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Gonococcal Conjunctivitis in a Low Birth Weight Baby with No Antenatal Care Visits: Case Report

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ABSTRACT

Gonococcal conjunctivitis is a bacterial eye infection caused by *Neisseria gonorrhoeae*. This infection can occur in neonates or sexually active adults. *Neisseria gonorrhoeae* causes urogenital, rectal, pharyngeal infections, and hyperacute conjunctivitis. This bacterium can also invade the corneal epithelium, induce corneal stromal keratolysis, and corneal perforation. *Gonococcal conjunctivitis* usually presents with symptoms of severe mucopurulent conjunctivitis accompanied by eyelid edema, tenderness, and preauricular lymphadenopathy. This disease is typically associated with a Sexually Transmitted Disease (STD) but can also occur without genital infection. This case report presents a case of *gonococcal conjunctivitis* in a neonate who had no antenatal care (ANC) visits, reviewing the diagnosis and management of *gonococcal conjunctivitis*. A 20-day-old girl was brought to the pediatric clinic of Dr. Soegiri Lamongan with complaints of a swollen left eye accompanied by a large amount of yellow discharge for one week at home. *Gonococcal conjunctivitis* in neonates generally occurs due to direct transmission during delivery and exposure to infectious vaginal secretions. Antenatal care is crucial for maternal infection screening. Vertical transmission to the neonate can be prevented by administering antibiotics to the mother or applying antiseptic solutions to the baby's eyes immediately after birth. The diagnosis is based on history, physical examination, and supporting tests. This patient developed a corneal ulcer complication, leading to a poor prognosis.

Keywords:

Gonococcal Conjunctivitis, Gonorrhoeae, Neisseria Gonorrhoeae

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INTRODUCTION

Gonococcal conjunctivitis (GC), also known as gonococcal ophthalmia neonatorum, is a serious bacterial eye infection caused by Neisseria gonorrhoeae. This bacterium is a major pathogen in various infections, including urogenital, rectal, and pharyngeal infections, as well as hyperacute conjunctivitis (Unemo et al., 2019; Rowley et al., 2019). In neonates, this infection is a significant problem because it can cause serious complications affecting eye health and potentially lead to permanent vision loss (Costumbrado et al., 2022; Mondì et al., 2023; Mizushima et al., 2025; Darville, 2020; Wi et al., 2017).

Neonatal *gonococcal conjunctivitis* generally occurs due to direct transmission during delivery through exposure to infectious vaginal secretions (Godoy-Mancilla et al., 2022; Khan et al., 2022). In some cases, transmission can also occur through indirect contact with contaminated materials, although this mechanism is less common (Choi et al., 2021; Leung,

2021). Antenatal care, including maternal infection screening, is crucial to prevent vertical transmission to the neonate and avoid serious complications (Putra & Aldina, 2020). In neonates, these symptoms often appear within days of birth, indicating the progressive and hyperacute nature of the infection (Bach, 2025).

The urgency of this research lies in the high risk of permanent visual impairment and systemic complications in neonates with gonococcal conjunctivitis, particularly in cases with delayed diagnosis and management (Darville, 2020; Rowley et al., 2019). The absence of antenatal care (ANC) visits, as seen in this case, significantly increases the risk of undiagnosed maternal infection and subsequent vertical transmission (Wi et al., 2017; Unemo et al., 2019). This case highlights a critical gap in maternal healthcare access and education, emphasizing the need for improved public health strategies to prevent such avoidable neonatal infections (Costumbrado et al., 2022; Mondì et al., 2023; Mizushima et al., 2025).

Management of *gonococcal conjunctivitis* in neonates involves aggressive administration of systemic and topical antibiotics to limit the spread of infection and prevent serious complications. Regular cleaning of ocular discharge is also an integral part of therapy to reduce the local burden of infection (Iqbal et al., 2024; Wong et al., 2025). Furthermore, educating the patient's family about care and preventing reinfection is crucial to successful treatment. In some cases, consultation with an ophthalmologist is necessary to manage more serious ophthalmologic complications or those resistant to initial therapy (Rocha et al., 2023).

This case report aims to provide an in-depth clinical overview of *gonococcal conjunctivitis* in neonates, including risk factors, clinical course, and response to therapy. This case also highlights the importance of interspecialty coordination in the management of neonatal eye infections, particularly to prevent potentially sight-threatening complications. By understanding appropriate management, it is hoped that the incidence of long-term complications from *gonococcal conjunctivitis* can be minimized (Rocha et al., 2023).

The findings from this case report provide crucial implications for clinical practice and public health policy. It underscores the necessity of universal antenatal care, including routine screening for sexually transmitted infections (STIs) like gonorrhea, to prevent vertical transmission. For clinicians, it reinforces the importance of considering *gonococcal* infection in neonates presenting with hyperacute conjunctivitis, especially those with no birth prophylaxis. Additionally, this case serves as an educational tool to raise awareness among healthcare providers and the public about the severe consequences of untreated maternal infections and the critical role of preventive *ophthalmia neonatorum* prophylaxis. Ultimately, this report advocates for strengthened healthcare systems to ensure comprehensive prenatal care and accessible prophylactic treatments for all newborns.

METHOD

The research method used in this journal is a case report with a descriptive approach. The subject of the study was a 20-day-old baby girl who came with complaints of swollen left eye and yellow discharge since one week. Data collection was carried out through anamnesis of pregnancy history, delivery, and antenatal care history, physical examination

in the form of evaluation of the anterior segment of the eye which showed the presence of eyelid edema, conjunctival hyperemia, purulent discharge, and corneal ulcers. Supporting examinations included a complete blood count and eye discharge culture examination which showed the presence of gram-negative diplococci (*Neisseria gonorrhoeae*). The diagnosis was established based on a combination of the results of the anamnesis, physical examination, and supporting examinations. Management was carried out by administering systemic antibiotics in the form of ampicillin and gentamicin, and topical antibiotics in the form of levofloxacin eye drops accompanied by routine treatment of eye discharge. Evaluation of the results of therapy was carried out during treatment until control on the 11th day, which showed an improvement in symptoms even though complications in the form of corneal ulcers were still found so that the patient's prognosis was still dubia ad malam.

RESULTS AND DISCUSSION

This case illustrates the complexity of managing severe neonatal eye infections, particularly those caused by Neisseria gonorrhoeae. This 20-day-old female infant presented with a profuse purulent discharge from the left eye that had persisted for one week. The perinatal history revealed that the infant was born prematurely at 32 weeks' gestation by cesarean section with indications of premature rupture of membranes (PROM). PROM is a condition that increases the risk of mother-to-fetus transmission of infections, including Neisseria gonorrhoeae infection (Balaji et al., 2023).

Additional risk factors include prematurity, a less than completely sterile birth environment, and the possibility of undetected maternal infection during pregnancy. The patient was born with a weight of 2100 g, which is considered low birth weight (LBW). Infants are often more susceptible to various infections due to an immature immune system (Lotte et al., 2022).

It is important to note that applying breast milk directly to the eye, as practiced by the patient's family in this case, can worsen the condition. Although breast milk contains immune components such as immunoglobulins, lactoferrin, lysozyme, oligosaccharides, and immune cell subgroups, applying breast milk directly to the eye is not only ineffective but also carries the risk of introducing microorganisms from the skin or the environment. This can trigger a secondary infection or exacerbate an existing primary infection (Sugimura et al., 2021).

Diagnosing gonococcal conjunctivitis requires a comprehensive clinical and microbiological approach. Bacterial culture of eye discharge is often the gold standard for identifying the presence of Neisseria gonorrhoeae. Additional tests such as Gram staining can help detect the presence of characteristic gram-negative diplococci. In certain cases, molecular tests such as polymerase chain reaction (PCR) can be used to confirm the diagnosis, especially in cases with inconclusive culture results.

These findings emphasize the importance of microbiological examination to determine the etiology of infection, especially in cases of neonates with hyperacute conjunctivitis (Khan et al., 2022). The therapeutic approach in this case included the administration of systemic antibiotics, ampicillin and gentamicin, to treat the systemic infection, and topical levofloxacin for local treatment of the infected eye. This antibiotic combination aligns with guidelines for the management of neonatal infections caused by gram-negative bacteria.

Furthermore, the use of sterile gauze after administering eye drops is essential to maintain hygiene and prevent recontamination. (Sun et al., 2023).

Furthermore, infants with this condition require additional care, such as regular cleaning of eye discharge and the use of sterile gauze to cover the eye after medication administration. The treatment process must be continuously monitored to ensure that the infection does not progress further and to detect signs of more serious complications, such as corneal perforation or keratitis. (Linton, 2018).

This protocol demonstrated successful therapy, as evidenced by clinical improvement in the form of reduced eyelid edema and purulent discharge on the fifth day of treatment. This case also demonstrates the importance of educating the patient's family, particularly regarding eye drop administration, maintaining proper eye hygiene, and adhering to scheduled checkups. This education is essential for preventing infection recurrence and ensuring optimal continuation of therapy (Bach, 2025).

Referral of the patient to a tertiary eye hospital, such as Undaan Eye Hospital, is appropriate given the potential for long-term complications such as keratitis or permanent damage to eye structures due to severe infection. From a multidisciplinary perspective, this case highlights the importance of coordination between pediatricians, ophthalmologists, and microbiologists in managing severe eye infections in neonates. This combination of expertise allows for accurate diagnosis, optimal therapy, and prevention of long-term complications (Rocha et al., 2023).

Furthermore, this case also illustrates the need to increase public awareness regarding neonatal eye infections. Educating pregnant women about the risks of infections such as Neisseria gonorrhoeae and the importance of comprehensive antenatal care can help reduce the incidence of similar cases in the future (Sun et al., 2023). Antenatal care that includes maternal infection screening can prevent vertical transmission to the neonate, for example through antibiotic prophylaxis for the infected mother or the use of antiseptic solutions on the baby's eyes immediately after birth. Overall, this case emphasizes the importance of early detection, aggressive management, and a multidisciplinary approach in managing complex neonatal eye infections, such as gonococcal conjunctivitis (Pourabbas et al., 2018).

CONCLUSION

A 20-day-old neonate presented with a swollen left eye and purulent discharge lasting one week, worsened despite breast milk drops and no prior medical evaluation. The mother had not attended antenatal care (ANC) during pregnancy. Physical examination showed eyelid edema, hyperemia, and purulent discharge in the bulbar conjunctiva. Laboratory analysis of the eye discharge identified gram-negative diplococcus *Neisseria gonorrhoeae*, confirming *gonococcal conjunctivitis*. The infant was treated successfully with systemic and topical antibiotics over one week, although the prognosis remained uncertain due to risks of corneal involvement and ulceration. This case underscores the critical role of ANC in preventing vertical transmission of infections and related neonatal complications. Future research should explore effective strategies to improve ANC attendance and early neonatal screening to prevent severe outcomes in *gonococcal conjunctivitis*.

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