A RANOMISED CLINICAL STUDY OF

DIFFERENT TYPES OF SURGERIES FOR

PTERYGIUM

DISSERTATION FOR M.CH (Ophthal) CERTIFICATION PROGRAMME

UNIVERSITY OF SEYCHELLES AMERICAN INSTITUTE OF MEDICINE

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DECLARATION

I, DR. ANIL DUTTA VYAS, do hereby declare that this dissertation titled "A RANDOMISED CLINICAL STUDY OF DIFFERENT TYPES OF SURGERIES FOR PTERYGIUM" is my original work done in the eye department of Central hospital, Yefren, Libya and Dr. N.S. SADIQ M.B.B.S., M.S., Ophthalmology from Gerian Hospital, Libya had also participated in this study.

DR. ANIL DUTTA VYAS
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INTRODUCTION

ABSTRACT AND CONCLUSION

Pterygium is a triangular fibro-vascular tissue of bulbar conjunctiva encroaching onto the cornea usually within the interpalpebral tissue and most often from the nasal side.

Pterygium is most common in the so called “pterygium area” which is defined by geographical latitude of 40 Degree Celsius North and South of the equator. This surgical study was conducted in Libya which falls between these latitudes.

LIBYA

The fact that numerous different techniques exists for the surgical treatment of pterygium, and there is no single approach which is universally successful.

The purpose of this study is to compare the four techniques used at Central Hospital Yefren, Libya including Bare sclera, Intra operative
mitomycin C, Conjunctival flap reconstruction and Conjunctival Autografting technique in treatment of primary pterygium in terms of recurrence, post operative pain or irritation injection, photophobia, corneal epithelial defect and sub conjunctival hemorrhage.

24 eyes of 19 patients were included in this study and they were all selected from outpatient of Eye department, Central Hospital, Yefren, LIBYA, a 130 bedded Hospital. The study was conducted from May 2010 to February 2011.

During the follow up period of 6 month 24 eyes of 19 patients were observed and found that recurrence as highest with Bare Sclera group and lowest with conjunctival Autografting (CAG), Conjunctival flap reconstruction and mitomycin C respectively. Also found that rate of up coming complication ( including injection photophobia, irritation, corneal epithelial, defect were more with conjunctival autograft and conjunctival flap reconstruction and least with bare sclera.

SCOPE OF THE PROBLEM

There are various surgical techniques now available to treat pterygium a part from four techniques studied in this group are use of B radiation, use of armniotic membrane, cut and paste technique (recent)
As recurrence of pterygium is very common and usually patients are informed for same pre-operatively. Conjunctival autograft, conjunctival flap reconstruction and use of intra operative mitomycin c have been studied and shown to have less recurrence. Conjunctival autograft though time consuming is a better option for ophthalmologist and beginner.
MATERIAL AND METHOD

A total of 24 consecutive primary pterygium were enrolled in this study. The study was performed during six months. Each patient underwent a complete ocular examination including visual acuity, slit lamp bio microscopy, funduscopy, IOP measurement. The pterygium was measured for laterality, length across the limbus and amount of encroachment on cornea. All patient taken of <3-3mm length. Patients were divided into groups ie.

Group A: 6 Eyes were operated with bare sclera method.

Group B: 6 Eyes were operated with use of intra operative mitomycin C

Group C: 6 Eyes were operated with conjunctival flap reconstruction.

Group D: 6 Eyes were operated with conjunctival autograft

THE TECHNIQUES:

Surgical procedures were performed under local anesthesia using an operating microscope. 0.5ml of local anesthetic lidocaine HCL 20mg/ml + epinephrine 0.0125 mg/ml was injected under pterygium body with 26 No. needle. A crescent blade was used to
excise the corneal part of the pterygium. The excision was started from 0.5mm transparent cornea through the limbus is passed, the pterygium was extracted with the tenon’s under the body using a pair of wescott scissors. List of instrument used are shown in picture.
BARE SCLERA:

- Pterygium excision done

- 4mm bare sclera is left behind and eye closed after putting antibiotic ointment.
INTRA OPERATIVE MITOMYCIN C:

- Pterygium excision done.
- A cellulose sponge of 3mm x 4mm containing 0.2mg/me mitomycin C is applied is scleral bed, 2mm from limbus for 2 mins.
- This 2 mm area is irrigated with 200ml of normal saline solution is clear mitomycin C residues.
- The conjunctiva is closed is gather with 8/0 silk suture leaving 4mm bare sclera.

CONJUNCTIVAL ROTATIONAL FLAP RECONSTRUCTION

- Pterygium excision is done

Conjunctival flap was subsequently made from the superior conjunctiva near the limbus.

The flap in thinly dissected avoiding tenon’s Capsule and transposed to pterygium encision site

The flap in secured to the adjacent conjunctiva with running suture 100 Monofilament
The cut edges of the conjunctiva on the donor site were pulled to cover the bare sclera and anchored to limbus with 10/0 mono filament.
CONJUNCTIVAL AUTOGRRAFTING (CAG)

-Pterygium encision done
-Dimension of bare sclera is measured
-Superior temporal conjunctiva of the same eye approximately 1mm greater than bare sclera size is measured and marked.
-Conjunctiva dissection is done leaving tenon’s capsule
-Autograft is transferred to bare sclera taking care limbal area of bare sclera receives limbal area of autograft.
-8/0 vicryl suture are put in such a manner that they are fixed to sclera at limbal side, about 4 interrupted suture are put.

Post operative treatment included topical ciprofloxacin eye drop QID for weeks.
The sutures were removed after 1 week. follow up of these patients were done at 1 day, 1 week, than 1,2,3, and 6 months. Later post operatively.
PICTURE A-F SHOWS CONJUNCTIVAL AUTOGRAFTING BEING DONE WITH 8-0 VICRYL, Interrupted.
OBSERVATION AND OUTCOME

Among all four procedures done on 24 eyes, recurrence rate was least with conjunctival autograft, conjunctival flap reconstruction and intra operative mitomycin C.

Conjunctival autograft though being time consuming is with lowest recurrence

Inclusion Criteria:

Only patient with primary pterygium included in this study.

Exclusion Criteria:

- Pre existing conjunctival or corneal problem such as trauma or scar, Bullous Keratopathy Persistent epithelial defect, dry eye.

- Glaucoma

- Collagen Vascular Disease
Recurrent Pterygium

-Pseudo pterygium

ANALYSIS AND DISCUSSION

24 Eyes of 19 patients were operated from May 2010 and June 2010 and later these patient called for follow up during postoperative period after one week, one month, two month, every month for six months.

Out of 19 patients, Males were 6 (32%) and females were 13(68%). Male: Female ratio 32:68. Bilateral pterygium in (27%) Unilateral pterygium is 73%
Patients randomly divided into four groups.

GROUP PROCEDURE DONE MALE FEMALE

A BARE SCLERA TWO FOUR

B

INTRA OPERATIVE

MITOMYCINIC

THREE THREE

C CONJUNCTIVAL FLAP ONE FIVE

D CONJUNCTIVAL AUTOGRFT TWO FOUR
STATISTICAL ANALYSIS

S.
NO
AGE SEX DIAGNOSIS
PTERYGIUM
PROCEDURE
DONE
OFF
ERE
D
EYE
(R)
OFF
ERE
RED
EYE
(L)
DATE OF
SURGERY
RECUUREN
CE TIME
MONTH
1 53 M NASAL INTRA
OPERATIVE
MITOMYCIN
R L 02/05/10
(RE)
23/05/10
(LE)
2 45 F NASAL CAG L 02/05/10
(LE)
3 47 F NASAL IO MITOC R 02/05/10 YES 4TH
4 52 M TEMPORAL IO MITOC R 09/05/10
5 43 M NASAL BARE
SCLERA
L 09/05/10 YES 4TH
6 50 F NASAL IO MITOC R L 09/05/10
(RE)
02/06/10
(LE)
7 49 M TEMPORAL BARE
SCLERA
R 23/05/10 TES 4TH
8 57 F NASAL CONJ FLAP R L 23/05/10
(LE)
30/06/10
(RE)
9 54 F TEMPORAL CONJ FALP L 23/05/10
10 58 F TEMPORAL BARE
SCLERA
R L 30/05/10
(RE)
06/06/10
(LE)
11 46 F NASAL CONJ AUTOG
R 30/05/10
12 44 F NASAL CONJ AUTOG
R 26/05/10

14
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<th>No.</th>
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<th>Diagnosis</th>
<th>Side</th>
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<td>13</td>
<td>45</td>
<td>M</td>
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<td>02/06/10</td>
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<tr>
<td>17</td>
<td>46</td>
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RESULT:

19 Patients were enrolled in this study. All patients had primary pterygium. The mean follow up period was 6 months.

TREATMENT

PROCEDURE

BARE SCLERA

MITOMYCIN C

CONJ FLAP CONJ

AUTOGRAPFT

AGE(MEN) 50+8YRS 48+5YRS 51+6YRS 45+2YRS

MALES/FEMALE 2/4 3/3/ 1/5 4/2

RECURRENCE 3(50%) 1(17%) 1(17%) 0

RECURRENCE TIME(MONTH)

4TH 4TH 3RD -

In this study, encision done on 24 eyes of 19 patients.

Of 6 patient treated with bare sclera three patient had recurrence, these patients were further treated with conjunctival autografting
Of 6 patients treated with Intra operative mitomycin C, one patient showed recurrence and was further treated with conjunctival autografting.

Of 6 patients treated with conjunctival flap technique, one patient showed recurrence and was further treated with conjunctival autografting from the opposite eye.

In this case the most common and persistent complaint was hyperaemia at the operation site, which decreased and resolved over 2 months of period.
From Group D where conjunctival autografting (CAG) done showed no recurrence.

Most recurrences were detected in 3-4 months 4th month for Bare th rd

Sclera, 4 month for Mitomycin C, 3 month for conjunctival flap reconstruction recurrence was observed in 5 cases with an overall rate of 21%

The most common post operative complaints was irritation followed by photophobia, wetting foreign body sensation and hyperaemia

Irritation was seen after the use of suturing technique in case after conjunctival flap and CAG.

No major complication threatening visual ability was encountered among surgical patient group.
BARE SCLERA MITOMYCIN C CONJ FLAP CAG

RECURRANCE

PROCEDURE DONE
GROUP 1: BARE SCLERA

GROUP 2: CAG, MITOMYCIN C, CONJUNCTIVAL FLAP
DISCUSSION

The recurrence of pterygium after surgical treatment remains a problem.

A number factor’s such as type of pterygium, age of patient, environment and surgical technique may be responsible.

Bare sclera technique has highest recurrence rate and has no advantage, Other than being simple and time saving, hence it is not recommended worldwide.

Mitomycin C is an antibiotic isolated from Streptomyces Caespitosis. It inhibits RNA, DNA and protein synthesis and is usually used in systemic anti cancer therapy. Various concentration of mitomycin C with different duration of applications have been used, but the minimal safe effective dosage and application time are still not certain. Rubin field and colleagues revealed reports of sclera ulceration Necrotising Sclerits, Scleral Calcification and loss of eye after pterygium excision with adjunctive mitomycin C remains to be determined with future long term trials. Patient should be followed up for long time.
In rotational conjunctival flap, the frequent symptom was formation of folds over the conjunctiva as result of rotation in the sliding flap area. Conjunctival flap tissue that is replaced over bare sclera is Adjacent to the excised pterygium tissue and changed limbal cells that might be localized on the flap could contribute to the development of the recurrence. This is very cumbersome technique.
Conjunctival autograft transplantation was first described as treatment of pterygium by Keyon and colleagues in 1985.

Starck and colleagues proposed that the efficient size of the autograft decreases the recurrence complications resulting from conjunctival autografting are rare and no treat to vision.

Allan and colleagues encountered one tenon granuloma, one conjunctival inclusion cyst and 3 wound dehiscence in a series of 93 cases and concluded that autografting technique results lower complication rates. All these complication were eliminated by minor surgical intervention.

In the conclusion, according to this study I recommend that even in recurrent pterygium and primary pterygium conjunctival autograft should be done. And this would be preferred choice for ophthalmologist and beginner.

In future, cut and paste technique which is recent and almost similar to conjunctival autograft with difference of no sutures. This should be consider in coming time at this hospital.
A-F Standardised slit-lamp photographs taken at 1 month, 3 month and 6 months respectively following pterygium surgery with conjunctival autograft using sutures, in two patients.
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