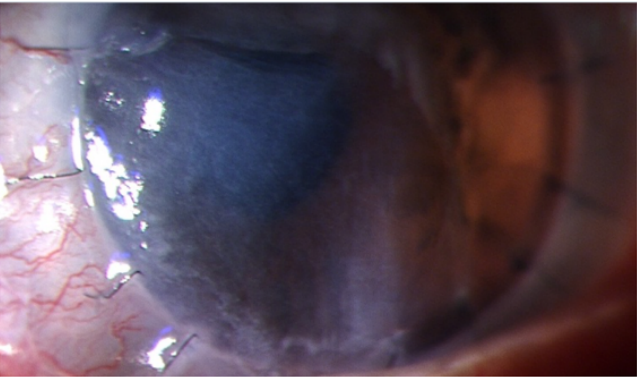


Materials initially viewed by Learner

Materials revealed by Learner interaction



Persistent Corneal Epithelial Defect in a Penetrating Keratoplasty

Melanie Corbett, Consultant Ophthalmologist specialising in Cornea and Ocular Surface, Imperial College NHS Trust

Patients undergoing corneal transplantation commonly have co-existing ocular surface disease. It is most important to identify and manage such conditions before embarking on surgery and postoperatively.

- Aims**
- Perform a thorough critical assessment of the ocular surface

- Objectives**
- Know the common important omissions made when examining the ocular surface
 - Describe signs on the ocular surface
 - Identify the importance of those signs
 - Question apparent inconsistencies in the findings

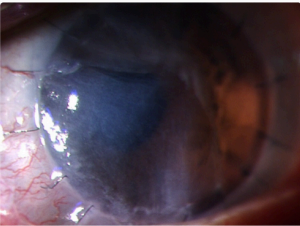
Inspire your Learning

What are the really important parts of the Ocular Surface Examination which are most commonly forgotten or overlooked?

Show Answer

Develop your Learning

A patient was referred from a neighbouring unit having had a full thickness penetrating keratoplasty 4 months previously, and had for the past 3 months had had an irregular surface in the inferonasal cornea.



Signs

Describe the signs, using a structured approach.

Processes

What are the possible processes contributing to the epithelial defect?

Materials revealed by Learner interaction

Notes to Contributors:

Use the **INSPIRE Submission Form** to create your materials under the **headings** – encircled in yellow here

Include the **interactive elements** to set **questions** – encircled here in red
The learner clicks to reveal **answers** – shown here in the righthand column

This example is a case in the “**Clinical Decision Making**” Programme.
It demonstrates how your materials could look once on the platform

Inspire your Learning

What are the really important parts of the Ocular Surface Examination which are most commonly forgotten or overlooked?

Show Answer

reveal box

- Eversion of the upper lid - to examine the tarsal conjunctiva
- Assessment of the tear film - the quantity and quality
- Assessment of the superior cornea - by asking the patient to look down whilst lifting the upper lid

flip cards

Signs

- Tear film - good quantity and quality
- Conjunctiva - moderate injection
- Cornea - corneal graft (full thickness penetrating keratoplasty) with loose sutures proud of the corneal surface.
- Corneal epithelial defect - in the inferonasal quadrant, with ragged edges, and upto the graft-host junction.
- Corneal stromal oedema in the area of the epithelial defect.

Processes

- Likely options:
- Limbal stem cell insufficiency in the inferonasal quadrant
 - Subtarsal roughness nasally
- Other possible options:
- Corneal graft rejection
 - Inflammatory ocular surface disease

Once you have answered the flip cards, scroll down for the next part of the story

On further questioning the patient admitted having pterygium surgery two years previously.

reveal table

PROCESSES	Questions	Answers
Mechanism	<p>Do you think the history of pterygium surgery is related to his current problems?</p> <p>And, if so, how would it contribute?</p> <div>Continue Learning</div>	
Likelihood	<p>Does prior pterygium surgery usually cause limbal stem cell deficiency sufficient to cause a persistent epithelial defect?</p> <div>Continue Learning</div>	
Contributing factors	<p>So why in this patient so you think they had a persisted epithelial defect?</p> <div>Continue Learning</div>	

PROCESSES	Questions	Answers
Mechanism	<p>Do you think the history of pterygium surgery is related to his current problems?</p> <p>And, if so, how would it contribute?</p> <div>Continue Learning</div>	<p>Yes.</p> <p>By causing localised limbal steam cell deficiency</p>
Likelihood	<p>Does prior pterygium surgery usually cause limbal stem cell deficiency sufficient to cause a persistent epithelial defect?</p> <div>Continue Learning</div>	<p>No, because if the limbus is functioning well in the rest of the cornea, epithelial cells can migrate across the cornea to prevent a defect.</p>
Contributing factors	<p>So why in this patient so you think they had a persisted epithelial defect?</p> <div>Continue Learning</div>	<p>He had partial limbal stem cell deficiency affecting the remainder of the cornea, due to previous trachoma.</p>

When you have answered the questions in the table scroll down to find the rest of the story.

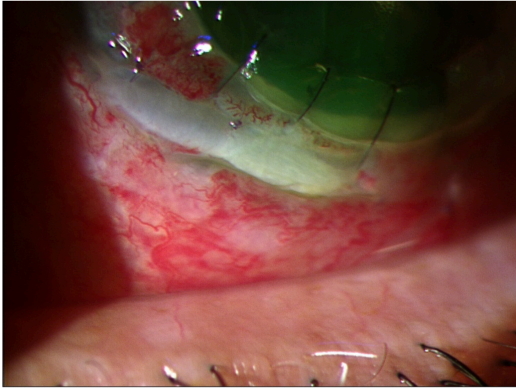
What was the important SIGN that had been missed at the preoperative assessment prior to surgery?

Eversion of the upper lid revealed sub tarsal scarring consisted with trachoma. Closer inspection of the remainder of the limbus revealed milder more widespread limbal stem cell deficiency. This meant that the other limbal areas could not compensate for the deficient limbus in the area of the pterygium.

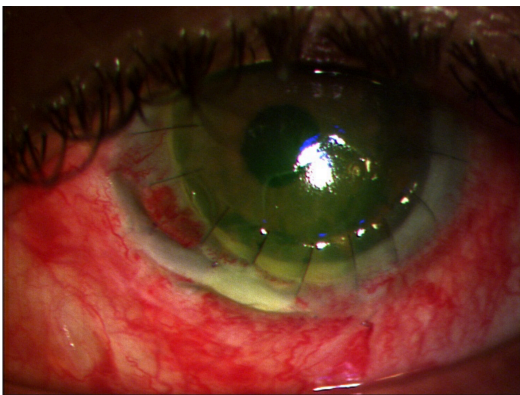
Learning Point

Always evert the upper lid to view the subtarsal conjunctiva in patients with ocular surface disease , and perform a detailed examination of the whole ocular surface prior to surgery.

The patient went on to have a combined redo-penetrating keratoplasty with a sectoral limbal stem cell allograft, with systemic immunosuppression.



This resulted in healing of the epithelium of the new graft within the first week (below) and the defect was totally closed by 2 weeks.



Immunosuppression was stopped 2-3 years later and the graft survived for many years beyond that.

Check your Learning

What were really important parts of the Ocular Surface Examination which are most commonly forgotten or overlooked?

Which was most important in this case?

Show Answer

Apply your Learning

In the next week, evert the upper lid in at least 10 patients you examine, and describe your findings in detail.

Further your Learning



Additional Resources

Links to suitable INSPIRE preparatory learning or pre-requisites.

- Link: Slit lamp examination
- Link: Limbal stem cell deficiency
- Link: Limbal stemcell grafting
- This is an [External Link](#)

Check your Learning

What were really important parts of the Ocular Surface Examination which are most commonly forgotten or overlooked?

Which was most important in this case?

Show Answer

reveal box

- Eversion of the upper lid - to examine the tarsal conjunctiva - *most important in this case.*
- Assessment of the tear film - the quantity and quality
- Assessment of the superior cornea - by asking the patient to look down whilst lifting the upper lid

Notes to Contributors:

Thank you very much for submitting your materials to INSPIRE.