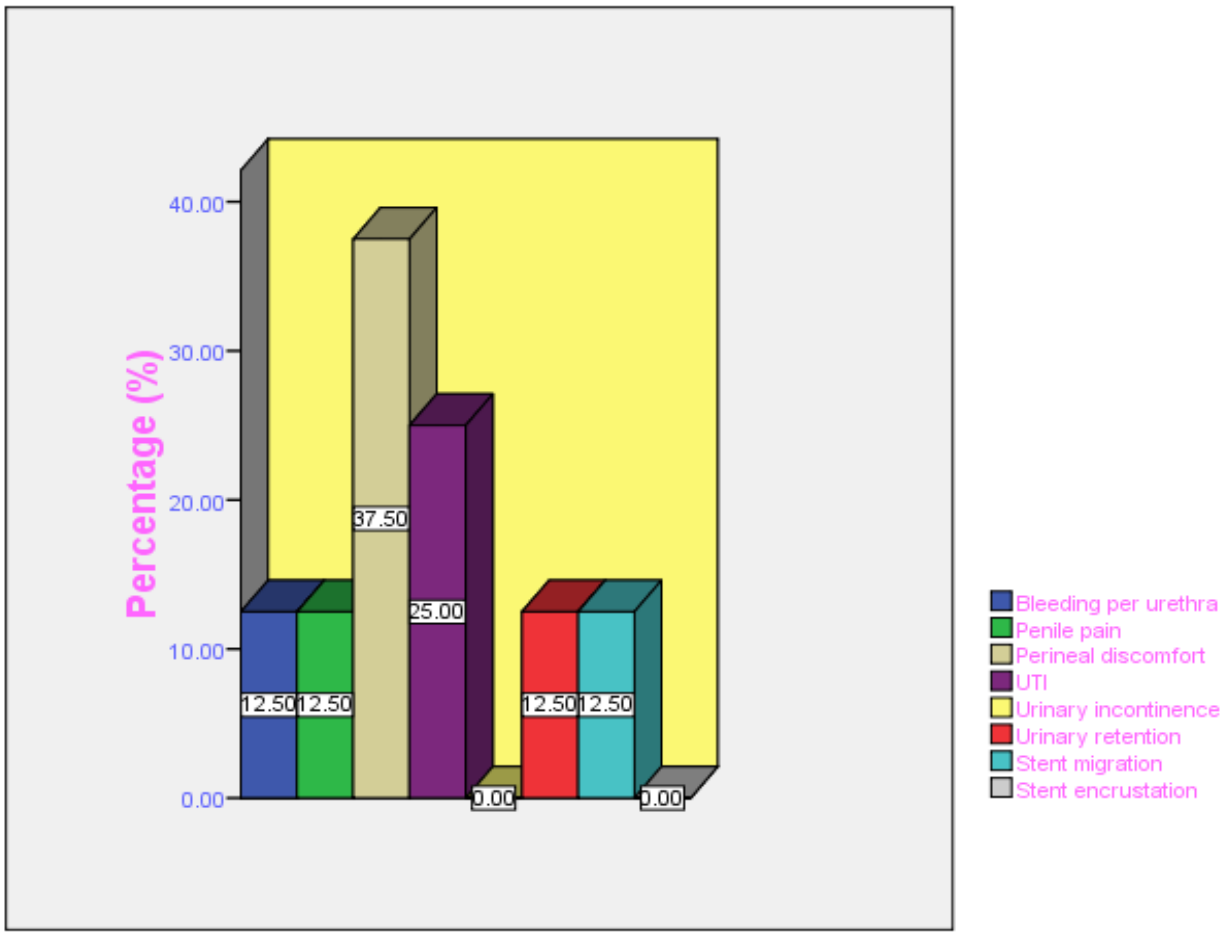

Figure (75): The Post operative complications.