SUMMARY

AND

RECOMMENDATION

Summary

Laser-Assisted In Situ Keratomileusis (LASIK) surgery is one of the most popular techniques for the correction of refractive errors myopia, hyperopia and astigmatism.

LASIK Complications are uncommon. They range in severity from insignificant to catastrophic resulting in irreversible visual loss or further surgical intervention. LASIK complications have been classified into *intraoperative and postoperative complications.*

Preoperative sources of Complications are patient selection errors and data entry errors. Intaoperative complications are flap complications, decentrations, central islands, epithelial defects, debris in the interface and intraoperative haemorrage . Postoperative complications are flap striae and dislocation, epithelial ingrowth, keratoectasia, regression and overcorrection, scotopic glare and halos, irregular astigmatism, post- LASIK keratitis, dry Eye, acute postoperative glaucoma and posterior segment complications.[25]

Infectious keratitis following LASIK remains a rare, but potentially devastating complication. The incidence of microbial keratitis after LASIK has been reported to range from 0% to 1.5%

Distinguishing between an infectious and sterile lamellar keratitis is the most important first step in evaluating patients with interface infilterates after LASIK.[39-41,60]

Breaks in the epithelial barrier and excessive surgical manipulation, delayed postoperative re-epithelialization of the cornea, the use of topical steroids and therapeutic contact lenses as well as the decreased corneal sensitivity and the dry eye situation may all contribute to post-LASIK infections.[43-46]

Infectious keratitis traditionally presents at least 1 week after surgery and often months later. A focal area of infiltrate associated with diffuse or localized inflammation, which may extend throughout the corneal thickness is generally seen. It may extend into the untreated area of the cornea and outside the flap. The flap may begin to melt.[42,79]

Diffuse lamellar keratitis (DLK) is a non infectious diffuse white granular inflammatory reaction in which the infiltrates are confined to the interface extending neither anteriorly into the flap nor posteriorly into the stroma. It occurs in the first week following surgery.[105]

The organisms seen in early-onset (within the first 2 weeks of surgery) infectious keratitis are common bacterial pathogens

such as staphylococcal and streptococcal species. Gram-negative organisms are rare. The organisms seen in late- onset (occurring 2 weeks to 3 months after surgery) infectious keratitis are usually opportunistic such as *fungi, Nocardia, and atypical Mycobacteria.*

The clinical appearance of suppurative keratitis is variable; it is often difficult to arrive at an aetiological diagnosis based entirely on slit-lamp examination. So, Corneal samples should be inoculated in several media and appropriate smears should be taken. Polymerase chain reaction testing and corneal biopsy may also be required in some cases.[65,121,122]

Atypical organisms such as fungi and mycobacteria are often responsible and therefore, there may be no response to the usual antimicrobial therapy.[92]

Recommendations

Identification of patients who might be at risk should be considered. This can be achieved with detailed history and meticulous evaluation of the ocular surface, adnexa and the lacrimal apparatus. Treatment of any pre-existing condition should become routine.

It is highly advisable to maintain rigid asepsis throughout the surgical procedure including the use of sterile drapes, etc. Good sterilization techniques are a must, using completely different sets for the two eyes in case of simultaneous bilateral procedures.[124]

Contact lens wearers following LASIK should be cautioned of the risk of contact lens manipulation and the increased risk of infectious keratitis with poor contact lens hygiene.

Patients should be informed of the risk factors and warning signs of infection. Prophylactic antibiotics for LASIK are given to patient in pre- and post-operative period.[62,129]

Early diagnosis and institution of appropriate therapy are of prime importance in the treatment of post-LASIK infections. Any focal infiltrate should be considered infectious until proved otherwise.[54]

The ***ASCRS White Paper*** recommends elevation of the flap, culture, and irrigation of the stromal bed with antibiotic solution (fortified vancomycin 50 mg/mL for rapid-onset keratitis and fortified amikacin 35 mg/ml for delayed-onset keratitis) as early as possible for all post-LASIK infectious keratitis. Treatment should be modified according to culture and sensitivity reports, on post-LASIK infectious keratitis, patients should be treated with antibiotics for a long term (6 weeks or longer).[54,94]

Steroids are only instituted, when there is a clear clinical evidence of improvement ; less pain, diminishing and coalescing infiltrate, fewer keratic precipitates and healing epithelial defect. The use of steroid should generally be in low dose twice daily prednisolone sodium phosphate 0.5%. The response is closely monitored for signs of worsening e.g. satellite infiltrates.[129]

Daily examinations with evaluation of severity of pain, size and depth of the infiltrates, size of the epithelial defects and the anterior chamber reaction are necessary. The antimicrobial regimen should be changed according to the microbiological culture and sensitivity results. Withdrawal of treatment and either

obtaining of another specimens or corneal biopsy should be considered if cultures are negative with no improvement in the clinical coursed.[49]

In unresponsive cases with extensive involvement of the cornea, a ***penetrating keratoplasty*** may often become necessary.[54]