

Vernal Keratoconjunctivitis or Spring catarrh, Simon Franken PhD.

Introduction.

This allergic condition is in many ways ill understood. Its distribution seems erratic. The condition is at least a nuisance in the first place for the patient who suffers from severe itching. In places where an eye doctor is available he or she will be visited frequently if financial considerations are no bar. In some areas the condition is rare, in other regions it is a common condition. In some places it remains mild, in other regions it is a serious threat to the visual performance and on a large scale a real cause of blindness. In the Punjab in India, the condition was seen a few times in a year. In the semi desert of Somalia and eastern Kenya we see up to 40 patients in one month.

The patient will come with photophobia, squeezing of the lids and blinking.



The limbus will be elevated and may be accentuated by extra pigmentation. (1)



When the upper eyelid is everted a pattern of cobbled centres may be seen.(4)



If the disease is in its early stages the elevations may be few (6).



If the disease is of longer standing the elevations will be crowded (8)



Some of the elevations may become larger (9,12).



Still later the elevations may become paler (4, 10) They will look as if covered by a thin layer of a milky substance.



Later again the elevations may disappear and the inner surface of the tarsal plate may have become smooth again (14,15) In these later stages the original normal pattern of vessels will have disappeared and been replaced by a non descript pinkish veil.

If trachoma has not preceded the disease entropion will never occur. The scars so typical of trachoma causing the in turning of the upper eyelid causing the lashes to rub on the corneal surface are never seen.



One may see the orifices of the Meibomian glands remain where they originally are well in the sulcus of the lid margin. (4, 10, 13, 14, 16)



What may be seen is shortening of the upper eyelid. (16) Whether this is a feature of the disease or just an individual variation unrelated to the disease remains unclear and may not be of importance. Pictures 14 and 15 illustrate the possible difference in manifestation in cases where the surface of the tarsal conjunctiva has no cobbles left.



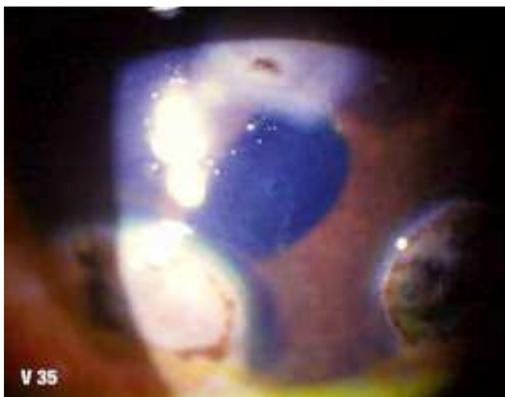
One may also notice the invasion of pigment in a normally unpigmented mucous membrane (17) The course of the disease may vary in its form but far less in the complaints resulting from its course. The affection of the limbus may involve part of the limbus (1) and may involve the entire circumference.



Elevations may develop onto the sclera as if extending from the limbus onto the conjunctiva. (40, 42)

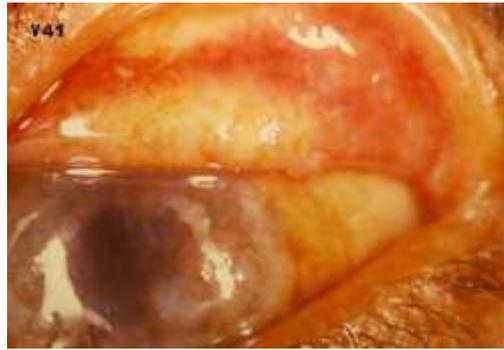


White centres may develop in these elevations called *Trantas spots* (3, 20, 22)

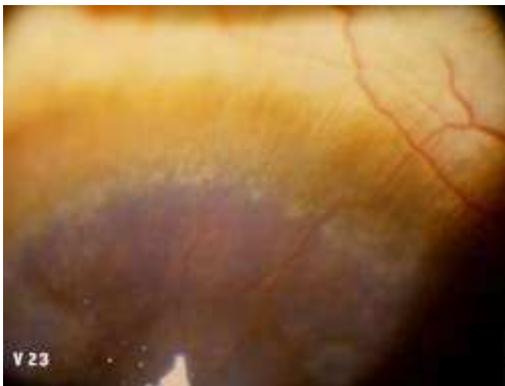




The threat to the visual performance arises with the extension from the limbus onto the cornea (35, 37, 39, 41)



Occasionally the extension goes towards both the conjunctiva and the cornea. (53)



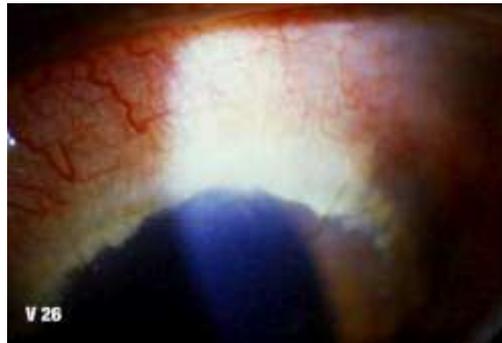
A very remarkable form of the disease is seen when sprouts of inflammation not elevated spread between the stretches of limbal pigment towards the centre of the cornea (23)



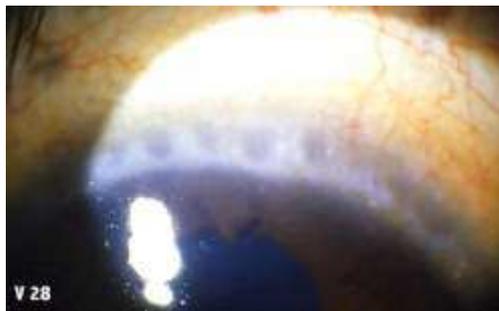
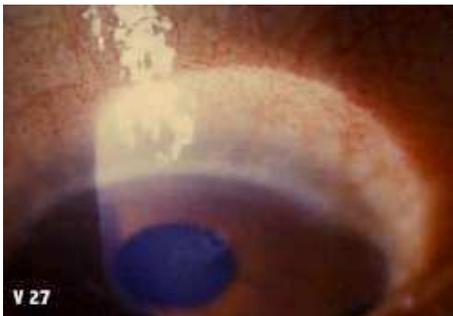
This may occur when the cornea has already been invaded in another way (24)



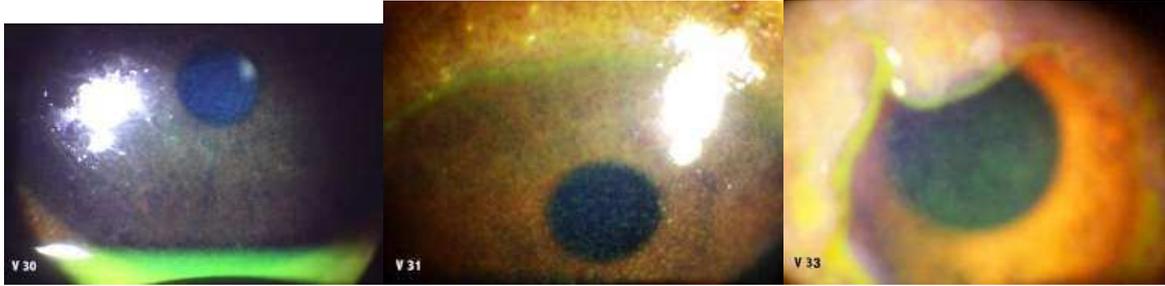
The situation depicted in (21) may be the end of this form of process when arrested. When patients are plagued by itch they will come to the doctor. When healing has begun and itch has been stopped they will not be seen and the doctor will not be able to observe the end of the process or the end of a certain stage when the disease is interrupted.



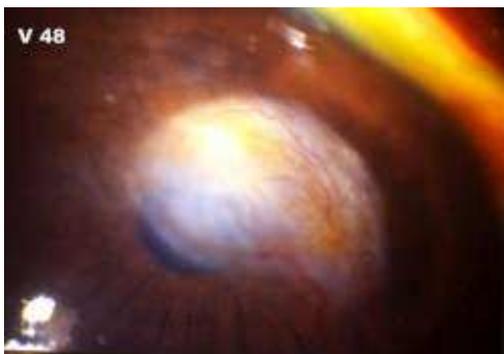
When there is only a tendency towards arrest of the disease one may see a limbus like in (26) the boundary may be correctly curved when the disease is completely arrested. (25) Most remarkable are the forms in which the disease may end when arrested and the patient has retained his visual function. The patient is has been spared the worst outcome of the disease. In younger people one may see a sharply delineated boundary of the conjunctival tissue located on the limbal area.



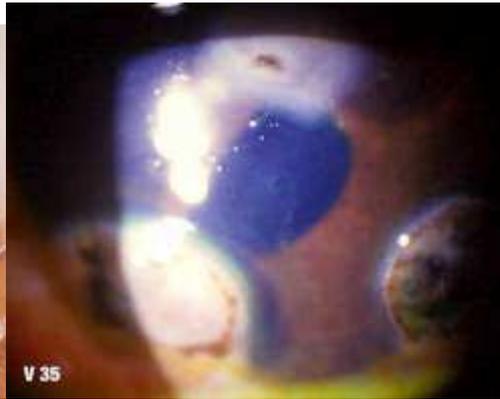
This zone is usually marked with clearer spots in one row called *pseudo Herberts pits*. (25, 27, 28) Though the cause must be entirely different one is reminded of similar but elevated spots in leprosy as hypertrophic exposure keratitis. In vernal catarrh the spots are very unship gradually sloping towards the edges



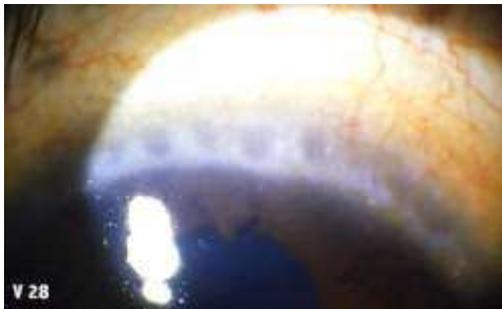
The corneal surface may become involved in the process in the form of *punctate keratitis*. The corneal epithelium which has been affected will be better noticeable when stained with fluorescein. (30, 31, 33)



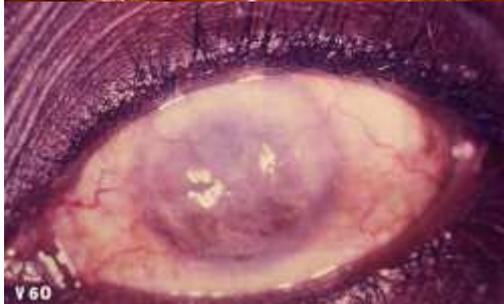
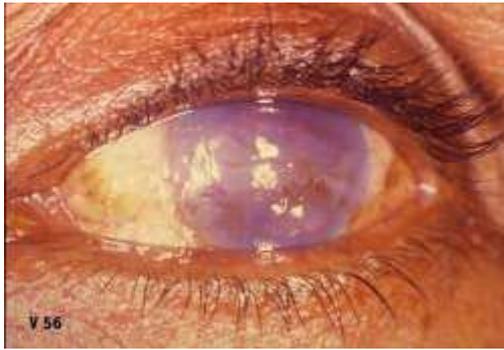
Occasionally the disease will take a very unfortunate course by developing a plaque on the centre of the cornea, where it blocks the pathway of light towards the pupil. (46, 47, 48, 49, 50)



One may notice the development of pigment in places where the process has been present for some time or where the process has already abated. (21, 35, 42)



Seemingly normal places near the directly visibly affected cornea will already have suffered. This may be clear in the distortion of the light reflex (28, 38, 51) or the visible stain of the punctate keratitis or both (30). Once in the all of the corneal surface may be involved in the formation of scar tissue.



An other end stage may occur much later in the process after prolonged suffering and having caused obstruction of the visual pathway (55-60)

Treatment.

The treatment remains difficult. Anti-allergic medication will give relief. If this the only medication there is no end to the demand and all the consequences of perpetuation of this mode of treatment. If rubbing the eyelids in response to the itch can be stopped much is won. In Ghana a bandage with watch glasses was often helpful to disrupt the cycle of itch and rubbing. In Somalia eye drops with zinc sulfate ¼% were sometimes helpful. No disadvantage is known of long-term use of this sort of eye drops. I have seen the disease interrupted and progress into further loss of vision stopped when bandages were given for a week.



Here too the interruption of rubbing the eyes for a week was the factor which did the trick. Itching may be so severe as to make the patient submit to treatment by a native healer using hot iron to cause burn marks (54).

Condition in a nutshell 1-5.



1 Ghana, Agogo. Girl of 14 years old. Her complaints began 2 1/2 years ago. There is some hyperaemia but also pigmentation of the limbal area surrounding small swollen white islands. Fluorescein stain demonstrates only very mild scattered punctate stain. Early limbal form.



2 Young adult with hyperaemia and pigmentation just outside the limbus, leaving a paler border upon the cornea. This feature is lacking in the first patient.



3 Here the upper limbus covered by the upper eyelid is swollen, pigmented and includes white elevated islands called Trantas spots, small necrotic areas. These spots are sometimes covered by stainable epithelium.



4 Ghana, Adult suffering from the condition for years. The conjunctival epithelium is thick and the normal vascular pattern invisible. Instead a pattern of thick pale pink papillae occupies the whole inner surface. No small vessels can be seen. Sometimes threads of thick mucous are seen, but not always.



5 The outcome in some patients. A corneal opacity.

Tarsal plate 6-17.



6 Somalia, Afgoy. Early stage. Most of the original vascular pattern is visible, though there is hyperaemia. A few whitish centres of elevated areas are visible. This is the first manifestation of the disease.



7 Afgoy, F aged 11. Her conjunctiva bordering the limbus is heavily involved. Her upper tarsal conjunctiva has retained some visibility of the vascular pattern but papillae seem to be developing. Smaller and larger ones can be seen.



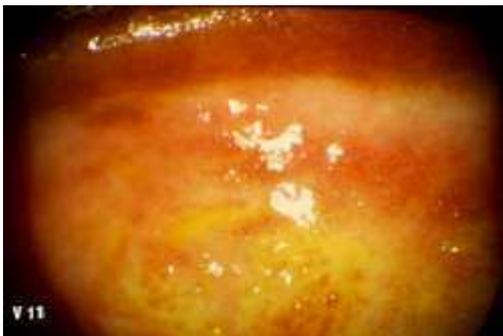
8 Adult with pink bulging papillae. Here vessels are seen in these elevations. Note how pigment has come on the inner surface from the lid margin.



9 Afgoy, M 14 Very pronounced formation of papillae



10 Ghana, Agogo. Adult who has the disease for years. The papillae are thick. Their epithelium is thickened obscuring all vessels.



11 Afgoy adult blinding. Mixed form of diffuse thickening and formation of papillae.



12 Afgoy, male 19. Similar mixed form but with more active hyperaemia.



13 Afgoy F 35. Mild diffuse thickening of the tarsal plate without formation of papillae with severe affection of the cornea.



14 Afgoy, F 17. The conjunctiva in the lid aperture bordering the limbus is swollen and pigmented. Pigment formation is clear on the inner side of the upper lid. There seems to be a diffuse thickening of epithelium without formation of papillae obscuring any vascular pattern, normal or abnormal.



15 Afgoy, M 36. Right eye. It seems as if pale pink papillae are fusing together forming one closed carpet obscuring any vascular structure. Pigment formation is only mild. His corneal involvement is severe whereas the limbal conjunctiva has only small aberrations.



16 Afgoy F 22 A comparable case. Note that the orifices of the Meibomian glands are not in one line. There may be some vertical shortening of the tarsal plate, which is not present in picture 15.



17 Afgoy F 17 Changes in tarsal conjunctiva with pigment invasion from the lid margin. More threatening are the changes in her corneal surface

Process near and on the limbus 18-29.



18 Elevated conjunctiva bordering the limbus with only mild hyperaemia.



19 R eye with severe involvement of conjunctiva.



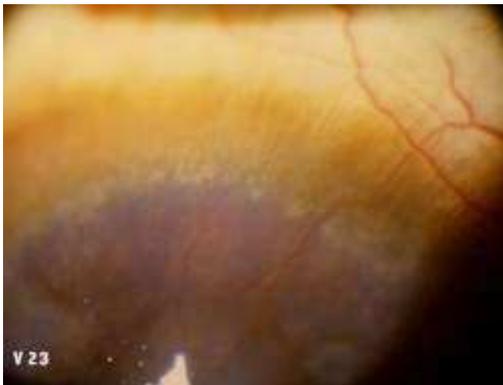
20 L eye of the same patient with almost symmetrical involvement



21 The disease has quieted down and has left behind some vague infiltration in the pigment of the upper tarsal border.



22 The process is active with white necrotic spots in the elevated conjunctiva. So far the cornea has not been involved.



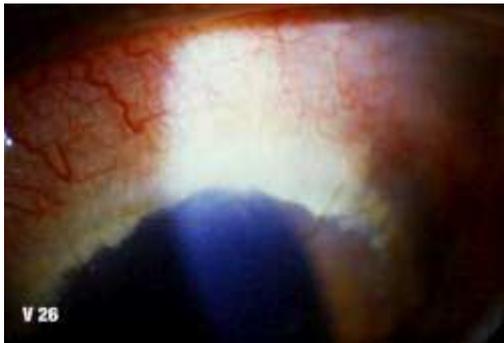
23 A remarkable form of a quiet invasion of the cornea from the limbus. Note the row of small white centres of infiltration like a row of an invading army. This is intrusion of a slow process on upper limbus into the cornea.



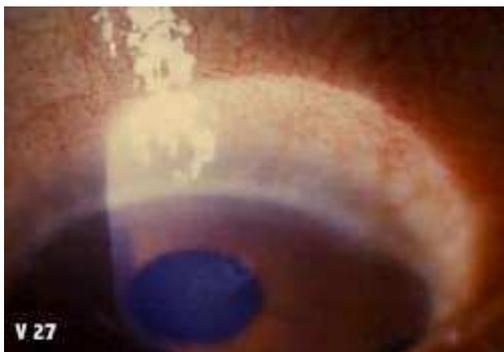
24 A similar process as in 23 but in addition there is a more course invasion of the corneal surface.



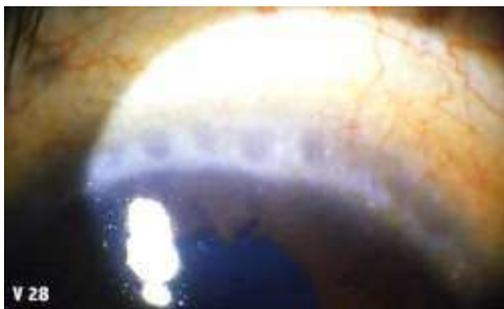
25 Afg M 10 Past previous activities now healing. The situation is marked by scattered pigment accumulations and by thinning of the zone where conjunctiva borders epithelium of the cornea.



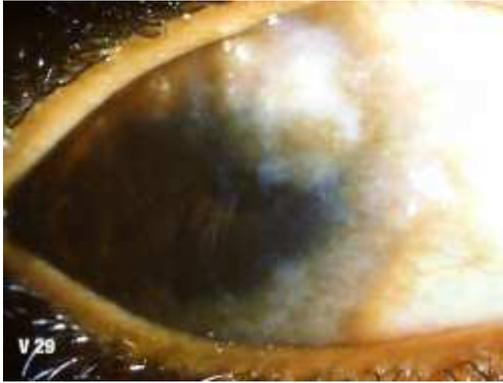
26 There is still activity of the process invading the cornea. Here the white infiltration is more marked above the clear part of the cornea.



27 case like 25 . Remarkable is the sharp delineation between clear corneal epithelium and the scarred portion bordering the limbus.



28 Afgoy M 9 Similar situation as in case 25 but with many more places of thinning of the scar tissue on the cornea. The process is quiet. The question remains has it healed for good?

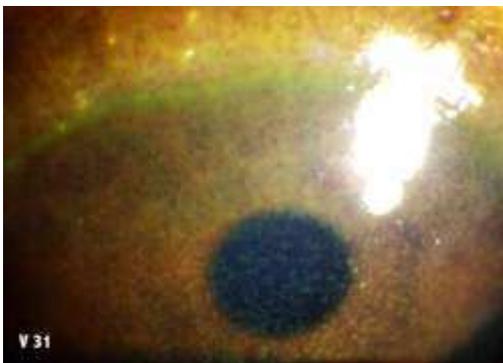


29 The cornea has been invaded. There is not much hyperaemia but there is no crossing the inflammatory tissue on the cornea.

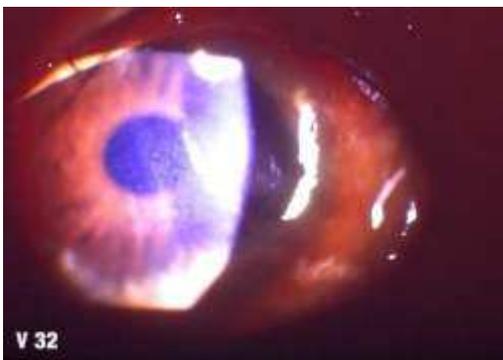
Process on the cornea 30-44.



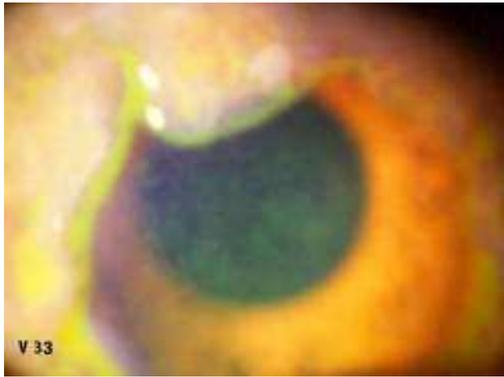
30 Afg M 19 Punctate keratitis with elevations in the epithelium demonstrated in the heavily distorted reflex of light.



31 Afg M 14 Punctate keratitis combined with thickening of conjunctiva bordering the limbus.



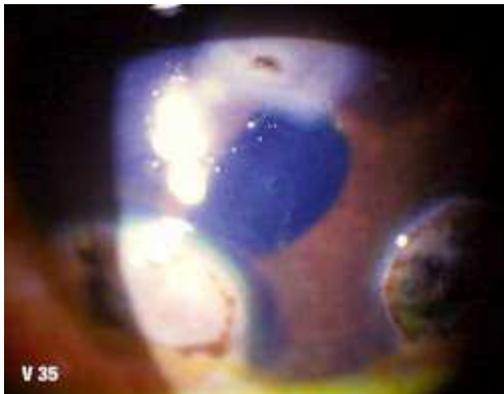
32 Punctate keratitis is certainly not present in each case of vernal catarrh as it is here.



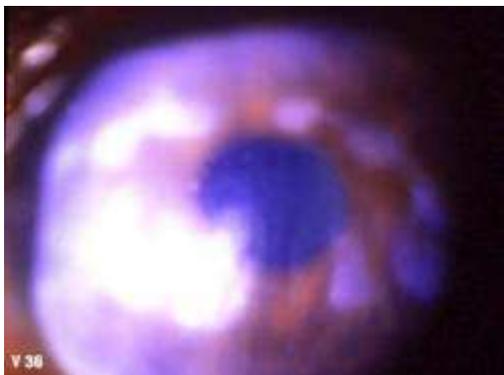
33 Afg M 22 The process is entering the cornea from the side. There is some diffuse staining of the corneal epithelium.



34 f 19 The process has responded to treatment with zinc sulfide but at the cost of developing a white ring like senile arc in this young girl.



35 Invasion of the cornea from more than one side.



36 Afgoy F 20 healing of scattered invasions onto the cornea. There is still a useful visual function left.



37 M 12 The invasion of the cornea has involved the upper half of the cornea.



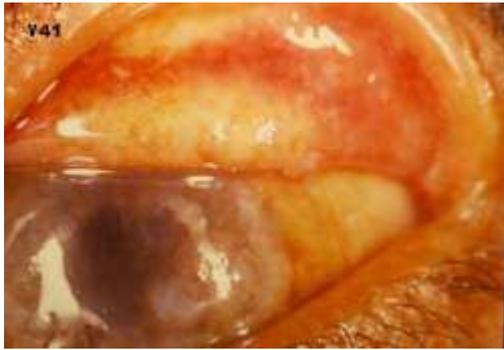
38 Afgoy M 22. Gradual diminished activity of the process under treatment or spontaneous with thickening of the lower peripheral cornea. Just in time to retain good visual function.



39 Invasion of the cornea from upper and lower side.



40 The thickening of the conjunctival tissue is most pronounced towards the limbus. One may expect invasion of the cornea from the limbal side.



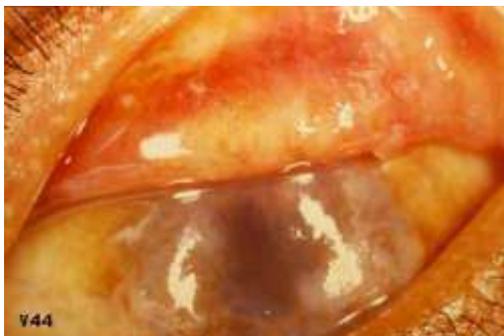
41 Ghana F 4 Early but very active manifestation. Invasion of the cornea has caused deterioration of visual function. Part of the original vascular pattern of the tarsal conjunctiva can still be seen. There is little hyperaemia of the bulbar conjunctiva.



42 One mass of elevated pigmented tissue is laying on conjunctiva and on cornea, This looks in some way similar to a pterygium but the itching reveals its nature.



43 Afgoy. The process is still active and has occupied most of the cornea leaving a small area in the eleven o'clock position open. The optical function has been severely damaged.



44 The tarsal plate of the same patient shows active hyperaemia with only one papilla.

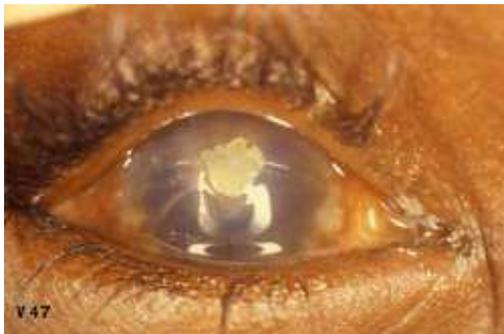
Seemingly isolated process on the central cornea 45-50.



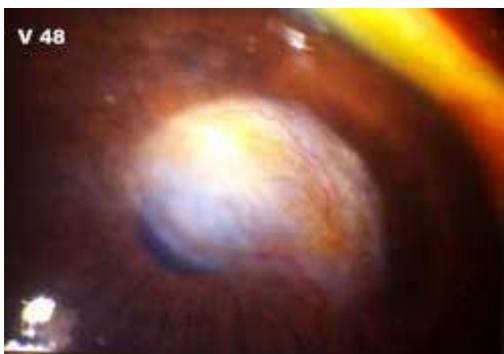
45 In a cornea with punctate keratitis a small are of deeper infiltration is beginning.



46 Besides the activity of the process in the limbal area the centre of the cornea shows an opacity where the process is active. There is no visible bridge of activity between the two areas.



47 A similar case where there is general oedema of the cornea with a well delineated central opacity. The opacity has a clear and elevated margin without evidence of vessels.



48 A well vascularised process on the centre of the cornea. The pupil can be seen by the observer but the pathway for central vision is blocked for the patient.



49 A similar case with a process with hardly a vessel.



50 Afgoy Relatively quiet stage of the process. There is no hyperaemia. The limbus is swollen all around and the centre of the cornea is thick and opaque, quite different from a leucoma after trachoma. This is blinding central opacity.

End leading into blindness. 51-60.



51 Afgoy End stage with swollen pigmented limbus but retained though diminished function of the central cornea.



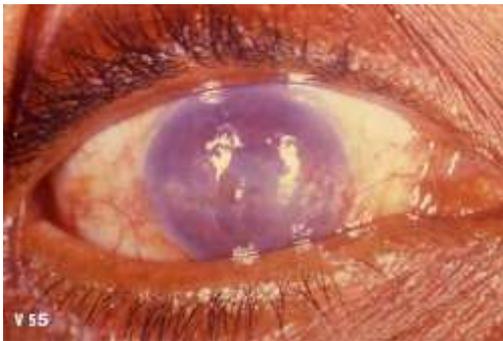
52 Afgoy m 25 R.E. The process is fairly quiet but advanced on cornea resulting in slightly elevated and pigmented opacity causing diminished V.A.



53 Afgoy. The process has advanced from the limbus and rendered the central cornea useless for refraction of light though it is not yet opaque.



54 This person, a young woman has sought treatment by an indigenous healer who has only cautery available.



55 Right eye of a blind patient. The itching has gone and the complaint of the patient is that he cannot see. The whole of the cornea has been involved in the process. The swelling is gone. There is no hyperaemia. Only the resulting opacity of the cornea remains.



56 Left eye. Here too the end of a process with a scarred pigmented cornea.



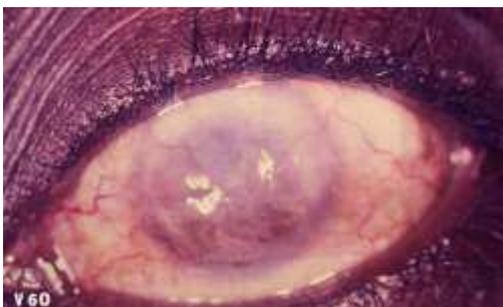
57 This patient has a relative quiet process on the cornea with very little hyperaemia but with much activity of the process on the tarsal conjunctiva. He still needs treatment.



58 Afg M 38 The activity of the process has diminished. The swelling of the tissue covering the cornea is gone. The vessel which grew with the inflammatory reaction on to the cornea is still widely open.



59 Afgoy The itching is mild but the abnormal tissue covering the cornea is still swollen. The condition is blinding. Remarkable is the thin clear portion of the cornea as if a separate ulcer has destroyed normal and abnormal corneal tissue.



60 Afg M 36 The visual function has been reduced to perception of light. There is no entropion as after trachoma but some complaint about itching may remain.