

Clinical & Refractive Optometry is pleased to present this continuing education (CE) article by Dr. Ron Melton and Dr. Randall Thomas entitled **Superior Limbic Keratoconjunctivitis**. In order to obtain 1-hour of COPE-approved CE credit, please refer to page 334 for complete instructions.

Superior Limbic Keratoconjunctivitis

Ron Melton, OD; Randall Thomas, OD

SUBJECTIVE

A 38-year-old woman presented with a history of chronic irritation to both eyes over the last two months. One month ago, she had been prescribed tobramycin (Tobrex) which she used for one week without any significant improvement. She was then prescribed ketorolac tromethamine (Acular) for one week, again without any benefit. She sought a second opinion. The patient also indicated in her medical history that she had been unusually tired with a lack of energy over the last six months.

OBJECTIVE

- Visual acuity was 20/20 (6/6) OU
- Superiorly the conjunctival vessels were 2+ inflamed extending down to the limbus (Fig. 1)
- There was mild uptake of rose bengal dye to the involved corneolimbus and conjunctival tissues (Fig. 2). Figure 3 shows lissamine green dye staining of the same eye.

ASSESSMENT

- Superior limbic keratoconjunctivitis (SLK) OU

PLAN

- Discussed possible systemic association with thyroid dysfunction and ordered T3, T4, and thyroid-stimulating hormone (TSH) lab work
- Prescribed loteprednol etabonate 0.5% (Lotemax) q.i.d., OU, alternated with preservative-free (PF) artificial tears q.i.d., OU, for one week
- Called pharmacy to make up 0.5% silver nitrate (AgNO₃) solution the day of her follow-up

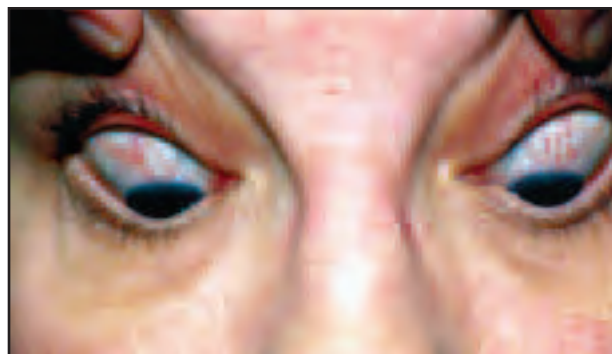


Fig. 1 Bilateral superior bulbar conjunctival injection is a clinical hallmark of superior limbic keratoconjunctivitis.

First Follow-Up Visit (one week later)

- 25% improvement in symptoms and clinical appearance was noted
- Following instillation of proparacaine, both the superior tarsal conjunctiva and superior bulbar conjunctiva were painted with a cotton swab saturated with 0.5% silver nitrate solution for 20 seconds
- The ocular tissues were then lavaged with sterile saline to wash away residual silver nitrate
- The lab results returned negative. Because of her complaint of having no energy, it was recommended that the patient have a complete physical with her family physician

Second Follow-Up Visit (one month later)

- Repeated silver nitrate application
- Patient's symptoms were much improved
- Recommended PF artificial tears every two hours while awake, indefinitely

Comments: SLK is sometimes missed by clinicians because the eyes appear normal in primary gaze. When patients have unexplained eye irritation, ask the patient to look down and then carefully observe the superior bulbar conjunctival area.

Since 25% to 50% of patients with SLK have an associated thyroid dysfunction, thyroid testing may be indicated.

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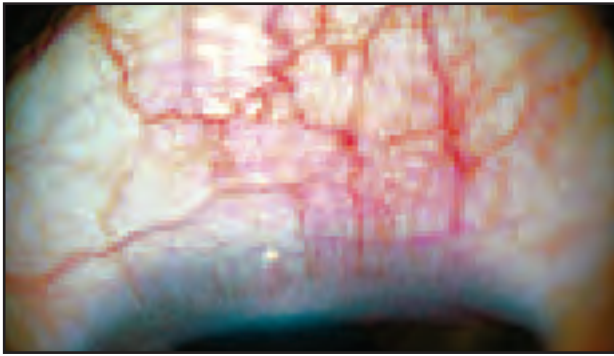


Fig. 2 Note the significant conjunctival injection along with a mild uptake of rose bengal dye.

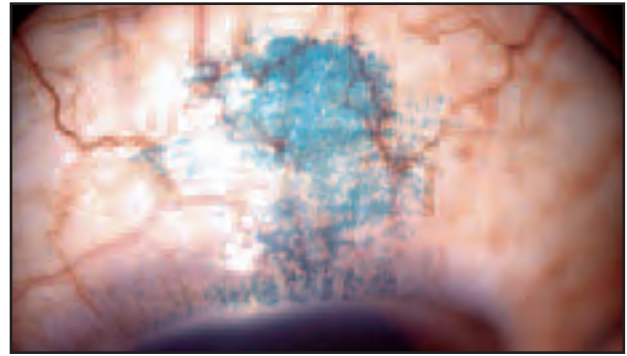


Fig. 3 Lissamine green dye may also be used to show the classic clinical signs of superior conjunctival and corneal irritation associated with superior limbic keratoconjunctivitis.

GENERAL OBSERVATIONS

- SLK is characterized by insidious, asymmetric, bilateral, irritated eyes that usually appear normal in primary gaze
- Symptoms are generally of a nonspecific irritation; however, there can be burning, foreign body sensation, pain, photophobia, and excessive blinking (blepharospasm). These symptoms can be highly variable with a history of remissions and exacerbations
- SLK is most common in middle-aged or older females, although it can occur at all ages and in both sexes
- 25% to 50% of patients have an associated thyroid dysfunction, therefore, thyroid testing should be considered for these patients
- The diagnosis is based on history and slit-lamp examination, with and without rose bengal dye. The hallmark findings are thickened, inflamed superior tarsal and superior bulbar/limbic conjunctivitis. The latter can also involve the superior aspects of the cornea. These involved superior corneolimbal conjunctival tissues have a strong affinity for rose bengal or lissamine green dyes which, for all practical purposes, confirms the diagnosis

- Occasionally there can be filaments on the superior cornea. When these are present, symptoms are much more prominent. They can be easily removed with jeweler's forceps
- Primary care for SLK involves the use of 0.5% silver nitrate (AgNO_3). This treatment generally gives four to six weeks of symptomatic relief and can be repeated indefinitely at four- to six-week intervals. However, surgical resection of the affected bulbar conjunctiva usually provides permanent relief. The characteristics of your patient's age, personality, severity of symptoms, pattern of remissions, and general disease process will determine the best course of action
- Finally, some good news: with age, this disease disappears. With time, the intervals of remission generally become longer and longer until, after 10 to 25 years, there is no further recurrence

Disclaimer: Not every detail of every case is discussed, rather the key clinical findings are described. For example, if nothing is said about the corneal status, you should assume that the cornea is normal, etc. When vision is recorded, it should be assumed to be best corrected or pinholed. Regarding therapy, we show how we treated the particular case. Given that medicine is an art, as well as a science, therapy will — and often does — vary with each unique patient presentation depending on severity, known drug allergies, prior treatment, response to therapy, etc.



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QUESTIONNAIRE

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1. Which of the following statements does **NOT** describe the patient at initial presentation?
 - Visual acuity was 20/20 (6/6)
 - Superiorly conjunctival vessels were 5+ inflamed
 - Unusual fatigue over the last 6 months
 - Mild uptake of rose bengal dye to the involved corneolimbic and conjunctival tissues
2. Identify the **FALSE** statement regarding the patient's treatment plan:
 - T3, T4 and TSH lab work was ordered
 - Lotemax q.i.d. OU, alternated with preservative-free artificial tears q.i.d., OU, for 1 week
 - One-week follow-up
 - None of the above
3. Which of the following statements does **NOT** describe the first follow-up visit?
 - 25% improvement in symptoms and clinical appearance
 - Following instillation of proparacaine, conjunctiva painted with 0.5% silver nitrate
 - Ocular tissues then lavaged to wash away residual silver nitrate
 - Complaint of fatigue had been resolved
4. Which of the following statements describes the second follow-up visit?
 - Silver nitrate application repeated
 - Patient's symptoms much improved
 - Artificial tears every 2 hours while awake recommended indefinitely
 - All of the above

5. All of the following statements about SLK are true, **EXCEPT**:
 - The eyes usually appear normal in primary gaze
 - It is characterized by insidious, unilateral irritated eyes
 - It is most common in middle-aged or older females
 - 25%-50% of patients have an associated thyroid dysfunction
6. Which of the following statements about SLK is **FALSE**?
 - With age, the disease disappears
 - Symptoms can include foreign body sensation
 - Surgical resection of the affected bulbar conjunctiva rarely provides permanent relief
 - Diagnosis is based on history and slit-lamp examination
7. Which of the following statements describes treatment in cases of SLK?
 - Use of 0.5% silver nitrate (AgNO₃) as primary care
 - Silver nitrate generally provides four to six weeks of symptomatic relief
 - Treatment is determined in part by the patient's age and severity of symptoms
 - All of the above
8. Which of the following statements about SLK is **FALSE**?
 - Intervals of remission generally become longer and longer with age
 - After 10 to 25 years, there is no further recurrence
 - Surgical resection of the affected bulbar conjunctiva usually provides permanent relief
 - Cases of the disease are typically more severe in females than in males
9. Which of the following statements about SLK and its diagnosis is **TRUE**?
 - Hallmark findings of slit-lamp examination include thickened, inflamed superior tarsal and superior bulbar/limbic conjunctivitis
 - Uptake of rose bengal or lissamine green dye to involved corneolimbus and conjunctival tissues confirms the diagnosis
 - Occasionally, filaments will appear on the superior cornea
 - All of the above
10. Which of the following is **NOT** a symptom of SLK?
 - Excessive blinking (blepharospasm)
 - Pain
 - Photophobia
 - Excessive mucous exudate in affected eye