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Effects of Intralesional Triamcinalone injection following Internal Urethrotomy in treatment of Stricture urethra- A prospective analytical experimental study

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Abstract:
Introduction: *Stricture disease of urethra is a challenge for almost all practicing urologists. Injection of steroid triamcinaloneintralesionally following internal urethrotomy decreases formation of scar by enhancing endogenous production of collagenase.We analysed the outcome of injection of steroid (triamcinalone) and urethral stricture recurrence after internal urethrotomy.*
Aim of the Study: *To study the effect of triamcinalone acetate injected intralesionally in patients undergoing internal urethrotomy (DVIU) for anterior urethral strictures.*
Materials and Methods: *It is a prospective study conducted in in Govt. Stanley medical college and hospital, Chennai -1 from January2013 to February 2014. 50 patients of stricture urethra who are symptomatic , presenting at our hospital were segregated into two groups 25 in each group.The experimental Group(D) were treated by cold knife internal urethrotomy withintralesional triamcinolone injection while the control group (C) treated with urethrotomy alone.*
Results: *Cold knife internal urethrotomy with intralesional triamcinolone injection technique has better outcome when compared to the internal urethrotomy alonein terms of preventing recurrence of stricture with an overall success rate of 78.26 % (p = 0.048)*
Conclusion: *Injection of steroid triamcinalone following internal urethrotomy decreases the recurrence rate of stricture as well as delays the time to recurrence when compared to internal urethrotomy alone for the treatment of short segment urethral strictures(<2cm).*
Keywords: *Internal Urethrotomy, Recurrence , Stricture urethra, Triamcinalone*

I. Introduction

Stricture disease of urethra is a challenge for almost all practicing urologists. Management by endoscopy is routinely done first for short bulbar urethral strictures before other modality of treatment. Injection of steroid triamcinalone intralesionally following internal urethrotomy decreases formation of scar by enhancing endogenous production of collagenase. We analysed the outcome of injection of steroid (triamcinalone) and urethral stricture recurrence after internal urethrotomy.

II. Aim Of The Study

1. To study the effect of triamcinalone acetate injected intralesionally in patients undergoing internal urethrotomy (DVIU) for anterior urethral strictures
2. To collect short term data on the need for self calibration or dilatation and other adjuvant procedures in those patients in one year.

III. Materials And Methods

It is a prospective study conducted in in Govt. Stanley medical college and hospital, Chennai -1 from January2013 to February 2014.

3.1study Design

50 patients of stricture urethra who are symptomatic , presenting at our hospital were seggregated into two groups 25 in each group.The experimental Group(D) were treated by cold knife internal urethrotomy with intralesional triamcinolone injection while the control group (C) treated with urethrotomy alone.

3.2inclusion Criteria

1. Anterior urethral stricture <2cm
2. Age 18-65 years

3.3exclusion Criteria

1. Urethral strictures >2cm
2. Neurogenic bladder
3. History of systemic or immune disease
4. Patients already on steroids
5. Patient refusal
6. Previous intervention for stricture.

Under general or spinal anesthesia procedure is done. Every patient received intravenous inj.Cefotaxime1gm i.v preoperatively. Cystoscopy using 20 Fr sheath and ureteric catheter of 5Fr passed through stricture portion into the bladder. Using sachse urethrotome, cold knife internal urethrotomy done at 12 o' clock position, bladder entered and thorough cystoscopy done. After cold knife urethrotomy ,80mg(2ml) of injection triamcinalone (diluted with 6ml of distilled water to 8ml) was injected by william cystoscopic injection needle (5 Fr size and 23 G needle size, cook medical Inc,) at 12, 3, 6, 9 0clock position 2ml at each site. After the procedure bladder catheterized with 18Fr Foley for 5 days. Antibiotic was given till catheter was removed.

After the procedure patients were evaluated based on history as well as uroflowmetry. The urine cultures were done after surgery on the second post operative day. AUG was done in follow up period if the patient suffer by difficulty in voiding symptoms or the Peak flow rate was below 15ml/sec.

Fig.1 Injection of triamcinalone following internal urethrotomy

The patients were followed up regularly at 3, 6, 12 months and when present with symptoms. If any symptoms suspicious for recurrence were found, such as thin stream of urine, acute urinary retention, and burning micturition are noted. The treatment was reported successful if they don't complain any voiding symptoms and had a Peak flow rate>15ml/sec for a volume of urine of atleast150ml.The need for secondary procedure like dilatation,internal urethrotomy, and urethroplasty considered as treatment failure.

3.4statistical Analysis

Continuous variables were analysed with the unpaired t-test and categorical variables were analysed with the Chi-Square Test .Statistical significance was taken as $P < 0.05$.

IV. Observation And Results

Two patients in group D(Triamcinalone group) and 3 patients in Group C (Control) were lost to follow up and therefore, excluded from our study. Data analysis were done from reports of 23 patients and 22 patients in triamcinalone group (D)and control group(C) who fulfilled the follow up period of 12 months after internal urethrotomy

Age

TABLE.1

Age	Group D	Group C
Mean	40.84	46.96
SD	12.63	12.65
N	23	22
P value	0.1118	

Stricture Location

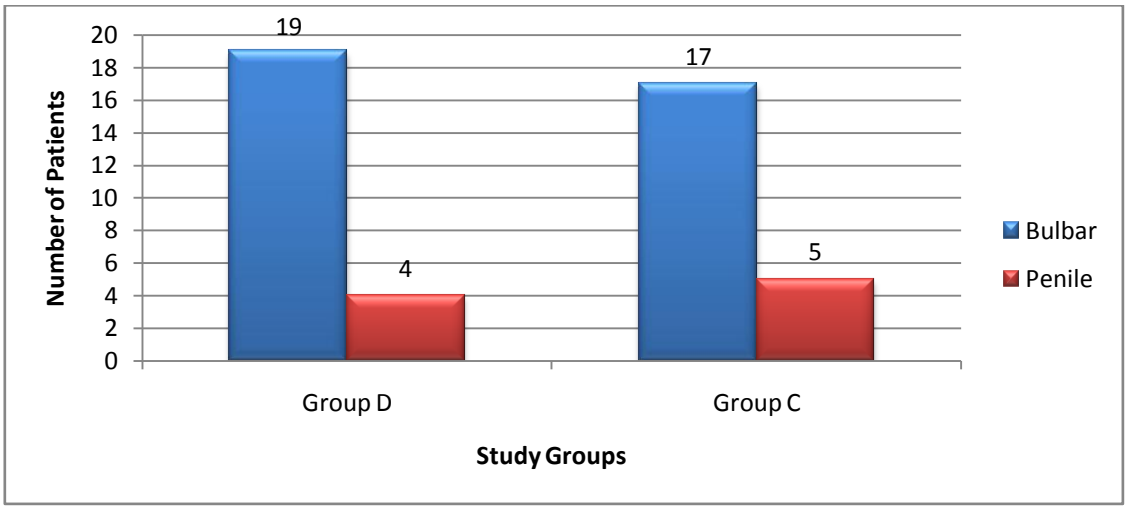

Fig 2 : Stricture location among the two groups

p-value = 0.2001

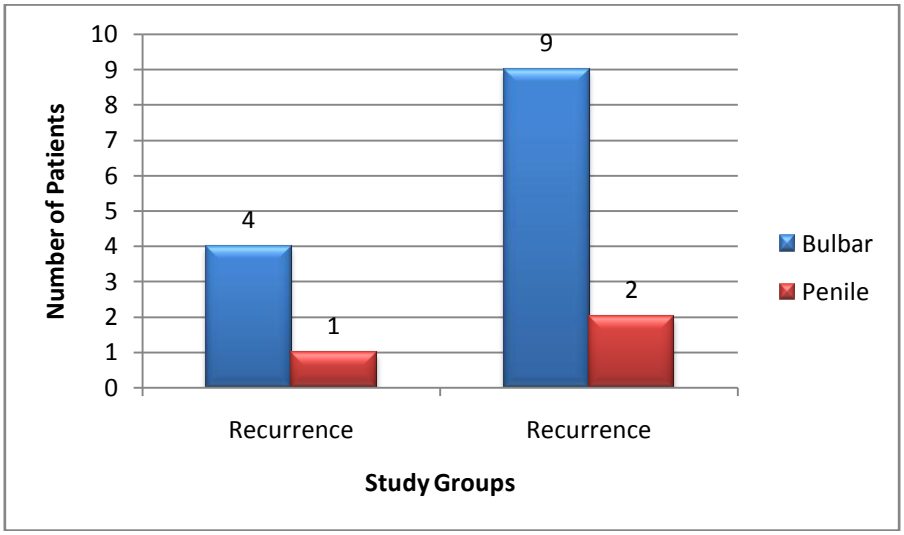

Fig 3- Recurrence rate as per Stricture location

P-value is 0.931

Stricture Causes

Table 2

Stricture Causes	**Group D**	**%**	**Group C**	**%**
Trauma	10	43.48	11	50.00
Inflammation	3	13.04	3	13.64
Idiopathic	10	43.48	8	36.36
Total	23	100	22	100
P value	**0.248**			

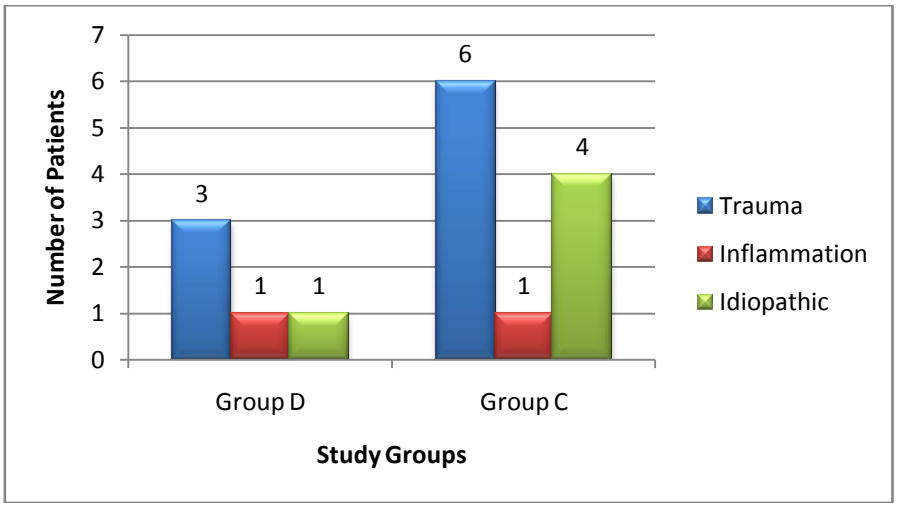

Fig 4 : Recurrence as per Stricture causes

p-value = 0.726

Recurrence of Stricture

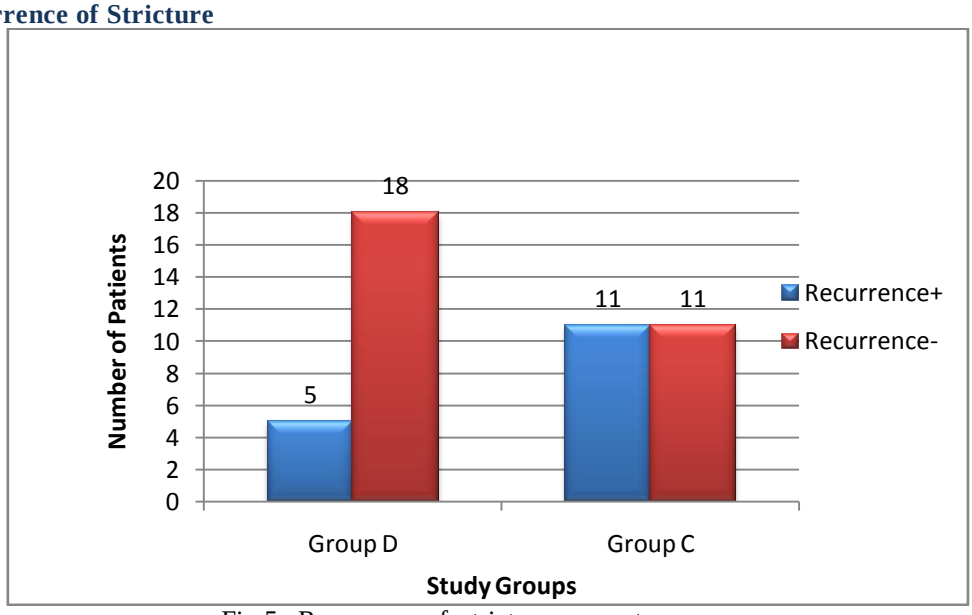

Fig 5 : Recurrence of stricture among two groups

- Since the p-value **is 0.048**, We conclude that the cold knife internal urethrotomy with intralesional triamcinolone injection technique has better outcome when compared to the internal urethrotomy technique in terms of preventing recurrence of stricture with an overall success rate of 78.26 % in Group D and 11% in Group C.

Time to Recurrence

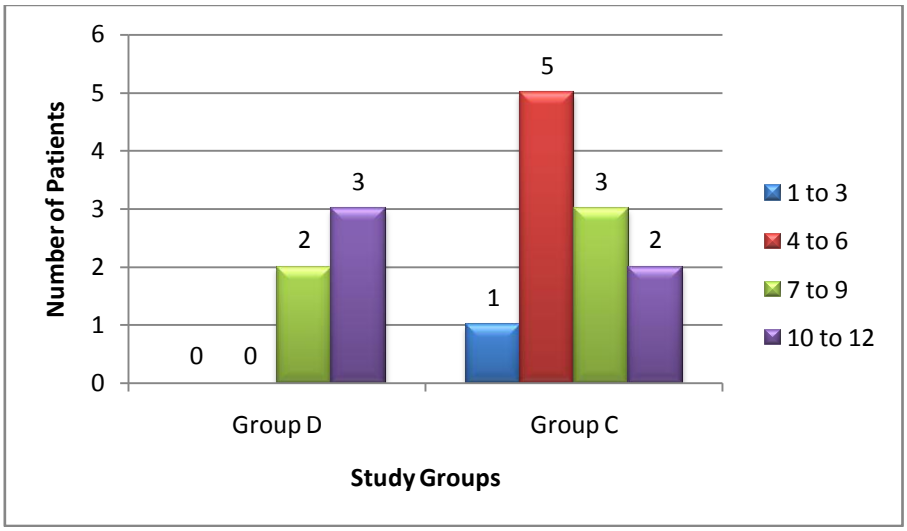

Fig 6 : time to recurrence

The mean time to recurrence in Group D is 9.6 months compared to 7.09 months in Group C. Since the The time taken for developing recurrence of stricture after intervention is 2.51 months delayed in Group D compared to Group C (p-value is 0.017)

Stricture Length

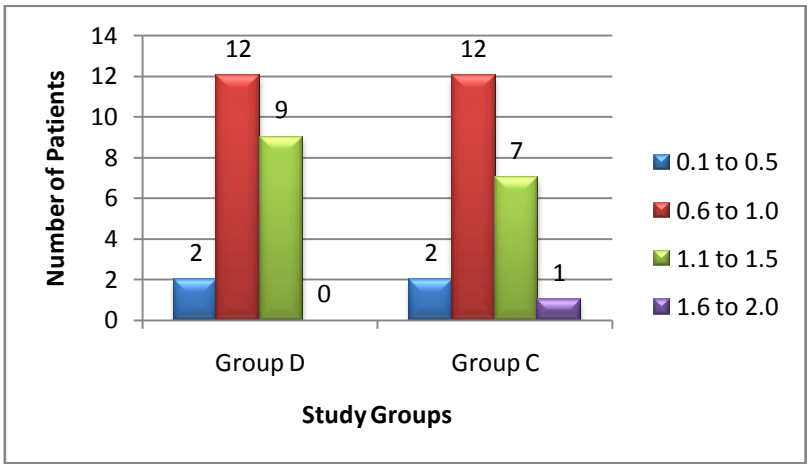

Fig 7 : Stricture length among the two groups

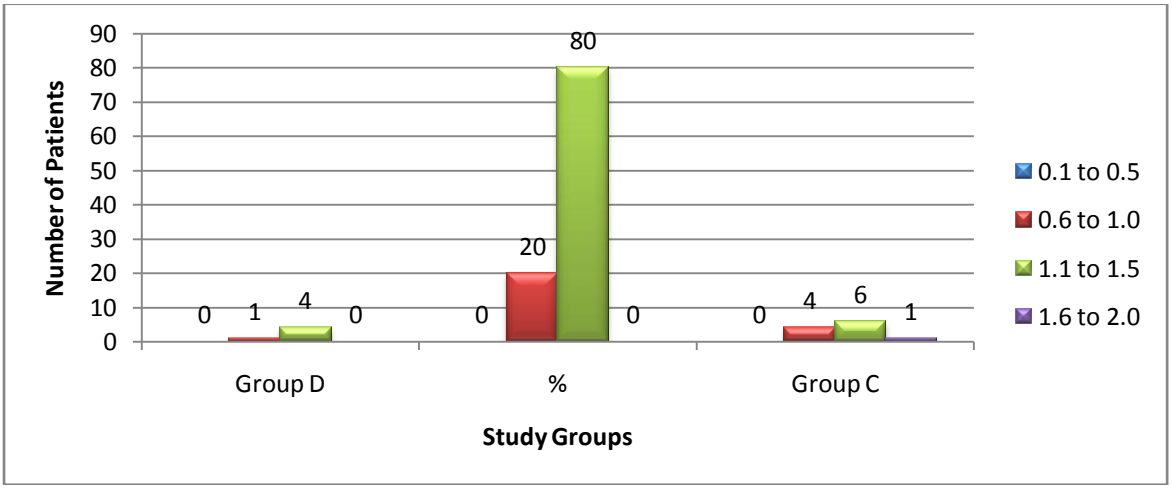

Fig 8: Recurrence in comparison to stricture length
P= 0.3597

Urine Culture

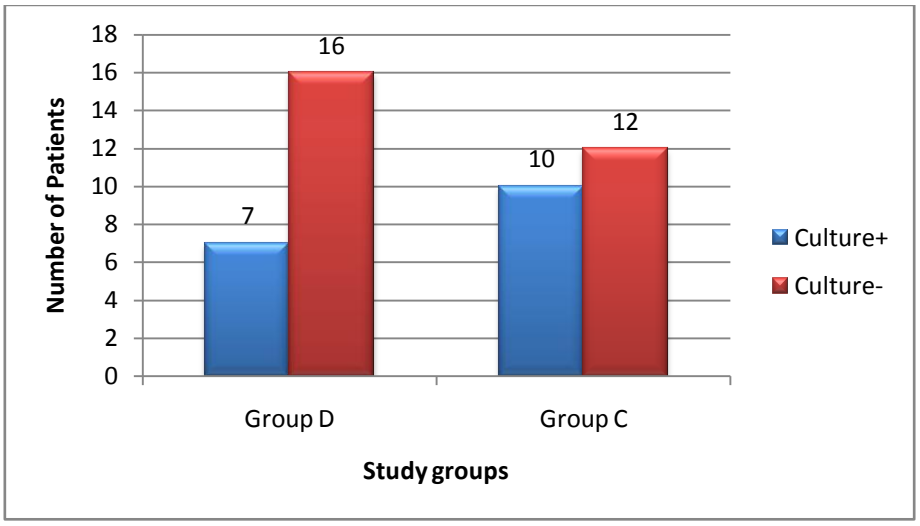

Fig 9 : pre operative urine culture

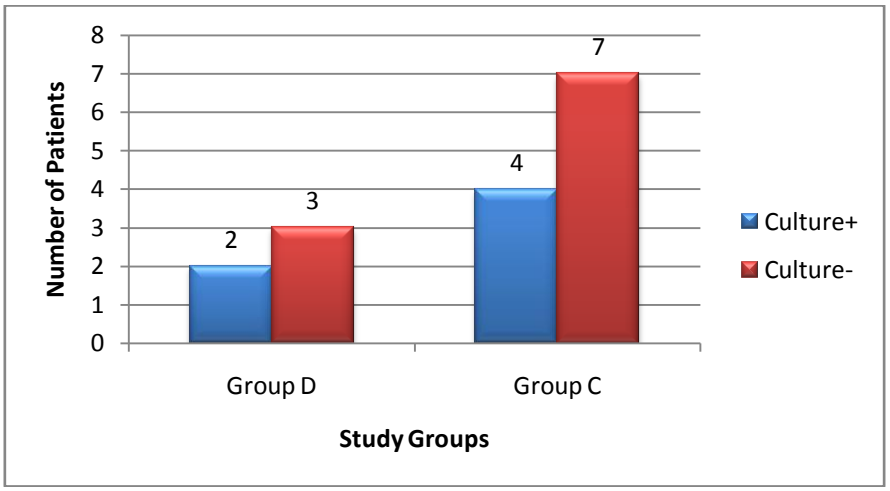

Fig 10 : Recurrence as per preoperative urine culture
P=0.299

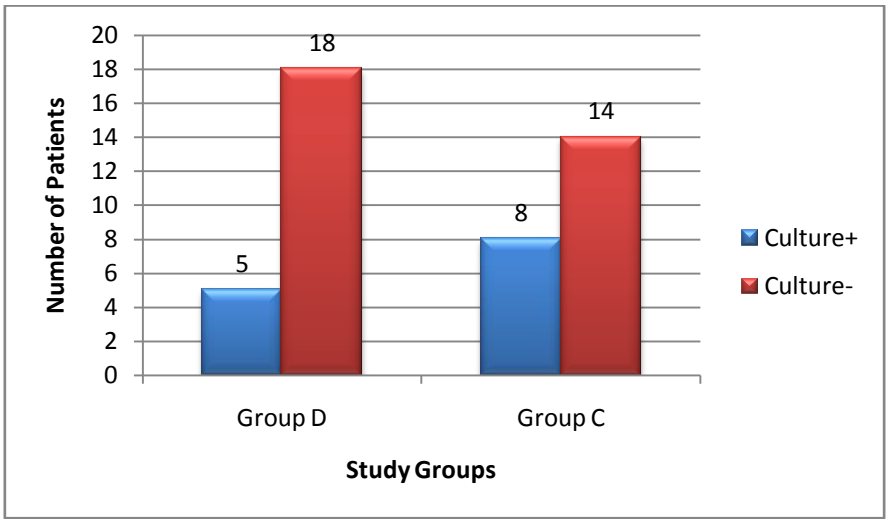

Fig 11: Postoperative urine culture
P=0.889

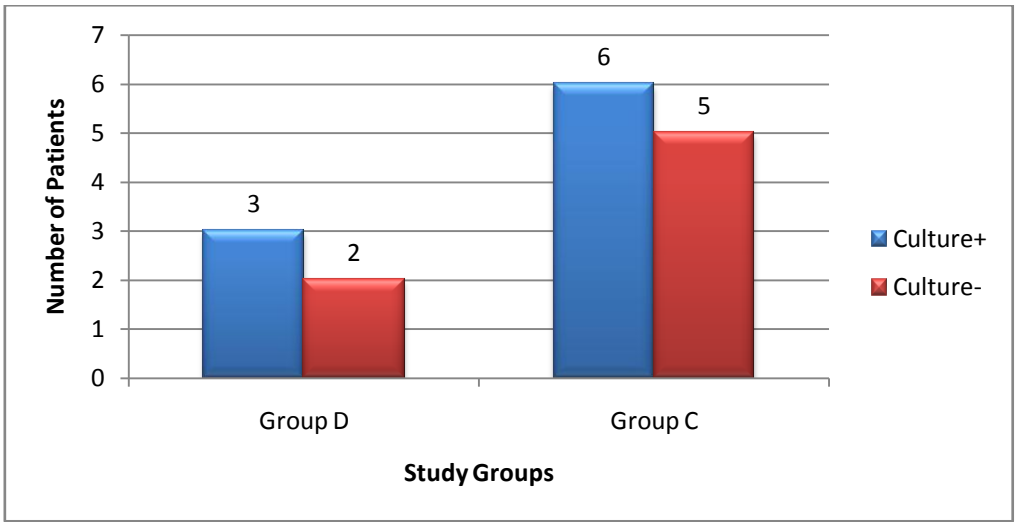

Fig 12: Recurrence as per postoperative urine culture
p-value = 0.839

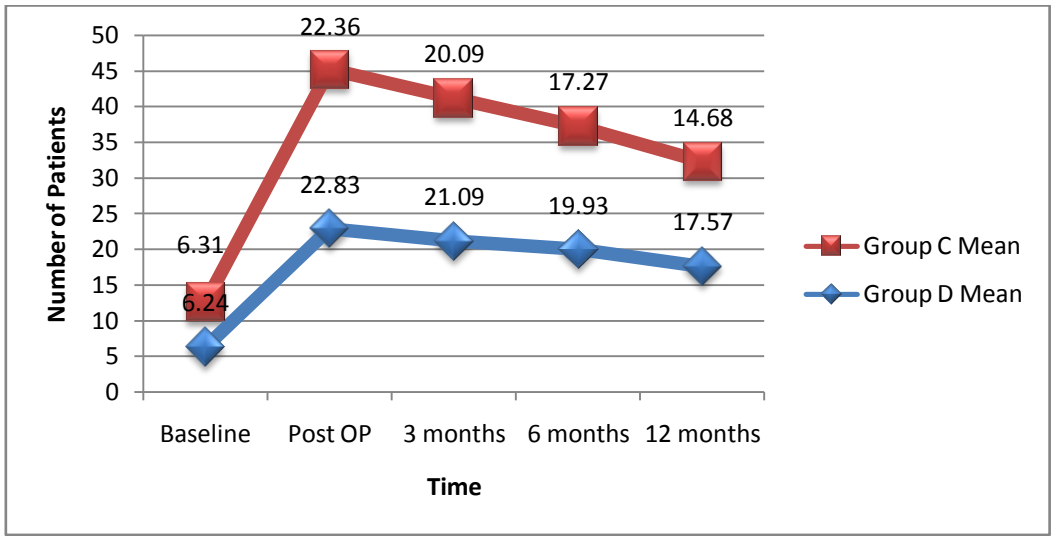

Fig 13: Peak flow rate of the two groups
p-value = 0.0345

The mean peak flow rate at the end of 12 months after intervention in Group D is 17.57ml compared to 14.68ml in Group C.

The peak flow rate at 9 months after intervention is 2.66 ml/s more in Group D compared to Group C. (p-value = 0.0451 **)**

V. Discussion

The most important complication of treatment of strictures is recurrence[1] . Internal urethrotomy is a simple procedure in treatment of stricture disease and is followed as first treatment modality, though the cure rate is 33% at 10 years [2]

In our study the recurrence rate in group D was 21.74%, recurrence in control group was 50% on one year follow up,which is consistent with Holm-Nielsen and colleagues [3].

In our study recurrence in the control group(C) was 50% compared to 21.7% in triamcinalone group(D). There was significantly decrease in recurrence rate in group D(triamcinalone group) compared to group C . (p=0.048).

The mean time to recurrence in group D is 9.6 months compared to 7.09 months in group C which reached a statistically significant. In our study ,the mean stricture length in group D was 1.04cm, in group C was 1.12 cm , which did not show any statistically significant value (p=0.359). In stricture <1cm showed a recurrence rate of 20% in group D and 36.36% in group C. For stricture >1cm, recurrence in group D was 80%

and in group C was 63%. Strictures less than 1 cm showed less recurrence rate than strictures between 1-2cm between the groups. This was in according to Rapp et al study[4].

Based on etiology , success rates with iatrogenic cause for stricture has higher success rate than with post-traumatic or post inflammatory cause. In our study, (p=0.726) The recurrence rate was found to be independent of the age of the patient , duration of symptoms,etiology of stricture, location of stricture(penile or bulbar).

In our study better outcome in strictures less than <1cm (recurrence 20%) is in accordance with study of Rourke and Jordan [5],found for strictures <1cm with minimal spongiofibrosis, have better results. Our study has a success rate of 80% for stricture <1cm in accordance with Hosseini et al, [6].

In our study the recurrence rate for stricture <1cm was 20% and for strictures 1-2cm the recurrence rate was 80%.This was in accordance to Pansadaro et al study[7].

Three (60%) of the Group D patients with Urine culture positive post operatively had recurrence of stricture after intervention. Six (54.55%) of the Group C patients with Urine culture positive post operatively had recurrence of stricture after intervention. But did not reach statistically significant (p=0.839).

VI. Limitations Of Our Study

Small number of patients and short follow up period (12 months). Follow up in our study covered the critical period of recurrence usually 18 months as stated by Gucuk et al [8].

A larger, randomized controlled study with longer follow up is required to confirm these findings and to establish the efficacy of triamcinalone and cold knife internal urethrotomy.

VII. Conclusion

Injection of steroid triamcinalone following internal urethrotomy decreases the recurrence rate of stricture as well as delays the time to recurrence when compared to internal urethrotomy alone for the treatment of short segment urethral strictures(<2cm) .Injection of steroid at stricture site can be considered as safe and effective adjuvant modality after internal urethrotomy.

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