

For more information or to provide feedback on this or any other decision support tool, email certifiedpractice@crnbc.ca

PEDIATRIC CORNEAL ABRASION (MINOR)

DEFINITION

A superficial corneal defect due to scraping or rubbing of the corneal epithelium.

Nurses with Remote Practice Certified Practice designation (RN(C)s¹) are able to treat children with corneal abrasions who are **2 years of age and older**.

POTENTIAL CAUSES

Usually trauma or foreign body in the eye (dust, fingernails, mascara brushes, excessive rubbing, contact lens use) is the cause.

TYPICAL FINDINGS OF CORNEAL ABRASION

History

- Sudden unilateral eye pain (sharp or worse with blinking)
- Mild blurred vision (due to tearing) may be present
- Mild photophobia
- Moderate to profuse tearing
- Foreign-body sensation
- Trauma
- Extended contact lens wearing

Physical Assessment

- Vital signs normal
- Weigh if less than 12 years of age (for medication calculations)
- Visual acuity may be slightly blurred in affected eye

¹ RN(C) is an [authorized title](#) recommended by CRNBC that refers to CRNBC-certified RNs, and is used throughout this Decision Support Tool (DST).

CRNBC monitors and revises the CRNBC certified practice decision support tools (DSTs) every two years and as necessary based on best practices. The information provided in the DSTs is considered current as of the date of publication. CRNBC-certified nurses (RN(C)s) are responsible for ensuring they refer to the most current DSTs.

The DSTs are not intended to replace the RN(C)'s professional responsibility to exercise independent clinical judgment and use evidence to support competent, ethical care. The RN(C) must consult with or refer to a physician or nurse practitioner as appropriate, or whenever a course of action deviates from the DST.

- Diffuse conjunctival injection²
- Central conjunctival injection or ciliary flush often denotes a more serious problem than slight but diffuse injection
- Pupils react briskly to light
- Presence of a foreign body under the upper or lower eyelid must be ruled out. Evert the lids and inspect carefully.

Diagnostic Tests

- Apply fluorescein stain: corneal cells that are damaged or lost will stain green; cobalt blue light allows easier visualization of the abrasion

MANAGEMENT AND INTERVENTION

Goals of Treatment

- Prevent secondary bacterial infection
- Prevent development of corneal ulceration

Non-pharmacologic Intervention

- Copious irrigation with saline for any foreign body to promote removal
- Do not use contact lens until healed
- Patching is contraindicated unless advised by a physician or nurse practitioner.

Pharmacologic Interventions

- All drugs must be calculated by weight until age 12
- Pediatric doses should not exceed recommended adult doses.
- Instill topical anesthetic eye drop:
- tetracaine 0.5% eye solution (Pontocaine) 2 drops stat dose only

Note: The client should not be discharged with topical anesthetics for pain control as they can be toxic to the epithelium and retard healing, increasing the risk of infections and scarring.

- Complaints of irritation and foreign-body sensation should resolve in 1 or 2 minutes
- Instill a generous amount of eye lubrication such as lacrilube in the lower conjunctival sac.
- Analgesics for mild to moderate pain:
 - acetaminophen 325mg, 1-2 tabs po q4-6h prn, or

² Conjunctival injection or ciliary flush refers to redness (almost lilac) around the limbus of the eye caused by dilatation of the deeper small blood vessels located around the cornea. It occurs in inflammation of the cornea, iris and ciliary body, and in angle-closure glaucoma.

- ibuprofen 200mg, 1-2 tabs po q4-6h prn

Note: Corneal abrasions should never be treated with topical steroids as they slow healing and increase the risk of superinfection.

Pregnant and Breastfeeding Women (dosing as above)

- Lacrilube and acetaminophen are safe in pregnancy.
- Tetracaine should only be used if necessary.
- DO NOT USE ibuprofen.

POTENTIAL COMPLICATIONS

- Corneal ulceration
- Secondary bacterial infection
- Corneal scarring if abrasion recurs
- Uveitis
- Iritis

CLIENT/CAREGIVER EDUCATION AND DISCHARGE INFORMATION

- Advise on condition, timeline of treatment and expected course of disease process.
- Advise client that daily follow-up is important to ensure proper healing.
- Counsel client about appropriate use of medications (type, dose, frequency, side effects).
- Instruct client to return to clinic immediately if pain increases or vision decreases before 24-hour follow-up.
- Suggest that client wear protective glasses while working or participating in contact sports to help prevent similar incidents in future.
- If contact lens wearer, do not wear contact lens until healed.

MONITORING AND FOLLOW-UP

- Advise caregiver to follow-up if condition does not improve, deteriorates and for on-going monitoring as necessary. Follow-up at 24 hours to assess healing is imperative.
- Daily visual acuity test until recovered.
- If no symptoms or signs, client can be sent home with advice on preventing corneal abrasions.
- If client is still symptomatic but improving the eye should be re-treated as above with antibiotic ointment or drops and re-examined daily with fluorescein. The uptake of dye should be less than on the previous day. Re-examine daily until the abrasion has healed completely.

CONSULTATION AND/OR REFERRAL

- Consult a physician or nurse practitioner for all children under the age of 2 years.
- Refer if the abrasion does not respond to therapy after 48 hours.
- Refer to a physician or nurse practitioner if
 - there is a large or central corneal abrasion,
 - a penetrating corneal ulcer is found on initial examination,
 - pain is severe,
 - pupils are not round,
 - there is no response to therapy in 48 hours,
 - the abrasion is larger after 24 hours,
 - a residual rust ring is evident, or
 - there is significant worsening of vision.

REFERENCES

For help obtaining any of the items on this list, please contact CRNBC Helen Randal Library at circdesk@crnbc.ca

More recent editions of any of the items in the Reference List may have been published since this DST was published. If you have a newer version, please use it.

American Academy of Ophthalmology. (2012). *Corneal Abrasion*. Retrieved from <http://www.aao.org/eye-health/diseases/what-is-corneal-abrasion>

Bashour, M. (2014, March 5). *Corneal foreign body*. Retrieved from <http://emedicine.medscape.com/article/1195581-overview>

Canadian Pharmacists Association. (2014). *Compendium of Therapeutic Choices* (7th ed.). Ottawa, ON: Author

Canadian Pharmacists Association. (2010). E-CPS. Retrieved March 25, 2010 from www.e-therapeutics.ca/home.whatsnew.action

Cash, J. C., & Glass, C. A. (Eds.). (2014). *Family practice guidelines* (3rd ed.). New York, NY: Springer.

Klostranec, J. M., & Kolin, D. L. (2012). *The Toronto notes 2012: Comprehensive medical reference and review for the Medical Council of Canada Qualifying Exam Part 1 and the United States Medical Licensing Exam Step 2* (28th ed.). Toronto, ON: Toronto Notes for Medical Students.

Cronau, H., Kankanala, R. R., & Mauger, T. (2010). Diagnosis and management of red eye in primary care. *American Family Physician*, 81(2), 137-144. Retrieved from <http://www.aafp.org/afp/2010/0115/p137.html>

DynaMed. (2015, December 21). *Corneal Abrasion*. Retrieved from <http://web.b.ebscohost.com/dynamed/detail?vid=4&sid=86280cd8-97fc-493f-a8c8-7ec434bf0174%40sessionmgr114&hid=116&bdata=JnNpdGU9ZHluYW11ZC1saXZlJnNjb3BIPXNpdGU%3d#AN=115957&db=dme>

Jacobs, D. S. (2015). Corneal abrasions and corneal foreign bodies: Management. *UptoDate*. Retrieved from http://www.uptodate.com/contents/corneal-abrasions-and-corneal-foreign-bodies-management?source=search_result&search=corneal+abrasion&selectedTitle=1~51

Jensen, B., & Regier, L. D. (Eds.). (2010). *RxFiles: Drug comparison charts* (8th ed.). Saskatoon, SK: RxFiles.

- Jensen, B., & Regier, L. D. (Eds.). (2014). *RxFiles: Drug Comparison Charts (10th ed)*. Saskatoon, SK: RxFiles.
- New Zealand Medicines and Medical Devices Safety Authority. (2008). *Minims tetracaine hydrochloride*. Retrieved from <http://www.medsafe.govt.nz/profs/datasheet/m/Minims-Tetracainehydrochlorideeyedrops.pdf>
- Porter, R. S., & Kaplan, J. L. (2011). Eye Disorders. In *The Merck Manual* (19th ed). Whitehouse Station, NJ: Merck Sharpe & Dohme Corp.
- Verma, A. (2014, February 20). *Corneal abrasion*. Retrieved from <http://emedicine.medscape.com/article/1195402-overview>
- Wipperman, J. L., & Dorsch, J. N. (2013, January 15). Evaluation and management of corneal abrasions. *American Family Physician*, 87(2), 114-120. Retrieved from <http://www.aafp.org/afp/2013/0115/p114.html>