Endophthalmitis After Vitrectomy And Silicone Oil Implant

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A non-infective endophthalmitis was recognised in silicone filled eyes. A study was initiated to assess it further. A total number of 50 cases of vitrectomy and silicone oil implant were studied for immediate post operative complications with detailed study of endophthalmitis. The incidence of endophthalmitis was found to be 6%.It was noted that endophthalmitis occurs as an infective and a non infective variety. These have different signs and symptoms and a completely different prognosis. A non infective endophthalmitis should be recognised in the immediate post operative period and its treatment gives good results.
Key Words: Endophthalmitis; Vitrectomy; Silicone oil.

Endophthalmitis is a devastating complication of intraocular surgery. A study was carried out to observe the incidence of endophthalmitis after vitrectomy and silicone oil implant. The incidence was recorded at 6%.A non infective variety was also recognised and its significance as a type with different signs and symptoms and much better prognosis was highlighted.

Material and Methods

Patient selection.

A total number of 50 cases were studied. All cases had rhegmatogenous retinal detachments with proliferative vitreo retinopathy requiring the use of silicone oil. Cases with previous surgery were included in the study if silicone oil had not already been used.

Diabetics with rhegmatogenous retinal detachments were included if the diabetes was under good control. Cases with previous history of glaucoma or corneal disease were excluded. All cases were operated at the Institute of ophthalmology, Mayo hospital, Lahore. The surgery was performed by one surgeon and the equipment was standard and similar in all cases. All patients were given cephradine 500 mg (Velosef, Squibb) orally at eight hourly interval with the first dose six hours pre operatively. All patients received topical chloromycetin drops four times a day for two to three days prior to surgery.

Surgical technique

Three port pars plana vitrectomy was performed in all cases with external tamponade using either a 2.5 mm encircling band or local sialastic sponge. Internal or external drainage was performed with silicone oil as an internal tamponade. Cryotherapy to retinal breaks was applied in all cases where the breaks were identified. Membranes were peeled from the retinal surface as much as possible. No peeling of subretinal membranes was performed. Retinotomy was avoided as much as possible. All patients were given a post operative injection of Betamethasone 4 mg and Gentamycin 20 mg subconjunctivally.

Results:

The immediate post operative complications noted are given in table 1 Endophthalmitis was studied further.

Table 1

Complication	n=	%age
Raised intraocular pressure	10	20
Oil migration behind retina	4	8
Corneal oedema	4	8
Endophthalmitis	3	6

Case 1

60 year old aphakic male with total retinal detachment, and grade II proliferative vitreoretnopathy and a superior retinal break underwent total vitrectomy with cryotherapy, external tamponade, internal drainage inferior irodotomy and internal silicone oil implant. His first post operative examination showed vision of perception of light, no pain, no lid swelling, marked anterior chamber reaction and a hypopyon.

Anterior chamber aspirate was sent for gram stain and culture and sensitivity. As soon as the result was available as negative for any bacteria, the patient was started on 60 mg of prednisolone orally. He responded well and the reaction cleared within a week to ten days. The final outcome was a visual acuity of 3/60 and a quiet eye with clear silicone oil.

Case 2

58 year old male with pseudophakic total retinal detachment, early proliferative vitreo retinopathy and no visible break underwent a total vitrectomy, 360 degrees encirclement, external drainage , inferior iridotomy and internal tamponade with silicone oil. The findings on the first post operative day were very similar to the first case with good perception of light, no pain or lid oedema but marked exudates in the anterior chamber and a hypopyon. The anterior chamber tap was negative for any organism and the patient was given 60 mg of oral prednisolone

daily and gradually tapered off over four weeks. He again showed dramatic improvement and finally recovered a vision of 6/60 with clear oil and a quiet eye.

Case 3

65 year old aphakic female with a broad iridectomy (intracapsular cataract extraction) and a total retinal detachment with grade two proliferative vitreo retinopathy and multiple superior breaks underwent pars plana vitrectomy, external 360 degrees tamponade, cryotherapy, inferior iridotomy and internal drainage with silicone oil implant. The first post operative day showed no perception of light, marked swelling and pain and an anterior chamber full of exudates and a small hypopyon. Anterior chamber tap revealed staphylococcus epidermidis and despite oral steroids and intravitreal antibiotics (gentamycin), there was no recovery of vision. The eye however became quiet.

Discussion.

Silicone oil is widely used by retinal surgeons and the well recognised complications are cataract formation, emulsification of the oil, glaucoma and migration of the oil behind the retina. Endophthalmitis has been reported in literature but the identity of sterile endophthalmitis has never been recognised before. A review of literature shows the first reports came out in 1976.Blankenship reported three cases in a series of 1500 cases and in all three cases he was able to identify a causative organism, being staphylococcus aureus in two and alpha haemolytic streptococcus in the third one. All his cases had no perception of light from the first postoperative day and stayed like that despite treatment[1]

May and Peyman reported a single case out of a series of 250 cases and identified staphylococcus as the causative organism. The patient lost perception of light which never recovered.[2].Ho and Tolentino reported four cases and again all these lost perception of light and never recovered any. They isolated pseudomonas in one, staphylococcus in two and enterobacter cloacae in the fourth case.[3]. Chong reported one case and again the organism was pseudomonas and the patient lost perception of light.[4]. Zivojnovic is the only one who reviewed 100 cases and reported four cases of endophthalmitis. Two of his cases recovered good vision. He has not detailed the presence or absence of organisms in his cases[5].

Conclusion

In our opinion and as shown by the cases that we have had, there are two different categories of endophthalmitis in patients with vitrectomy and silicone oil implant. The infective type is associated with pain, swelling and devastating affect on vision. The sterile type has a much better prognosis. This condition needs to be recognised and evaluated further. It was perhaps the type in Zivojnovic's two cases although he did not specifically recognise and report it.

The cause of sterile endophthalmitis remains a mystery and perhaps it is the reaction of an individual to one of the many impurities present in the silicone oil. Silicone oils from different sources have been analysed and found to have low molecular weight units, copper, iron, magnesium, manganese, aluminium and a whole load of other elements.

Recognition of non infective endophthalmitis as a separate entity needs to be done and a further study of the factors responsible may lead to the detection of such a severe and alarming reaction in such patients.

References

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