RESULTS

A total of 27 patients diagnosed as having anterior urethral stricture disease were enrolled in this thesis. The patient criteria, the stricture criteria, intra-operative data, postoperative data, follow up of patients and finally the procedure outcome, all are shown in the following.

I- Patient criteria

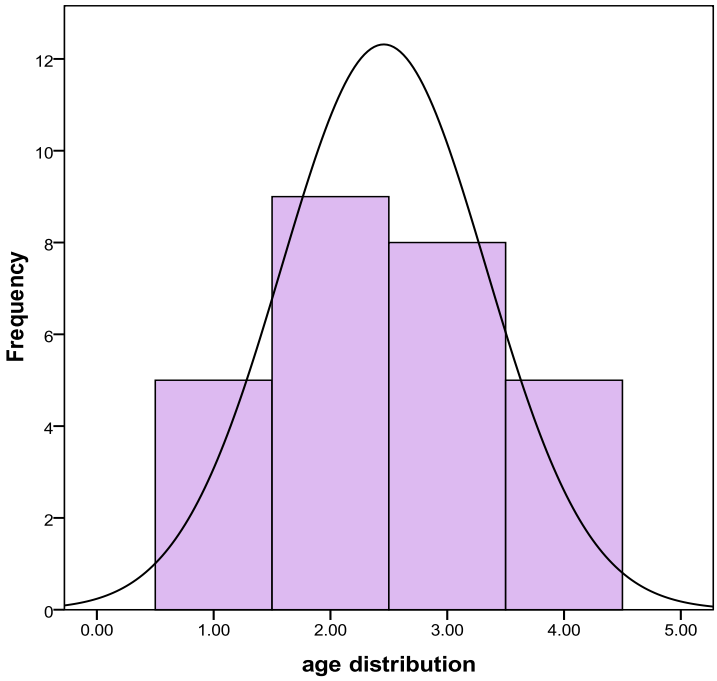
1- Age :

The age among the studied group ranged from 20 to 60 years, with mean age (38.9 years) and standard deviation (± 10.3) . The age of the majority (33.3%) of the studied patients was from 30 to <40 years (Table 1, chart 1).

Table (1): distribution of the studied group according to age.

Age (in years)	**The studied group (N = 27)**	
Mean±SD Range	38.9 ± 10.3 40 (20 – 60)	
Age distribution	**No**	**%**
• 20- • 30- • 40- • 50-60	5 9 8 5	18.5 33.3 29.7 18.5
Total	27	100.0

Chart (1): Histogram and the Normal curve of age



****Class intervals of age**
1→20- , 2→30- , 3→40- , 4→50-60 years

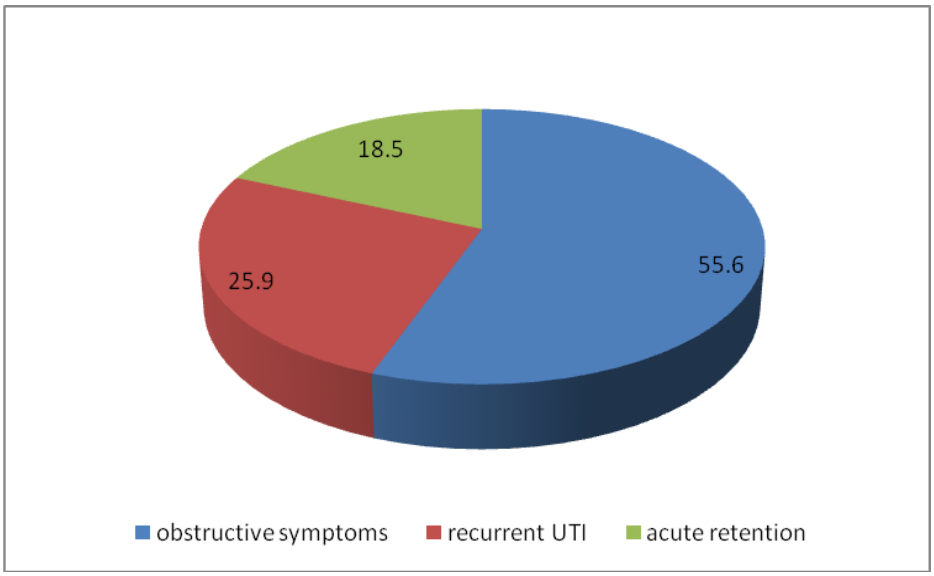
2- Presentation:

More than half (55.6%) of patients presented with obstructive symptoms, 18.5 % presented with acute urinary retention and 25.9% with recurrent UTI (Table 2, chart 2).

Table (2): Patients' presentation.

Presentation	No	%
Obstructive symptoms	15	55.6
Acute urinary retention	5	18.5
Recurrent UTI	7	25.9
Total	27	100.0

Chart (2): Percentages of patients' presenting symptoms.



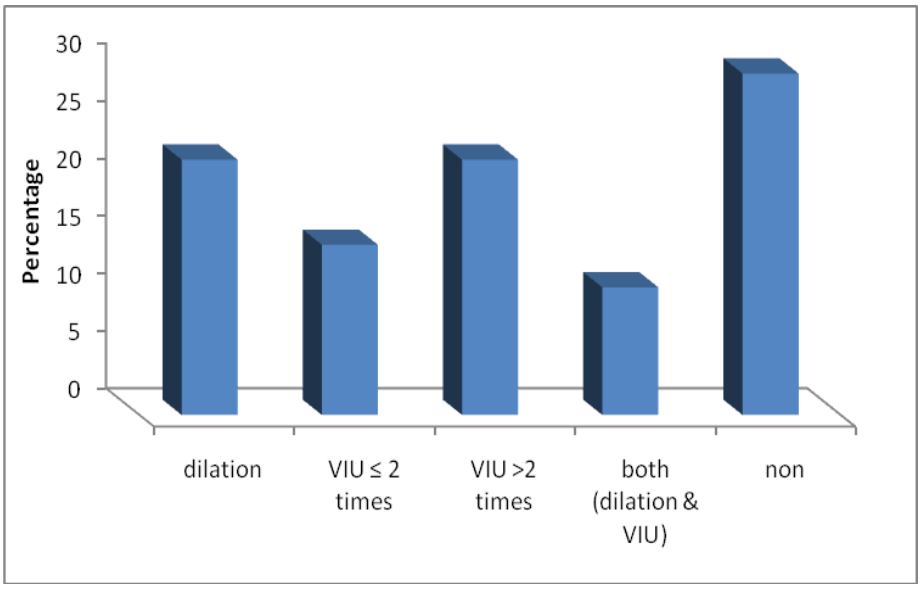
3- Pre-operative procedure done:

The majority of patients (37%) underwent VIU. Dilation was done in 6 patients (22.2%) , both procedures were done in 3 patients (11.1%), 29.7% of patients had not undergone any pre-operative procedures (Table 3, chart 3).

Table (3): Distribution of the studied group according to the pre-operative procedure done.

Procedure	No	%
Dilation	6	22.2
VIU*		
< 2 times	4	14.8
≥ 2 times	6	22.2
Both (dilation & VIU)	3	11.1
Non	8	29.7
Total	27	100.0

Chart (3): Percentage of the studied group according to the pre-operative procedure done.



II- Stricture criteria

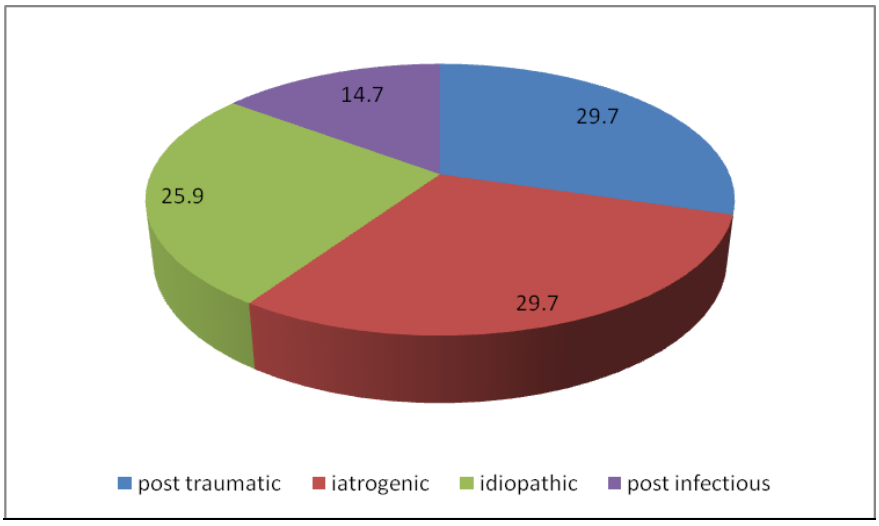
1- Aetiology:

Post infectious was the main cause (29.7%), followed by post traumatic and iatrogenic causes (25.9% for each), then the iatrogenic causes in 5 patients (18.5%, 3 patients due to postcatheterization , 2 patients postendoscopy) (Table 4, chart 4).

Table (4): Aetiology of anterior urethral stricture disease among the studied group.

Aetiology	No	%
Post traumatic	8	29.7
Post infectious	4	14.7
Iatrogenic	8	29.7
Idiopathic	7	25.9
Total	27	100.0

Chart (4): Percentage of aetiology of anterior urethral stricture disease among the studied group.



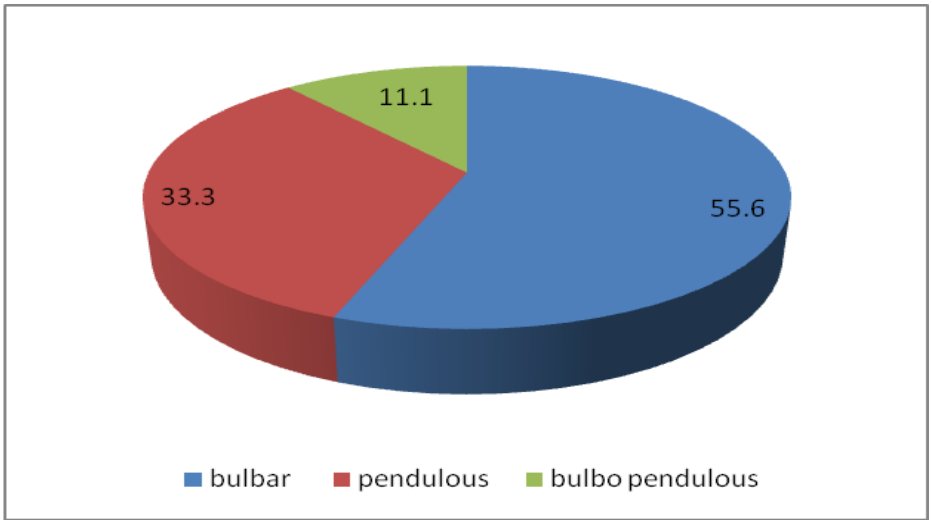
2- Site:

More than half (55.6%) of the patients had bulbar stricture, one third (33.3%) of them had pendulous stricture and only 11.1% had bulbopendulous stricture (table 5, chart 5).

Table (5): Site of the stricture among the studied patients.

Site of stricture	No	%
Bulbar urethra	15	55.6
Pendulous urethra	9	33.3
Bulb pendulous urethra	3	11.1
Total	27	100.0

Chart (5): Percentage of site of the stricture.



3- Stricture length:

There was statistically highly significant difference (P<0.001) between the pre-operative radiologic and the actual intra-operative length of the stricture (3.22 ± 0.81 & 3.65 ± 0.87 respectively) (Table 6).

Table (6): The pre-operative radiologic and the actual intra-operative length of the stricture among the studied patients.

Stricture length(cm)	Pre-operative radiologic length	Actual Intra-operative length	Paired "t"	P	95% CI**
Mean±SD **Range**	3.22 ± 0.81 3(2-5)	3.65 ± 0.87 3.5(2.5-6)	11.48	<0.001*	0.36-0.51

****CI→Confidence Interval**

III- Operative data

1- Operative time:

The operative time ranged from 140-210 minutes with mean value 165.7 minute and standard deviation ±19.5 (table 7)

2- Intraoperative blood loss:

The range of the intra-operative blood loss was (100-400 ml) with mean value 181.7 ml and standard deviation ±78 (table 7).

3- Hospital stay:

The hospital stay ranged from 3- 7 days with mean value 4.3 days and standard deviation ±1.3 (table 7)

Table (7): Range, Mean and Standard deviation of operative time and intra-operative blood loss.

Parameter	Range	Mean±SD
Operative time (in minutes)	70 (140-210)	165.7±19.5
Intra-operative blood loss (ml)	300(100-400)	181.7±78
Hospital stay (days)	4 (3-7)	4.3± 1.3

4- Site of onlay graft according to the site of stricture:

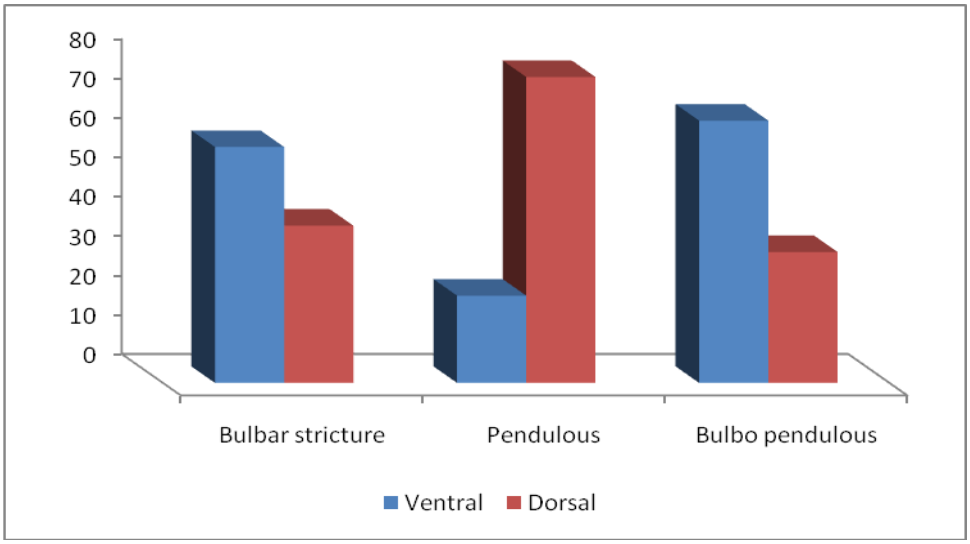
The majority of patients with bulbar and bulbopendulous stricture (60% & 66.7% respectively) underwent ventral onlay graft, while the majority (77.8%) of patients with pendulous stricture underwent dorsal onlay graft, but this difference was not statistically significant (P>0.05) (table 8, chart 6).

Table (8): Site of on lay graft according to the site of stricture.

Site of graft / Site of stricture	Ventral		Dorsal		Total	
	No	%	No	%	No	%
Bulbar urethra	9	60.0	6	40.0	15	100.0
Pendulous urethra	2	22.2	7	77.8	9	100.0
Bulb pendulous urethra	2	66.7	1	33.3	3	100.0
Total	13	48.2	14	51.8	27	100.0

X^2 = 3.7 **P>0.05**

Chart (6): Distribution of patients according to site of the stricture and the site of graft.



IV-Post-operative complications

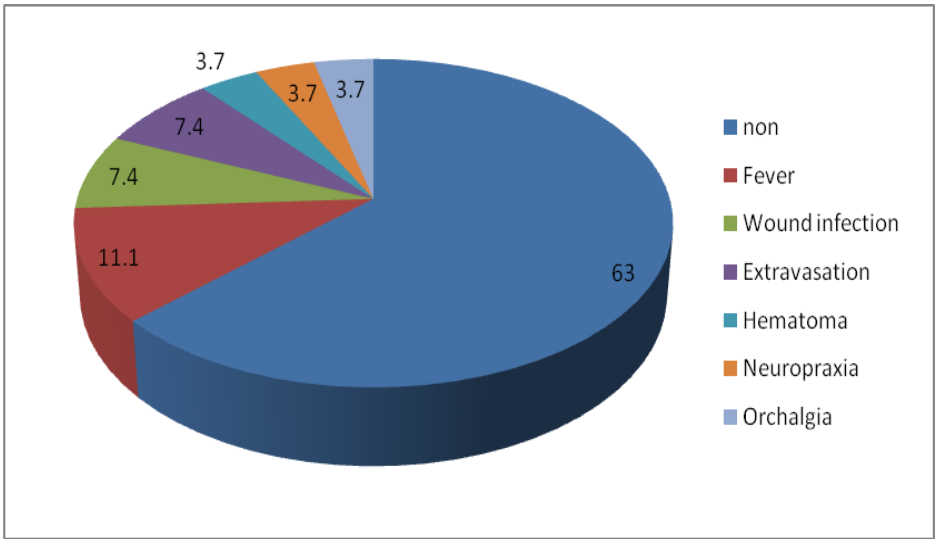
1- Early Post-operative complications:

Fever was the most common (11.1%), then wound infection , extravasation (7.4% for each), then neuropraxia, orchalgia and finally hematoma (3.7% for each) (table 9, chart 7).

Table (9): Early post-operative complications

Complication	No	%
Wound infection	2	7.4
Hematoma	1	3.7
Neuropraxia	1	3.7
Fever	3	11.1
Orchalgia	1	3.7
Extravasation	2	7.4
non	17	63.0
Total	27	100.0

Chart (7): Percentages of early post-operative complications.



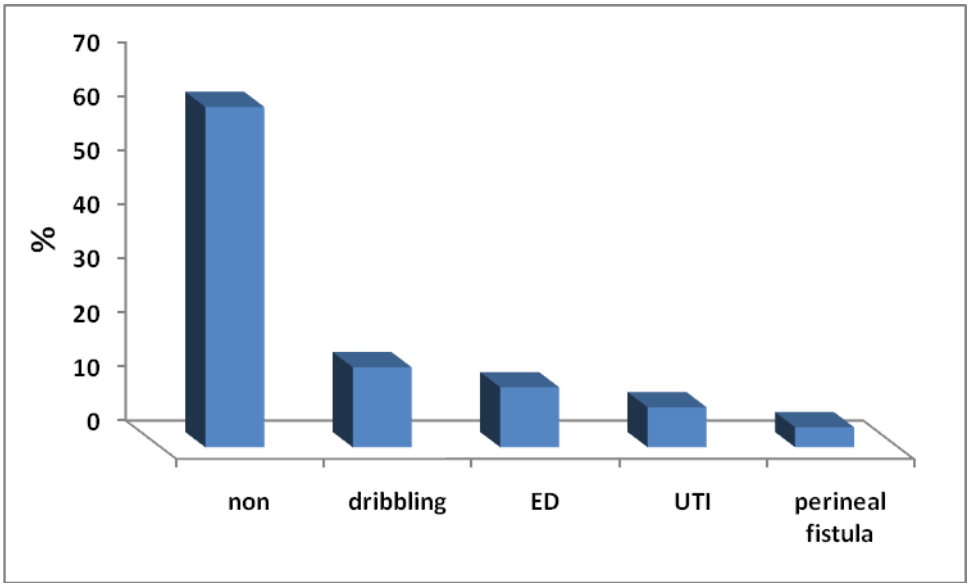
2- Late Post-operative complications:

Post micturation dribbling was the most common (14.8%), followed by erectile dysfunction (11.1%), then recurrent UTI (7.4%) and finally the perineal fistula (3.7%) (table 10, chart 8).

Table (10): Late post-operative complications.

Complication	No	%
Post micturation dribbling	4	14.8
ED (Erectile Dysfunction)	3	11.1
Recurrent UTI	2	7.4
Perineal fistula	1	3.7
Non	17	63.0
Total	27	100.0

Chart (8): Percentages of late post-operative complications.



3- Harvest site complication:

81.5% of patients acquired early post-operative oral pain that was relieved by medications within 2-3 days. 70.4% of patients suffered from peri-oral numbness (it was self limited, resolved over time) (table 11).

Table (11): Harvest site related complications.

Complication	No (N=27)	% (100.0)
Oral pain	22	81.5
Peri oral numbness*	19	70.4

***reduction of sensation in oral cavity at the graft harvest site**

IV- Follow up

1- Follow up period:

The follow up period ranged from 3- 23 months with mean value 13.1 month and standard deviation ±6.1.

Table (12): Follow up period of the studied patients.

Parameter	Range	Mean±SD
Follow up period (in months)	20(3-23)	13.1±6.1

2- Average flowrate (Q avg.):

The mean of post-operative Q. avg. was higher than the pre-operative (10.8± 1.1 & 5.4± 1.2 respectively). This statistical difference was highly significant (P<0.001) (table 13).

Table (13): Pre and post- operative Q. avg.

Pre-operative Q. avg Mean±SD	Post-operative Q. avg Mean±SD	Paired "t"	P	95% CI**
5.4± 1.2	10.8± 1.1	19.01	<0.001*	(4.85-6.03)

*** Highly significant**

3- Maximum flowrate (Q max.):

The mean of post-operative Q. max was higher than the pre-operative (17.8± 3.2 & 8.4± 1.4 respectively). This statistical difference was highly significant (P<0.001) (table 14).

Table (14): Pre and post- operative Q.max.

Pre-operative Q. max Mean±SD	Post-operative Q. max Mean±SD	Paired "t"	P	95% CI
8.4± 1.4	17.8± 3.2	18.4	<0.001*	(8.4-10.5)

V- Procedure outcome.

1- According to site of the stricture.

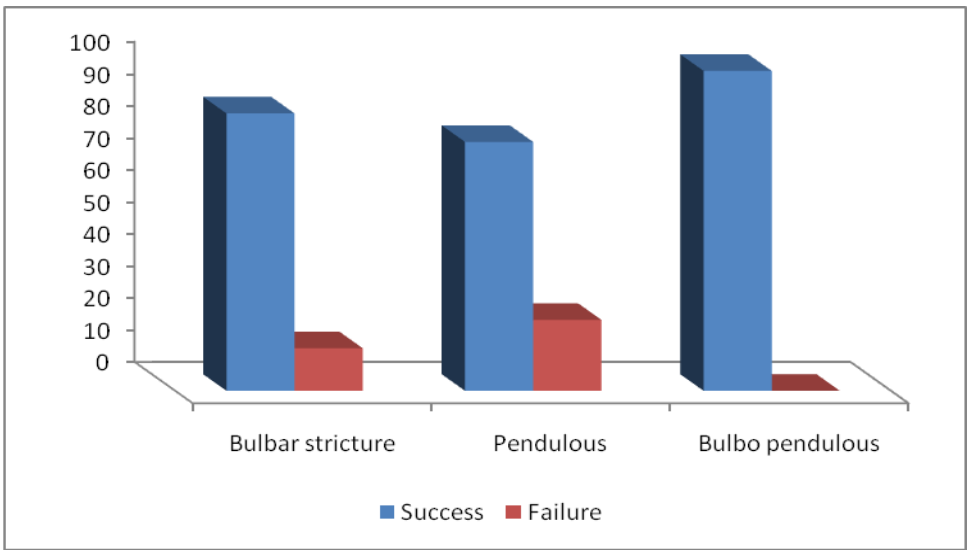
The overall success rate was 85.2%. success rate of cases with bulbar stricture was 86.7%, pendulous stricture was 77.8% and bulpopendulouos was 100% and that difference is not statistically significant (table 15).

Table (15): Procedure outcome according to site of the stricture.

Outcome / Site of stricture	Success*		Failure		Total	
	No	%	No	%	No	%
Bulbar urethra	13	86.7	2	13.2	15	100.0
Pendulous urethra	7	77.8	2	22.2	9	100.0
Bulb pendulous urethra	3	100.0	0	0.0	3	100.0
Total	23	85.2	4	14.8	27	100.0

Adjusted X^2 = 0.94 **P>0.05**

Chart (9): Percentages of the outcome according to the site of the stricture among the studied patients.



***success means that the patient maintains voiding pattern with steady stream without weakening over time and required no further interventions even dilation.**

2- According to age of the patients.

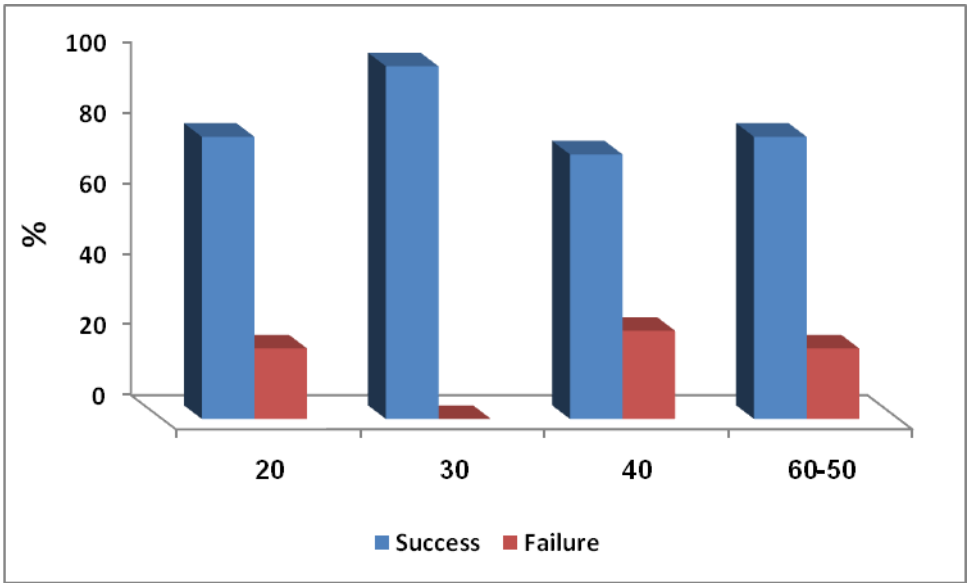
There was no statistically significant difference (P>0.05) between patients of different age groups regarding the procedure outcome (table 16, chart 10).

Table (16): Procedure outcome according to age of the patients .

Outcome / Age (in years)	Success		Failure		Total	
	No	%	No	%	No	%
20-	4	80.0	1	20.0	5	100.0
30-	9	100.0	0	0.0	9	100.0
40-	6	75.0	2	25.0	8	100.0
50-60	4	80.0	1	20.0	5	100.0
Total	23	85.2	4	14.8	27	100.0

Adjusted X^2 = 2.44 **P>0.05**

Chart (10): Percentages of the outcome according to age.



3- According to the site of onlay graft

There was no statistically significant difference (P>0.05) between ventral and dorsal onlay grafts regarding the procedure outcome (table 17, chart 11).

Table (17): Procedure outcome according to site of onlay graft.

Outcome / Site of onlay graft	Success		Failure		Total	
	No	%	No	%	No	%
Ventral	11	84.6	2	15.4	13	100.0
Dorsal	12	85.7	2	14.3	14	100.0
						100.0
Total	23	85.2	4	14.8	27	100.0

Fisher's exact test = 0.213 **P>0.05**

Chart (11): Percentages of the outcome according to the site of onlay graft.