

## Corneal Graft Rejection About 10 Cases

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### I. INTRODUCTION

Corneal allograft rejection is the main complication and the first cause of full-thickness keratoplasty failure. Early detection of rejection is essential, allowing aggressive treatment to be introduced quickly, and therefore reducing the risk of definitive graft failure, in particular by loss of too many endothelial cells.

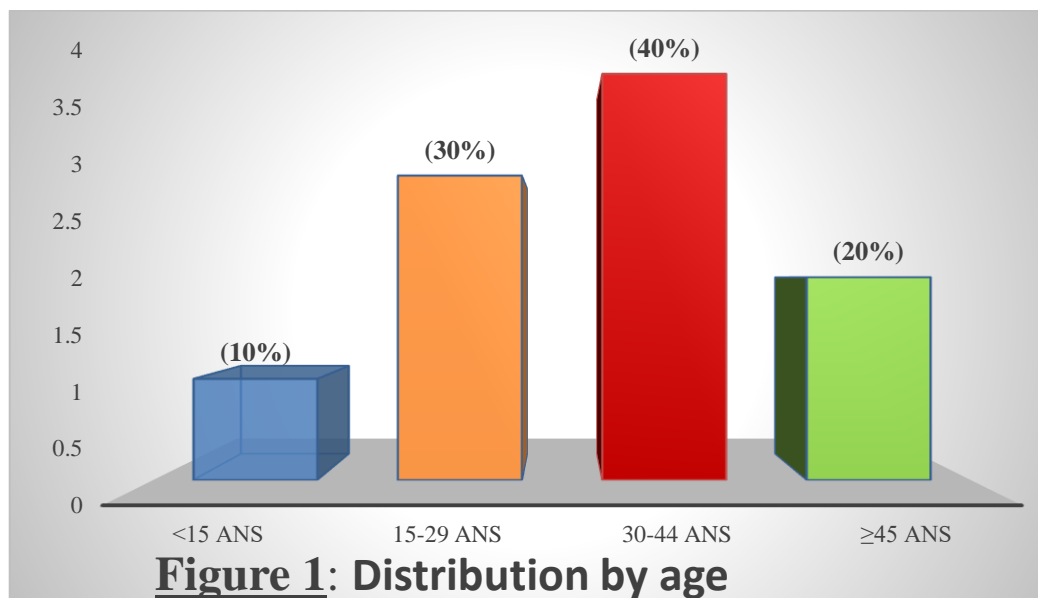
The aim of our work is to present the results of the management of corneal transplant rejections at the pediatric ophthalmology department of the August 20 hospital in Casablanca.

### II. MATERIAL AND METHOD

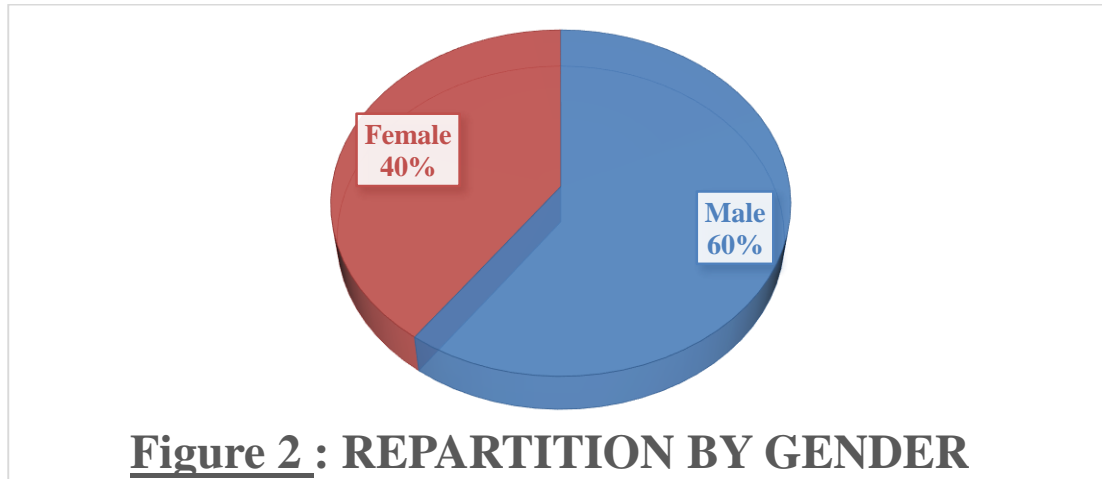
This is a retrospective study carried out over a period of 10 years from January 2010 to January 2020. Our study concerns 10 patients followed in the pediatric ophthalmology department of the August 20 hospital in Casablanca for penetrating keratoplasty complicated by corneal graft rejection.

### III. RESULTS

In our case series, the average age at the time of rejection was 36.4 years with extremes ranging from 14 years to 70 years.

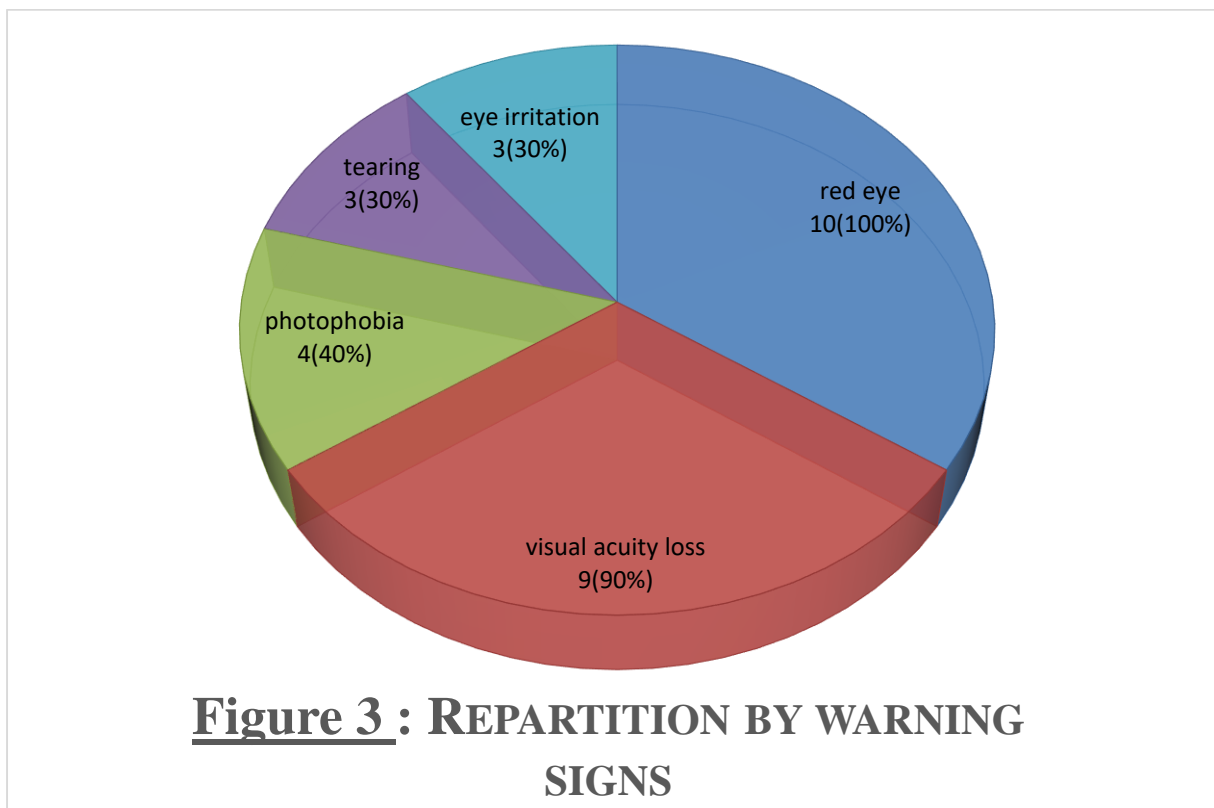


In our series, there was a male predominance, 40% of patients were female.



**Figure 2 : REPARTITION BY GENDER**

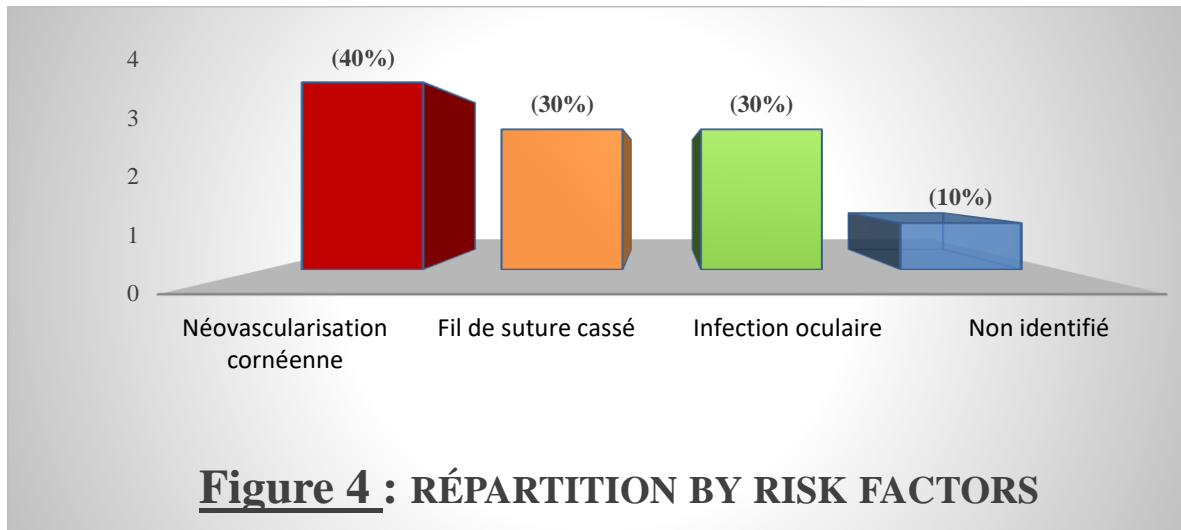
The warning signs were dominated by a red eye in 100% of cases, a decrease in visual acuity in 90% of cases, photophobia in 40% of cases, eye stinging and tearing in respectively 30% of cases.



**Figure 3 : REPARTITION BY WARNING SIGNS**

The majority of patients (n=9) had a visual acuity of less than 3/10 at the time of transplant rejection. Endothelial rejection was the most frequently found type of rejection. The average time to occurrence of rejection after corneal transplant was 3.4 years with extremes ranging from 1 month to 10 years.

The main risk factor for rejection found was corneal neovascularization; followed by broken sutures and eye infections (herpetic keratitis, bacterial keratitis, blepharitis).



Management includes general treatment and etiological treatment. General treatment includes hospitalization, systemic corticosteroid therapy by intravenous bolus for 3 days then oral relay, locoregional corticosteroid therapy and topical corticosteroid therapy. Etiological treatment targets risk factors for rejection. In case of neovascularization, a subconjunctival injection of bevacizumab is performed. In the case of a suture thread broken intrastromally, the thread is removed. Faced with herpetic keratitis, an antiviral is administered. In case of bacterial keratitis, the patient is put on antibiotic therapy. In the face of any blepharitis, palpebral hygiene measures and antibiotic therapy based on azithromycin are prescribed.



**Figure 5:** before treatment



**Figure 6:** After treatment



**Figure 7:** before treatment



**Figure 8:** after treatment

Visual recovery after this episode of transplant rejection was at least 5 lines of visual acuity in 70% of cases.

#### IV. DISCUSSION

The immune reaction is triggered by an interaction between the lymphoid system and an antigen. The latter is presented by antigen-presenting cells (platelet apheresis concentrate [APC] from the donor for direct allo-recognition or APC from the recipient for indirect allo-recognition), coupled to a molecule of the major complex of histocompatibility (HLA system [Human Leucocyte Antigen = human leukocyte antigen]). In

corneal transplant rejection, antigen is captured by APCs which travel via pathological corneal lymphatic vessels into the lymph nodes of the recipient and present antigen to T cells. The lymphatic system has been recognized as the main mediator of the immune response in corneal graft rejection[1]. Corneal allograft rejection is a complex immunological process in which recognition of graft alloantigens by the host immune system triggers an immune response directed against the graft. It can affect the different layers of the cornea, endothelial rejection being the most serious[2] and the most frequent form, as we have seen in our series of cases. In some cases, rejection will lead to permanent graft failure. Many risk factors related to the donor or the recipient favor the occurrence of a rejection episode. Corneal neovascularization was the main risk factor found in our study.

Regarding corneal neovascularization, the current options include topical corticosteroids, anti-VEGFs such as bevacizumab 2.5% used off-label in this indication by subconjunctival injection, or intrastromal coagulation of new vessels using a diathermy probe, more often combined with the use of anti-VEGF. The current challenge of experimental studies is to find a way to regress these neovessels (lymphatics in particular). Preoperative corneal cross-linking seems to have a beneficial effect on graft survival thanks to the toxic effect of free radicals on neovascular endothelial cells [4]. Similarly, dynamic phototherapy with photo-sensitized verteporfin, also used off-label, allows selective occlusion of pathological corneal neovessels [3].

Graft rejection remains one of the main issues in the postoperative follow-up of corneal transplants. Careful screening for high-risk situations and appropriate monitoring must be undertaken by the surgeon and understood by patients and all correspondents involved [4].

## V. CONCLUSION

Immunological rejection remains a major cause of graft failure, although its frequency is lower with lamellar graft techniques. Knowing the risk factors makes it possible to adapt surveillance and establish early and effective treatment in the subjects most at risk. It is essential to consult the patient before any warning sign(5).

## Bibliographic references

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