A rare case of bacterial conjunctivitis: the importance of pre-antibiotic swabs for microbiology

Peter Murray, Annette Nesdale, Michelle Balm

Primary meningococcal conjunctivitis (PMC) is a rare but potentially dangerous condition. The following describes a recent case of PMC and explores the clinical and public health issues it raises.

Background

A 22-year-old male was reviewed at a DHB hospital eye clinic with a two-day history of a discharging, red, painful right eye, but was otherwise systemically well. The patient was prescribed topical ciprofloxacin and chloramphenicol and a conjunctival swab was taken, with follow-up arranged in three days.

The patient went on holiday with his family and three days later cancelled the follow-up appointment stating he was unwell. On the same day, the conjunctival culture isolated *N.meningitidis*. Numerous attempts to contact the patient were unsuccessful and the local public health unit was notified.

The following day, contact was made when the patient returned to the region. On review in the emergency department, he remained systemically well and his conjunctivitis was now improving. He received IV ceftriaxone and continued topical antibiotics. All close contacts were reviewed by Public Health and received chemoprophylaxis and education about meningococcal disease. The isolate was typed as Group C and monovalent (C) vaccination was administered to the case and close contacts.

The patient's symptoms resolved by day four and he remained well on follow-up. The final diagnosis was PMC. All close contacts remained well.

Discussion

N.meningitidis is a well-recognised human pathogen most commonly associated with invasive meningococcal disease (IMD). It is also a potential cause of acute bacterial conjunctivitis, which can be classified as primary or secondary in nature.[1,2]

PMC is a rare condition, though its true incidence is unknown as many cases of bacterial conjunctivitis are treated empirically without culture.[3] PMC is more common in children and caused mostly by serogroup B strains.[2,4]

Clinically, PMC can present as an acute or hyperacute bacterial conjunctivitis, and commonly affects only one eye.[5] PMC can result in ocular and systemic complications. Ocular complications (eg, corneal ulceration) can occur in up to 15.5% of cases.[2,6] The feared systemic complication is IMD. Case series suggest this can occur in 10–29% of PMC cases and usually occurs within 40 hours of ocular symptoms.[2,6] IMD has been shown to occur more commonly in patients who only received topical treatment.[2] As a consequence, it is now recommended that PMC be treated with topical and systemic therapy, the latter of which eliminates carriage of *N.meningitidis* and risk of developing IMD.[3,5] The choice of systemic therapy should be guided by an infectious disease specialist.

Evidence suggests close contacts of a PMC case are also at risk of developing IMD.[3,5] Consequently, awareness of the significance of *N.meningitidis* from eye cultures by microbiologists, ophthalmologists and GPs, rapid communication between labo-

ratories, clinical doctors and public health and a public health response is required for appropriate management.[3,5,7] The key aspects of the response include contact tracing, offering chemoprophylaxis and/or vaccination (if indicated) to close contacts, and educating contacts on IMD.[7] The purpose of chemoprophylaxis is to eradicate *N.meningitidis* carriage and reduce the risk of secondary IMD cases.[3,7]

Notwithstanding the risk posed by PMC, it does not currently meet the case definition of IMD in New Zealand and details of notifications have been inconsistent.[7] Changing the case definition to include PMC may help improve our understanding of the disease and better manage the public health risk.

In conclusion, PMC has the potential to cause local and systemic complications. Close contacts of a PMC case are also at risk of developing IMD and public health management is necessary to reduce the risk of secondary cases. It is recommended PMC be included in the case definition of IMD in New Zealand.

Competing interests:
Nil.

Author information:
Peter Murray, Regional Public Health, Hutt Hospital, Lower Hutt, New Zealand, Annette Nesdale, Regional Public Health, Hutt Valley District Health Board, New Zealand; Michelle Balm, Microbiology, Aotea Pathology, New Zealand.

Corresponding author:
Peter Murray, Regional Public Health, Hutt Hospital, Lower Hutt, New Zealand.
iworldpete@gmail.com

URL:
https://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2016/vol-129-no-1440/6981

REFERENCES:

1. Andreoli CM, Wiley HE, Durand ML, Watkins LM. Primary meningococcal conjunctivitis in an adult. Cornea. 2004;23(7):738–9.
2. Barquet N, Gasser I, Domingo P, Moraga FA, Macaya A, Elcuaz R. Primary meningococcal conjunctivitis: report of 21 patients and review. Rev Infect Dis. 1990;12(5):838–47.
3. Poulos R, Smedley EJ, Ferson MJ, Bolisetty S, Tapsall JW. Refining the public health response to primary meningococcal conjunctivitis. Commun Dis Intell. 2002;26(4):592–5.
4. Andersen J, Lind I. Characterization of Neisseria meningitidis isolates and clinical features of meningococcal conjunctivitis in ten patients. Eur J Clin Microbiol Infect Dis. 1994;13(5):388–93.
5. Bigham J, Hutcheon M, Patrick D, Pollard A. Death from invasive meningococcal disease following close contact with a case of primary meningococcal conjunctivitis--Langley, British Columbia, 1999. Can Commun Dis Rep. 2001;27(2):13–8.
6. Orden B, Martínez R, Millán R, Belloso M, Pérez N. Primary meningococcal conjunctivitis. Clin Microbiol Infect. 2003;9(12):1245–7.
7. Ministry of Health. Communicable Disease Control Manual 2012. Wellington, New Zealand, 2012. Available at http://www.health.govt.nz/publication/communicable-disease-control-manual-2012.