Results

All patients were followed-up for six months after the procedure and the following results were recorded.

NLD patency rate:

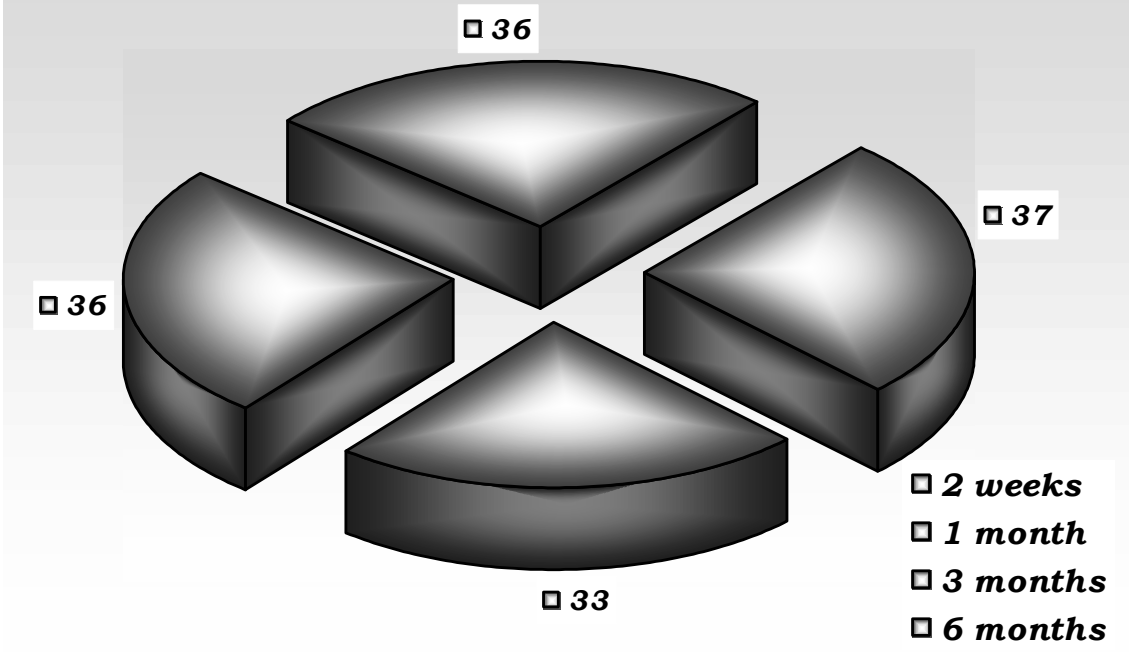
The NLD was found to be patent in 90% of cases (36 eyes) two weeks after the procedure. For the remaining re-obstructed 4 cases, a second probing also with MM-C was done. However, only one eye (2.5%) regained patency and remained so till the end of the follow-up period. While the other 3 cases (7.5%) get obstructed again three weeks following the second probing. From those 37 eyes (92.5%) with patent NLD another 4 eyes (10%) had lost their patency after 3 months follow-up period. Another probing with MM-C was also done. Three cases (7.5%) regained patency and maintained patent till the end of the follow-up period (i.e. for 3 months). While, one case (2.5%) lost patency again after 2 weeks of the second probing.

Table (1): NLD patency following probing with MM-C

Follow up period	Number of eyes	% of total (N = 40)
2 WEEKS	36	90%
1 MONTH	37	92.5%
3 MONTHS	33	82.5%
6 MONTHS	36	90%

Therefore, the overall patency rate at the end of the follow-up period was 90% (36 eyes), from which 32 eyes (80%) became patent after a single probing procedure with MM-C and 4 eyes (10%) gained patency after performing a second probing procedure with MM-C. For the 4 cases (10 %) with persistent obstruction despite the second probing procedure, further management such as DCR was recommended.

Fig. (16): NLD patency rate following probing with MM-C "no. of eye



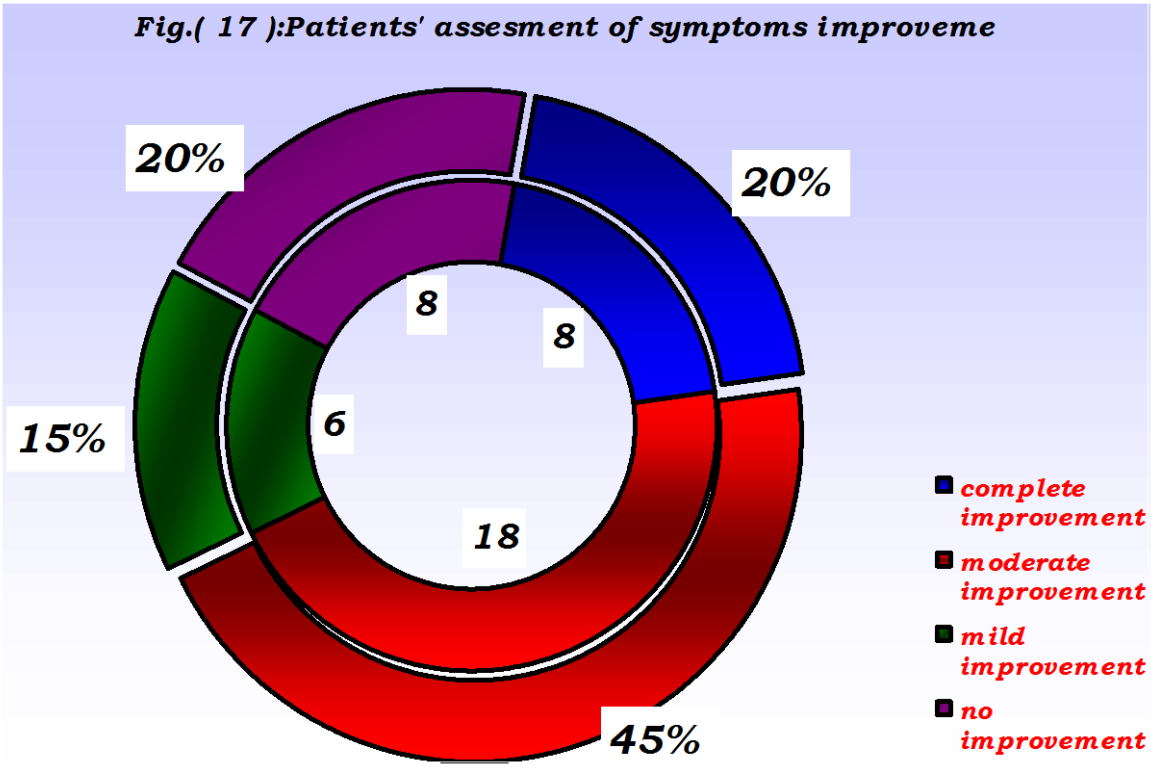
Effect of probing on Epiphora according to patients' assessment:

At the end of the follow-up period, it was found that a complete relief of symptoms occurred in 20 % of cases (8 eyes), moderate improvement (i.e. mild epiphora) in 45% of cases (18 eyes), and

mild improvement (i.e. moderate epiphora) in 15% of cases (6 eyes). Thus, the total rate of improvement was 80% of cases (32 eyes), while no improvement with persistent epiphora was recorded in 20% of cases (8 eyes).

***Table (2)*: Patients' assessment of symptoms improvement**

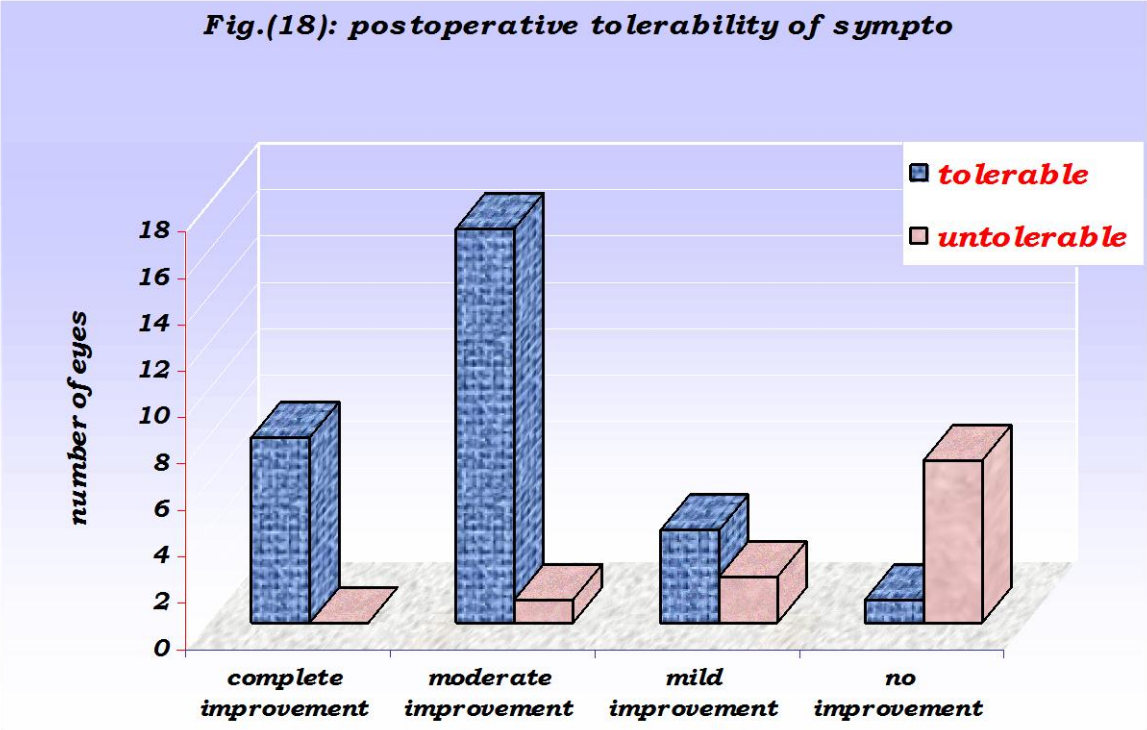
State of improvement	Number of eyes	% of total
Complete improvement (No watering)	8	20%
Moderate improvement	18	45%
Mild improvement	6	15%
No improvement (Persistent watering)	8	20%
Total number	40	100%



However, 42.5 % of cases (17 eyes) with moderate improvement described their symptoms as tolerable epiphora. Also, 10% of cases (4 eyes) with mild improvement reported their symptoms as being tolerable. In the group of persistent epiphora (8 cases), only one case reported that the symptoms as being tolerable.

***Table (3)*: postoperative tolerability of symptoms**

State of improvement	Number of eyes	% of total (N=40)	Tolerable		Untolerable	
			No of eyes	% of total (n=40)	No of eyes	% of total (n=40)
Complete improvement (No watering)	8	20%	8	20%	-	0%
Moderate improvement	18	45%	17	42.5%	1	2.5 %
Mild improvement	6	15%	4	10%	2	5 %
No improvement (Persistent watering)	8	20%	1	2.5%	7	17.5 %
Total	40	100%	30	75%	10	25%



Epiphora duration:

As regard to the relation between the preoperative duration of epiphora and the degree of improvement, a negative significant correlation was detected (r = – 0.689, P< 0.001), Fig. (19) and table (6).

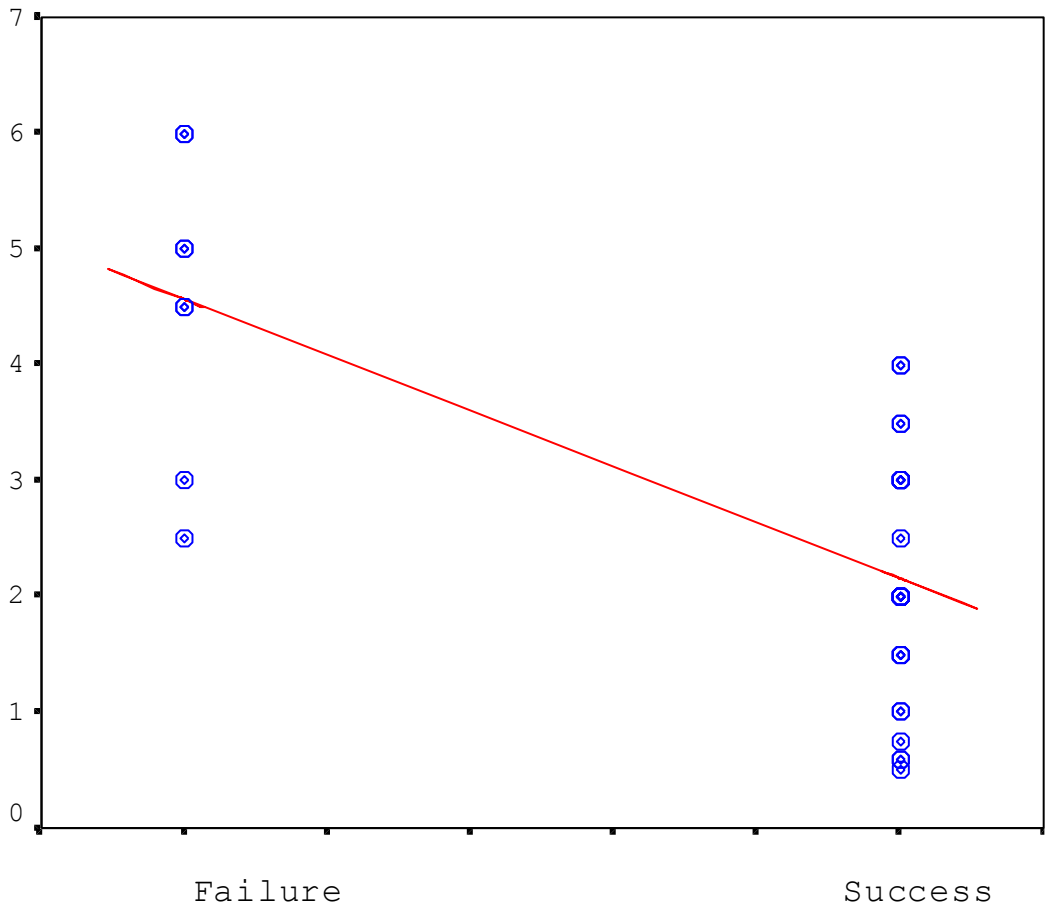


Fig. (19): Correlation between preoperative duration of epiphora and postoperative improvement

Table (4): Preoperative duration of epiphora (years) in correlation to postoperative improvement

	Preoperative duration of epiphora & postoperative improvement
R	**- 0.689**
P	**<0.001**
Significance	**Significant**
Type of correlation	**Inversely proportional**

The success rate was 100% in cases of group I (10 cases), 91.7% in group II (11 of 12 cases), 90% in group III (9 of 10 cases), while was 25% in group IV (2 of 8 cases) , Fig. (20) and table (4). Comparison of the number of eyes with improved symptoms to that failed revealed a significant difference on comparison of group I, (X^2=8.86, P<0.05), group II, (X^2=11.34, P<0.05)and group III, (X^2=9.18, P<0.05) versus group IV. However, there was a non-significant difference between group I, (X^2=0.55, P>0.05) and group II, (X^2=0.75, P>0.05) as compared to group III. Moreover, the difference of success rate between groups I and II showed a non-significant difference, (X^2=0.76, P>0.05), (Table 5).

Table (5): Postoperative improvement in different groups

	Group I 0.5-2 years	**Group II 2-3 years**	**Group III 3-4 years**	**Group IV 4-6 years**
Number of eyes	**10**	**12**	**10**	**8**
Improved eyes	**10 (100%)**	**11 (91.67%)**	**9 (90%)**	**2 (25%)**

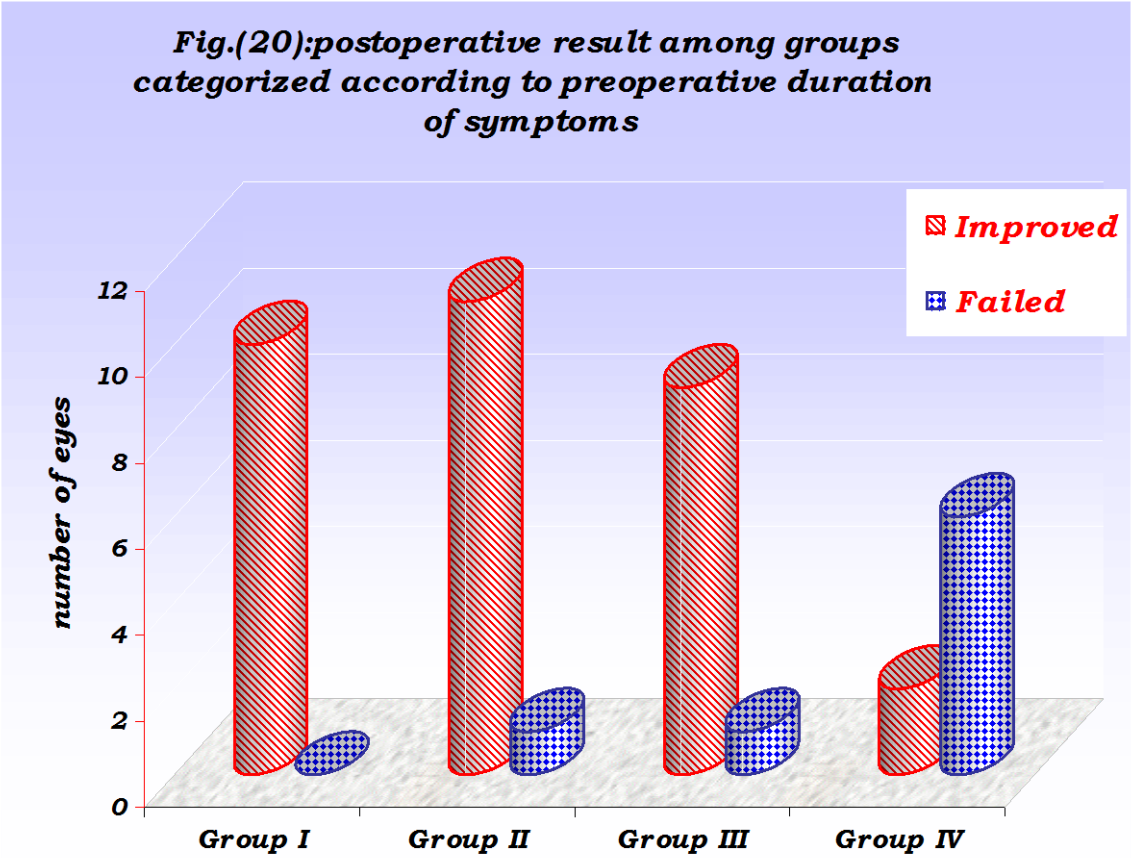


Table (6): Comparison of percentage of improvement among eyes categorized according to duration of preoperative symptoms

		% of improvement	X^2	P
Group IV (25%)	Group I	100%	8.86	<0.05
	Group II	91.7%	11.34	<0.05
	Group III	90%	9.18	<0.05
Group III (90%)	Group I	100%	0.55	>0.05
	Group II	91.7%	0.75	>0.05
Group II (91.7%)	Group I	100%	0.76	>0.05

رسمة هذه الصفحة موجودة فى ملف منفصل
بإسم DOC 1 بالمجلد العام للرسالةس

Complications:

In this study most of patients tolerated the DCG and probing procedures well. However, we faced a number of complications during both procedures. These complications included:

A- Complications during DCG procedure:

1- Eight cases (20%) reported mild to moderate discomfort during injection of the contrast medium (i.e. lipiodol), however, this did not interfere with completing the procedure.

2- Infiltration of the subcutaneous tissues with the oily contrast medium (i.e. lipiodol) had occurred only in one case (2.5%) as a result of false passaging though the lower canaliculus with subsequent mild swelling in the lower lid. The DCG procedure was not completed and the patient received medical treatment in the form of a combined antibiotic and steroid eye drops (Tobramycin 0.3% + Dexamethazone 0.1%) every 6 hours and an antibiotic ophthalmic ointment (Tobramycin 0.3%) at bed time with hot fomentation for one week and followed up for a month. Such infiltration was cleared without any adverse effects, then DCG procedure was performed again.

B- Complications during lacrimal excretory system probing:

1- Fourteen cases (35%) have complained of mild to moderate discomfort during probing procedure, but this did not interfere with completing the procedure.

2- Sixteen cases (40%) showed minimal bleeding refluxing from the lower punctum and in another 4 cases (10%) from the nose. Such bleeding resolved rapidly after performing temporary compression over the lacrimal system and the nose.

3- Six cases (15%) reported swallowing a little of the MM-C solution during its injection through NLD but no obvious adverse effects were noted or detected clinically in such cases along the follow-up period.

4- False passaging had occurred in three cases (7.5%) during the advancement of the probe through the NLD which was confirmed by feeling a gritty sensation, inability to pass the probe through the duct and the occurrence of subcutaneous edema in the area of the lower lid and lacrimal sac after trying to do lacrimal irrigation with normal saline. In such cases, the procedure was not completed and the patients received medical treatment in the form of a combined antibiotic and steroid eye drops (Tobramycin 0.3% + Dexamethazone 0.1%) every 6 hours and an antibiotic eye ointment at bed time for one week. After 3 weeks the procedure was performed again.

C- Postoperative complications:

1- Twelve cases (30%) reported postoperative pain around the eye for a few days, analgesic treatment was given to such cases in the form of Ketoprofen 50 mg capsule twice daily untill the pain subsided.

2- Four cases (10%) showed mild conjunctival inflammation during the first visit (i.e. next day) which disappeared after one week.

3- Six cases (15%) showed mild to moderate congestion of the nasal mucosa during the first visit, which was resolved after giving a combined nasal decongestant and anti-allergic drops for one week under the consult of the ENT specialist.

4- Four cases (10%) showed mild acute dacryocystitis in the first visit which resolved after adding a systemic antibiotic (cephradine 500 mg capsule) twice daily with hot fomentation for a week.

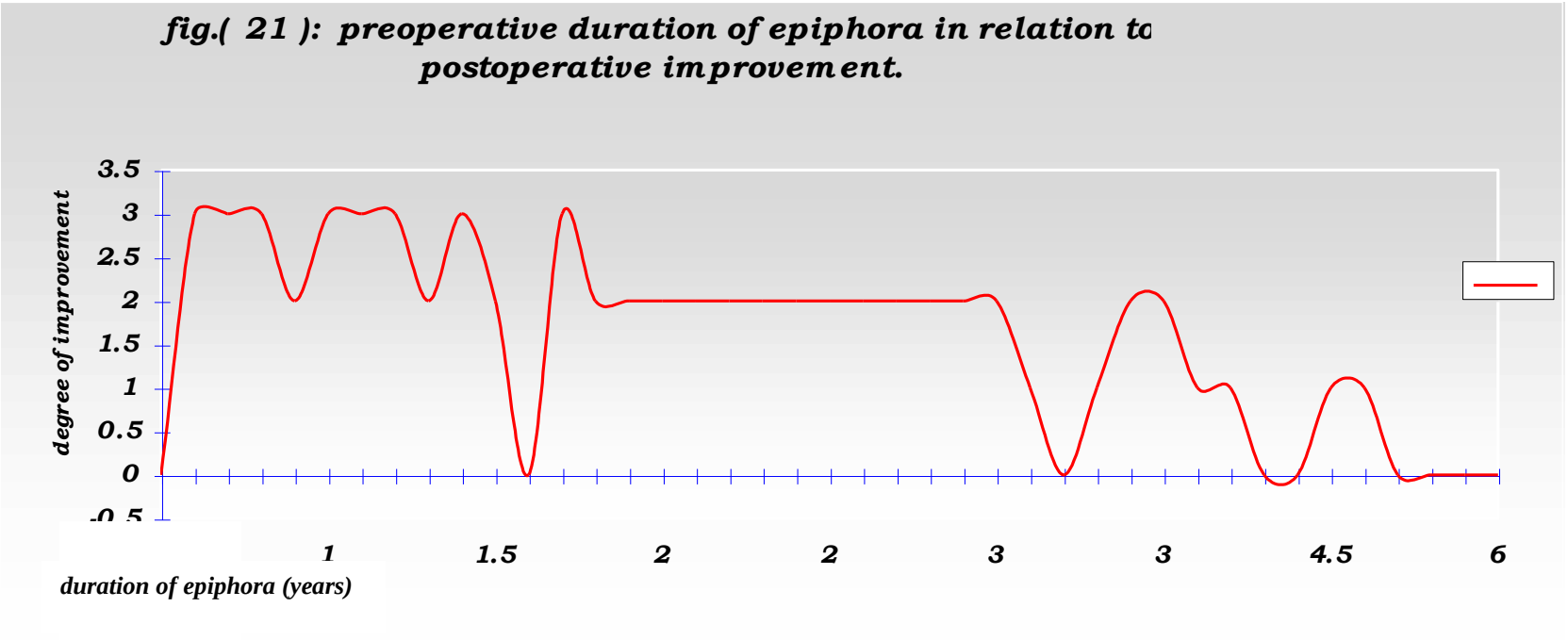
5- A second probing procedure was performed in eight cases (20%) as a result of recurrence of NLDO which was detected during follow-up visits by NLD irrigation and DCG. In those 8 cases patency was regained only in four cases (10%).

Table (7): Complications of both DCG and probing procedures

Complications	Number of eyes	% of total
A- During DCG procedure:		

1- Mild discomfort during lipiodol injection	8	20%
2- Infiltration of subcutaneous tissues with lipiodol	1	2.5%
B- During probing procedure:		
1- mild to moderate discomfort	14	35%
2- Mild bleeding from the lower punctum	16	40%
3- Mild bleeding from the nose	4	10%
4- Swallowing a little of MM-C solution during injection.	6	15%
5- False passaging through NLD	3	7.5%
C- Postoperative complications:		
1- Pain around the eye.	12	30%
2- Mild conjunctival inflammation.	4	10%
3- Mild to moderate congestion of the nasal mucosa	6	15%
4- Mild acute dacryocystitis	4	10%
5- Lost NLD patency	8	20%

fig.(21): preoperative duration of epiphora in relation to postoperative improvement.



: Degree of improvement - 0= no improvement - 1 = mild improvement
2= moderate improvement - 3 = complete improvement