# Recurrence Rate of Pterygium after Surgical Excision with Simple Primary Suturing.

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## ABSTRACT:

**BACK GROUND :**

Pterygium is a common ocular disorder in Iraq and in different parts of the world. Recurrence after surgical excision is a common problem.

**OBJECTIVE:**

To determine the recurrence rate of the condition after surgical resection with primary suturing .

**PATIENTS AND METHODS:**

(118) eyes with pterygium presented to Ramadi Teaching Hospital were prospectively studied , there were (55) males and (63) females aged between (17) years and (65) years.

Surgical excision of pterygium with primary suturing was done for those patients.

**RESULTS :**

Results showed that the recurrence rate was (30.5%) of eyes and it was higher in age group below 40 years and in females, while the size of pterygium has no significance in relation to the recurrence rate.

**CONCLUSION :**

The recurrence rate after surgical excision with primary suturing of conjunctiva is (30.5%) .

Females and patients below 40 years have greater risk of recurrence.

It is recommended to modify the surgical method or to use new surgical procedures to reduce the recurrence rate of pterygium after surgery.


***KEY WARDS :*** pterygium , pterygium excision , recurrence of pterygium.

## INTRODUCTION:

**Definition:**

A pterygium is a horizontally oriented triangular-shaped abnormal fibovascular overgrowth of degenerative bulbar conjunctiva that invades the cornea between the epithelium and bowman's zone, and it can be divided into three parts (body , head and cap). [1,2,3]

**Pathogenesis:-**

Many theories have been proposed to explain the cause of pterygium.[2]

It has been proved experimentally that ultraviolet radiation has got the potential to induce proliferative changes and it is the UV –B (290-320 nm) that is involved in the production of pterygium.[2]

Barraqur proposed tear film abnormality as a cause of pterygium formation [4],as well as Paton who supposed that local drying may lead to new fibroblastic head of the pterygium ingrowth [5] .

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**Clinical features**:-

In its earliest stages, a pterygium arises as an elevated mass on the bulbar conjunctiva near the limbus and engorged radial vessels appear .[6]

As the pterygium enlarged toward the limbus ;symptoms of burning, irritation ,lacrimation and foreign body sensation . Disruption of pre-corneal tear film may accompany the growth of a pterygium . [6]

About 90% of pterygia are located nasally , nasal and temporal pterygia can occur in the same eye but isolated temporal pterygia are rare . Both eyes are frequently involved but often asymmetrically.[6,7]

Significant astigmatism either with or against the rule may be found .[8]

In severe cases, symblepharon formation may limit ocular motility and a deposit of iron (stocker line) may be seen in the corneal epithelium.[2]

**Differential diagnosis** includes *pseudopterygium*, *pinguecula*, *conjunctival neoplasia* (like sequamous cell carcinoma) and *other rare lesion*s (like epithelial cyst ). [2,3,9]

**Management:-**

***1-Medical treatment:-***

Mild pterygium with ocular irritation should be managed conservatively by avoiding smoke and dusts ,topical lubricant , vasoconstrictor and a mild non penetrating corticosteroid such as medryson 1% .[10]

To prevent progression, some authors have advocated the use of UV blocking spectacles.[10]

***2-Surgical treatment:-***

This is indicated for cosmetic reasons ,persistent discomfort ,vision distortion , significant and progressive growth toward the corneal center (visual axis) and restricted ocular motility. [2,3,43]

Surgical options for treatment of pterygium include :-

***I-surgical excision***: which includes :

**1-Bare sclera excision:** by removal of all remnant ,healing conjunctiva becomes adherent to the sclera & is less likely to recurs .[11]

**2-Excision with primary closure** , which can be achieved by ;-

**a-** Simple closure through re-approximation of the free edges of the conjunctiva .[12]

**b-** Sliding conjunctival flaps from either the superior or inferior; which has been reported to have a 1- year recurrence rate of only 5% .[13]

**c-** Rotational flap where a U- shaped incision is made to form a tongue of conjunctiva that is rotated into place . [9]

**3-Excision and Conjunctival transplantation**: can be performed by:-

**a-** Transplantation of the pterygium head .[14]

**b-** Conjunctival Z- plasty .[15]

**4- Excision and conjunctival auto graft :-**

The use of free conjunctival auto graft was described by Kenyon et al with low recurrence rate .[16]

**5- Excision and limbal auto graft:-**

The procedure of limbal auto graft has been shown to be effective in the management of both primary and recurrent pterygia . [17]

**6-Excision and amniotic membrane transplantation:**

The amniotic membrane has been effectively used as a conjunctival substitute for reconstruction of conjunctival defects with a lower recurrence rate.[18]

***II-Adjunctive therapy:***

A number of adjunctive therapies has been described to reduce the risk of pterygium recurrence ; and these include ;-

**1-Cauterization:-** Several studies have advocated the use of intra-operative cautery. [19]

**2-Corticosteriod:-**post operative use of topical corticosteroid may reduce neovascularization .[20]

**3-Thiotepa:-** Meacham and Mori simultaneously describe the use of 1:2000 dilution of thiotepa for 8 weeks following bare sclera excision, with a low rate of recurrence. [6,21,22]

**4- Mitomycin C:** It has been used by Kunimoto and Mori with no recurrences [23], but several reports describe many complications [24,25]

**5- B- radiation :** Strontium -90 is used as a source of B- radiation and is supposed to be the safest and most effective mode of application to the eye.[9,26] but many complications have been reported with use of B-radiation . [27,28]

**6-Laser therapy:-** Caldwell et al advocate the technique of applying argon laser to early neovascular tufts. [29,30]

## PATIENTS AND METHODS:

From January 2006 to May 2009 , (118) eyes of (118 patients) with pterygium presented to The Ophthalmic Department in Ramadi Teaching Hospital were studied prospectively.

There were (55) males and (63) females , aged between (17) years and (65) years.

A full history was taken from each patient followed by thorough slit lamp examination for both eyes , then estimation of size (small, medium or large size) and laterality of the pterygium were done.

A small size is a pterygium which is not involving the limbus , a medium size is a pterygium which crosses the limbus for (1-2) mm of the cornea while large size includes fleshy pterygia which involve more than (3 mm) of the cornea . [39,43,50]

After establishment of pterygium ;a surgical excision of the pterygium with simple primary suturing of the conjunctiva with ( 8/0) virgin silk was done for all cases in The Ophthalmic Surgical Theater of Ramadi Teaching Hospital ( without graft technique or the use of adjunctive therapy).

The data from each patient were recorded for further study and proper management was advised for each patient and then the patients followed up for a period ranged from (6-12) months since this period was suggested by previous studies to be enough to identify a recurrence .[31,32]

Recurrence is defined as "any fibrovascular

growth extending across the limbus onto the cornea at the site of surgical excision". [41,43] This difinition is depended for estimation of recurrent cases.

Recurrent , post traumatic, post chemical injury cases and patients who didn't attend regular follow up were excluded from the study .

**RESULTS:**

The results of the study showed that only (36)eyes (30.5%) from a total number of (118) eyes had developed recurrence of pterygium after surgical excision.

There were 55 males (46.6%) and 63 females (53.3%) aged between (17 ) years and (65) years. (table 1).

The mean age was (38.88) years with standard deviation of( 2.0).

Age distribution shows that the lowest distribution (6 patients) occurred in those below (20 ) years old which equals to (5.0% ) , and (65 patients) for those between (21 -40 ) years old (55%) while (47 patients) for those above (41) years old (39.8%) . (table 2 ).

The results also showed that there were ( 37) eyes with small size pterygium which form (31.3%) of cases , (50) eyes with medium size pterygium which form (42.3%) of cases while eyes with large pterygia were (31) eyes forming the remaining (26.3%) of cases. (table 3 ) .

Regarding the recurrence rate in relation to the age , it appears that the higher rate of recurrence occurs in the age group (21- 40) years where it occurred in (23) eyes which form (63.8%) of total eyes, then followed by the age group above (41) years where it occurred in (11) eyes forming (30.5%) of total eyes , while only (2) eyes had developed recurrence in the third age group below (20) years forming only (5.5%) of total eyes. (table 4)

Regarding the recurrence rate in relation to the sex, it appears that a higher rate of recurrence occurs in females where it occurred in(25) eyes which form (69.4%) of total eyes while in males it occurred in (11) eyes forming (30.5%) of total eyes. (table 5)

Regarding the recurrence rate in relation to the size of the pterygium , it appears that no significant difference in the rate of recurrence between the three size groups ,of these (12) eyes with small pterygia which form (33.3%) , (14) eyes with medium size pterygia which form (38.8%) and (10) eyes with large pterygia forming (27.7%) of eyes with recurrence (table 6) , but the recurrence rates were found to be ( 32.4%) among eyes with small pterygia , (28% ) among eyes with medium size pterygia and (32.2%) among eyes with large pterygia.

The results showed that progressive growth and cosmoses are the main indications for surgery in (48) eyes and (43) eyes respectively which form (40.6%) and (36.4%) of total eyes ,then followed by (22) eyes with persistent discomfort which form (18.6%) and only (5) eyes with visual impairment which form (4.2%) of total eyes while there was no single eye with restricted ocular motility in our patients.

There were (52) patients (44.1%) with unilateral pterygia and (66) patients with bilateral pterygia (55.9 %) ; the laterality was found not to be significant regarding the recurrence rate of pterygium.

Regarding the occupational history there were (48) patients had an outdoor occupation (40.6%) and (70) patients had an indoor occupation (59.3%).

**Table: Sex distribution of the patients**

| SEX | NO. OF EYES | % |
|---|---|---|
| Male | 55 | 46,6% |
| Female | 63 | 53.3% |
| Total | 118 | 100% |

**Table 2: Age distribution of the patients**

| AGE (YEARS) | NO. OF EYES | % |
|---|---|---|
| Below 20 | 6 | 5.0% |
| 21 - 40 | 65 | 55.0% |
| Above 41 | 47 | 39.8% |
| Total | 118 | 100% |

**Table 3: Size distribution of the pterygia**

| SIZE | NO. OF EYES | % |
|---|---|---|
| Small | 37 | 31.3% |
| Medium | 50 | 42.3% |
| Large | 31 | 26.3% |
| Total | 118 | 100% |

**Table: Relation between age and recurrence**

| AGE(YEARS) | NO.OF REC. | % |
|---|---|---|
| Below 20 | 2 | 5.5% |
| 21-40 | 23 | 63.8% |
| Above 41 | 11 | 30.5% |
| Total | 36 | 100% |

**Table 5 : Relation between sex and recurrence**

| SEX | NO.OF REC. | % |
|---|---|---|
| Male | 11 | 30.5% |
| Female | 25 | 69.4% |
| Total | 36 | 100% |

**Table 6: Relation between size and recurrence**

| SIZE | NO. OF REC.EYES | % |
|---|---|---|
| Small | 12 | 33.3% |
| Medium | 14 | 38.8% |
| Large | 10 | 27.7% |
| Total | 36 | 100% |

**Table 7: Indications for pterygium surgery**

| INDICATION | NO.OF EYES | % |
|---|---|---|
| Progressive growth | 48 | 40.6 % |
| Cosmoses | 43 | 36.4 % |
| Persistent discomfort | 22 | 18.6 % |
| Visual impairment | 5 | 4.2 % |
| Total | 118 | 100 % |

## DISCUSSION :

Although there is no previous study about the prevalence of pterygium in Iraq , the disease is very common in outpatients clinics and large proportion of those patients consult ophthalmologists seeking for surgical treatment of the condition.

Recurrence of pterygium after surgical treatment is one of the common problems all over the world and there is no single procedure is satisfactory or being superior to another[33,34,35,36] , but simple excision with primary conjunctival suturing is still one of the common procedures used for pterygium treatment all over the world [37,38].

Results of our study showed that the recurrence rate after simple surgical excision with primary suturing of conjunctiva was (30.5%) , previous studies in different parts of the world showed great fluctuations in the prevalences of recurrence rates ranging from (5%) to (58.5%) [32,33,34,36,39,40,41,42,43,44,45,46]. Studies in Africa reported that the recurrence rate ranges from 24% to 40% [32,39] while the recurrence rate in the United States was reported to be 5% only[41], in Germany 58.5%[34] , in India it ranges from 16.7% to 20.2% [43,44 ], in Australia 46% [36], in Tunisia 55.9%[42] and in Iran it ranges from 13.4% to 31%[33,40] .This means that the recurrence rate in our study is acceptable and lies within the range of recurrence rates all over the world but the cause of such great fluctuations all over the world probably belongs to genetic , personal and environmental factors [47].

Previous studies state that the condition affects

males more than females all over the world [32,33,43,48,49] and although it is expected to affect males more than females in Iraq due to occupational habits ; our results showed that females seek for surgical treatment (53.3%) slightly more than males (46.6%) . This is probably because females pay more attention for cosmoses than males.

The mean age of presentation of patients with pterygia was (38.88) and the age group (21 -40) years showed the highest distribution among other age groups of patients in our study .These results are similar to the results of many studies carried out in different parts of the world [32,48,49,50] except one study carried out in Iran which showed higher mean age of (49) years [33] and the reason for this is that the disease mainly affects people who spend a lot of time exposing to sun light and they are usually lies within this active age group.

It appeared that a higher rate of recurrence(63.8%)occurred in the age group( 21-40) years .This result is compatible with the results in other studies which reported that patients below 40 years face greater risk of recurrence [32,43] ,and this is probably because those people spend a lot of time exposing to sun light which is an important risk factor for recurrence.

In the present study females showed a higher rate of recurrence (69.4%) than males(40.6%) . This result is consistent with the results of a previous study in Africa which reported that the recurrence rate is twice higher in females than males[32] , while another study in India reported that the recurrence was significantly more in males who face greater risk of recurrence [43] .This discrepancy is probably due to genetic , social and environmental factors .

Regarding the recurrence rate in relation to the size of the pterygium , it appears that no significant difference in the number of eyes with recurrence among the three size groups in our study . But it is clear that the recurrence rate among eyes with large pterygia (32.2%) is higher than eyes with medium size pterygia (28%) and this is in consistency with results of previous studies which stated that simple excision is not recommended for large, vascular and recurrent pterygia because of high recurrence rate [32,43], on the other hand the recurrence rate among eyes with small pterygia is comparable with that among eyes with large pterygia in our study; and this discrepancy is probably due to small sample of eyes with large pterygia in comparism with those having small pterygia in the study.

The results showed that the main indications were progressive growth and cosmoses, while results of other studies reported that the main indication is visual impairment [43] ,this discrepancy is probably due to social and environmental factors.

The occupational history was found to be mainly indoor in our study, this is not consist with the reported fact that the condition is more prevalent among people with an outdoor occupation [33,42,43,49] ,this discrepancy probably because most patients in our study are not reliable in giving their occupational history due to social embarrassment .

## CONCLUSION:

The recurrence rate after surgical excision with primary suturing of conjunctiva is (30.5%) .

The condition is common in our community and it is more prevalent among young age people and females seek for surgical treatment more than males.

Females patients and young age group patients carry higher risk for recurrence while the size of pterygium has no significance.

It is recommended to modify the surgical method and to use new surgical procedures like conjunctival auto graft or to use adjunctive therapy with surgery to reduce the recurrence rate of pterygium.

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