

Fibrotic scar membrane formation in patients undergoing penetrating keratoplasty

Formação de membrana fibrótica cicatricial em paciente submetido à ceratoplastia penetrante

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ABSTRACT

The emergence of opaque fibrotic membrane in transplanted cornea is little described in national and world literature. The goal is to report the case of a patient with leucoma total of left eye that was submitted to the penetrating keratoplasty leading to formation of double anterior chamber due to the emergence of a fibrotic scar membrane. Male patient, 54 years, with total herpetic keratitis secondary leucoma, diabetic for 20 years, using insulin, with non-proliferative diabetic retinopathy. Held membranectomy surgery with postoperative complications.

Keywords: Corneal transplantation; Eye banks; Anterior chamber; Leukoma; Keratoplasty, penetrating; Case reports

RESUMO

O surgimento de uma membrana fibrótica opacificada na córnea transplantada é pouco descrito nas literaturas nacional e mundial. O objetivo é relatar o caso de um paciente com leucoma total de olho esquerdo que foi submetido à ceratoplastia penetrante levando a formação de dupla câmara anterior devido ao surgimento de uma membrana fibrótica cicatricial. Paciente do sexo masculino, 54 anos, com leucoma total secundário a ceratite herpética, diabético há 20 anos, em uso de insulina, com retinopatia diabética não proliferativa. Realizou-se cirurgia de membranectomia com complicações pós-operatória.

Descritores: Transplante de córnea; Bancos de olhos; Câmara anterior; Leucoma; Ceratoplastia penetrante; Relatos de casos

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INTRODUCTION

Between January and June 2015, 6585 corneal transplants were carried out in Brazil, equivalent to 65.0 per million population (pmp), being the second largest number among organs and tissues, second only to bone transplantation⁽¹⁾.

Changes in the frequency of corneal diseases, the improvement of surgical techniques and the implant of intraocular lenses have contributed to the increase in the number of penetrating keratoplasties carried out in recent years and their highest success rate⁽²⁾. Penetrating keratoplasty is typically the surgery of choice in the rehabilitation of patients with blindness caused by corneal diseases⁽³⁾, but it may cause some postoperative complications such as low visual acuity due to the formation of scar tissue and formation of double anterior chamber⁽³⁾.

The formation of double anterior chamber due to the emergence of fibrotic scar membrane in patients undergoing penetrating keratoplasty for total leucoma is a case not well described in national and world literature.

The objective of this work is to report the case of a patient with total leucoma of the left eye who underwent penetrating keratoplasty with the formation of double anterior chamber due to the emergence of a fibrotic scar membrane. He underwent membranectomy with posterior endothelial failure and need for a new penetrating transplant.

CASE REPORT

JERS, 54 years, male, natural from the city of Bonópolis - Goiás. He was referred to cornea transplant by total leucoma in the left eye secondary to herpetic keratitis. He reported being diabetic for 20 years with the use of insulin - with non-proliferative diabetic retinopathy.

The eye examination showed visual acuity (VA) with correction in the right eye (RE) of 0.7, and in the left eye (LE) of hand movement. The Goldman applanation tonometry showed intraocular pressure (IOP) in the RE of 18 mmHg and in the LE of 20 mmHg. Biomicroscopy exam in the RE with no changes, and LE presenting leucoma and cataract. Fundoscopy was not displayed due to the opacity of the media. B-mode ultrasound showed the LE without changes. In view of this, a phacoemulsification surgery was indicated, with the implantat of intraocular lens and corneal transplant at the same time (triple surgery).

On the third postoperative day, he started feeling intense pain in the LE associated to high IOP (53 mmHg) in the same eye. Urgent medication was prescribed to control the IOP (mannitol and carbonic anhydrase inhibitor) - along with high systolic BP in 20 mmHg and decreased blood sugar from 180 mg/dL to 176 mg/dL, after use of mannitol. Four days afterwards, a synechialysis surgery and a peripheral iridectomy were performed. During the first month of clinical follow-up, the patient evolved with the formation of an opaque fibrotic membrane in transplanted cornea, which generated a double anterior chamber (Figure 1).

Three months afterwards, a membranectomy and a synechialysis surgery were performed (Figure 2).

Six days after surgery, the right eye pressure (REP) was 15 mmHg, and the left eye pressure (LEP) was 28 mmHg. Refraction in the RE: + 0.25 -0.75 85°, and refraction in the LE: + 3.75 -3.25

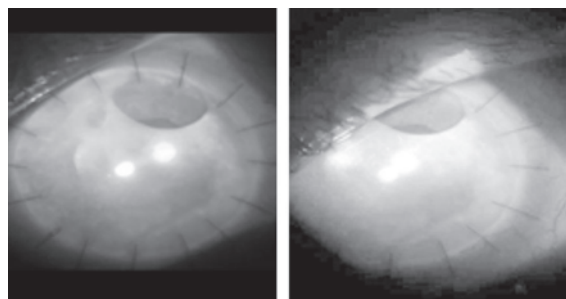


Figure 1: Opaque fibrotic membrane associated to the double anterior chamber

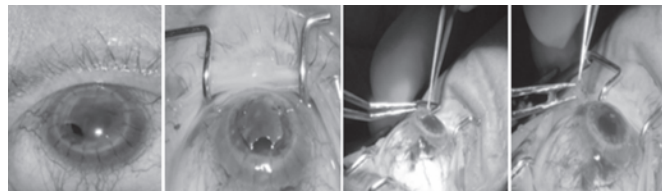


Figure 2: Opacity of cornea - opaque fibrotic membrane with membranectomy and synechialysis

20°. Eleven days afterwards, a new appointment showed REP: 16 mmHg, and LEP: 42 mmHg. Visual acuity in the LE: counting fingers. Thirty days afterwards, the REP was 12 mmHg, and the LEP was 23 mmHg. The use of azopt and combigan was kept, and the patient remained clinically stable since then.

However, in the last appointment, there was failure of the graft, an US of left eye was requested, and there was need for a new corneal transplant (Figure 3).

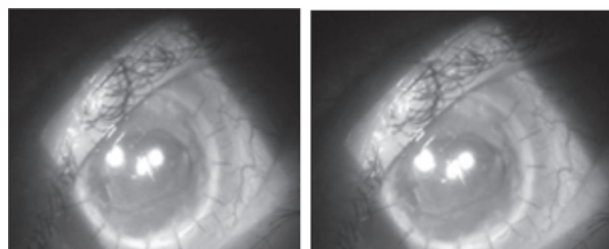


Figure 3: Endothelial graft failure (corneal edema, khodadoust line)

DISCUSSION

Penetrating keratoplasty is one of the most successful procedures among transplants in humans. This is due to the advances in surgical techniques, equipment, materials and postoperative management^(4,5,6). Despite such progress, there are still many unexpected postoperative complications, even in patients with few risk factors and who underwent cornea transplant without complications⁽⁴⁻⁶⁾. Therefore, recurrent postoperative assessments and routine care are of great importance. The effective control on rejection of corneal transplant is still not understood - being the only current alternative to recognize the rejection and treat it aggressively. According to studies, rejection can be explained by some factors such as corneal vascularization, the existence of a previous transplant, the diameter of the transplanted button and the increased intraocular pressure in the postoperative period.^(7,8)

In addition, there are several risk factors for graft failure, such as endothelial dysfunction, glaucoma, neovascularized cornea, anterior synechia of the iris, aphakia or pseudoafacia⁽⁹⁾.

With the improvement in surgical techniques and equipment, changes in indications of penetrating keratoplasty are increasingly occurring. Said indications will vary with the epidemiology and practice where the surgery is performed^(6,10). The ulcerative condition is the main indication in the Amazon⁽¹¹⁾ and Pernambuco⁽¹²⁾, and keratoconus is the main indication in São Paulo⁽¹³⁾. There are still no studies regarding the state of Goiás. When evaluating the Brazilian states as a whole, leucoma is considered one of the main indications for keratoplasty⁽¹²⁾.

CONCLUSION

It is known that there was an increase in the number of penetrating keratoplasties performed in recent years in Brazil, due to the improvement of the surgical technique and postoperative management. Therefore, an increased incidence of postoperative complications and rare forms of these possible complications may occur, including the fibrotic membrane with the formation of double chamber.

REFERENCES

1. Associação Brasileira de Transplante de Órgãos (ABTO). Dados numéricos da doação de órgãos e transplantes realizados por estado e instituição no período: Janeiro / Junho – RBT [Internet]. 2015;2(2):1- 21. [citado 2015 ago 22]. Disponível em: www.abto.org.br/abtov03/Upload/file/RBT/2015/rbt2015-1sem-lib2907.pdf.
2. Bishop VL, Robinson LP, Wechler AW, Billson FA. Corneal graft survival: a retrospective Australian study. *Aust N Z J Ophthalmol*. 1986;14(2):133-8.
3. Pan Q, Li X, Gu Y. Indications and outcomes of penetrating keratoplasty in a tertiary hospital in the developing world. *Clin Exp Ophthalmol*. 2012 40(3):232-8.
4. O'Day DG. Glaucoma after penetrating keratoplasty. In: Krachmer JH, Mannis MJ, Holland EJ, editors. *Cornea: surgery of the cornea and conjunctiva*. St. Louis: Mosby; 1997. p.1719-30.
5. Fabris C, Corrêa ZM, Marcon AS, Castro TN, Marcon IM, Pawlowski C. Estudo retrospectivo dos transplantes penetrantes de córnea da Santa Casa de Porto Alegre. *Arq Bras Oftalmol* 2001;64(5):449-53.
6. Dantas MC, Dantas PE, Holzchuh N, Lui Neto A, Giovedi Filho R, Giovedi M, Almeida GV. Indicações de transplante penetrante de córnea: 1991-1995. *Arq Bras Oftalmol*. 1998;61(1):26-33.
7. Chalita MR, Diazgranados EB, Sato EH, Branco BC, Freitas D. Rejeição corneana pós-transplante de córnea: análise de dados do Banco de Olhos do Hospital São Paulo- Escola Paulista de Medicina. *Arq Bras Oftalmol*. 2000; 63(1):55-8.
8. Vail A, Gore SM, Bradley BA, Easty DL, Rogers CA, Armitage WJ. Conclusions of the corneal transplant follow up study. *Collaborating Surgeons. Br J Ophthalmol*. 1997;81(8):631-6.
9. Yamagami S, Susuki Y, Tsuru T. Risk factors for graft failure in penetrating keratoplasty. *Acta Ophthalmol Scand*. 1996;74(6):584-8.
10. Urbano AP, Akaishi PM, Sarmento S, Urbano AP, Costa VP, Arieta CL. Evolução das ceratoplastias penetrantes realizadas por residentes. *Rev Bras Oftalmol*. 2001;60(10):741-8.
11. Carvalho RC, Moss M, Garrido C, Cohen J, Chaves C. Indicações de transplante de córnea no Amazonas: experiência de 11 anos no Instituto de Oftalmologia de Manaus. *Rev Bras Oftalmol*. 1996;55(8):619-22.
12. Amaral CS, Duarte JY, Silva PL, Valbuena R, Cunha F. Indicações de ceratoplastia penetrante em Pernambuco. *Arq Bras Oftalmol*. 2005; 68(5): 635-7.
13. Machado Filho O, Machado GA, Macêdo CL, Luz CA, Cunha M. Indicações de ceratoplastia penetrante em 1993 – Escola Paulista de Medicina. *Arq Bras Oftalmol*. 1994;57(4):236.

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