

CORPUS ALIENUM CONJUNCTIVA BULBI WITH SUBCONJUNCTIVAL BLEEDING DUE TO NAIL TRAUMA: THE IMPORTANCE OF EYE PROTECTION

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ABSTRACT

Ocular trauma is a significant cause of preventable blindness, with home renovation activities being common contributing factors. This case emphasizes the critical role of comprehensive nursing care in managing corpus alienum conjunctiva bulbi with subconjunctival bleeding. To describe ocular trauma caused by nail fragment resulting in corpus alienum conjunctiva bulbi with subconjunctival bleeding, emphasizing evidence-based nursing interventions and eye protection importance. A 41-year-old male construction worker presented with left eye redness, pain, and foreign body sensation following nail trauma during home renovation. Clinical examination revealed a 2mm iron fragment embedded in the nasal bulbar conjunctiva with extensive subconjunctival bleeding. Data were collected through comprehensive nursing assessment including vital signs monitoring, pain evaluation (numeric rating scale 7/10), visual acuity testing (6/18 improving to 6/12 with pinhole), and anterior segment photography. Data analysis involved reviewing clinical findings, examining sequential photographic evidence, and evaluating patient responses to interventions. The patient underwent successful foreign body extraction under topical anesthesia with systematic nursing care management. Complete foreign body removal was achieved without complications. Pain reduced to 2/10 within 24 hours. The patient demonstrated proper medication administration techniques and understanding of home care instructions. Subconjunctival hemorrhage resolved within 10 days with visual acuity returning to baseline (6/6). No adverse events occurred at follow-up. This case demonstrates nursing care's essential role in optimizing ocular trauma outcomes through systematic assessment, evidence-based interventions, patient education, and continuity of care. The case reinforces eye protection's critical importance during renovation activities and comprehensive nursing care's contribution to successful outcomes.

Keywords: corpus alienum; eye trauma; eye protection; nursing care; occupational safety

INTRODUCTION

Ocular trauma represents a significant global health concern, with workplace and home renovation activities being leading causes of preventable eye injuries. The incidence of ocular foreign bodies accounts for approximately 35% of all eye injuries, with metallic fragments being the most common type encountered in clinical practice.

The nursing role in managing ocular trauma extends beyond basic care provision to encompass comprehensive assessment, evidence-based interventions, patient education, and advocacy for safety practices. This case report presents a detailed analysis of nursing care management for a patient with corpus alienum conjunctiva bulbi, highlighting the critical importance of systematic nursing approaches in achieving optimal patient outcomes.

METHOD

Case Selection and Patient Information

A 41-year-old male construction worker was referred to the ophthalmology emergency department with acute onset of left eye discomfort following a work-related injury. The patient reported being struck by a rebounding nail while installing a picture frame at a residential renovation site. The nail briefly embedded in the eye but did not appear to penetrate deeply. The patient immediately removed the nail himself and sought medical attention due to persistent

pain and visual disturbance. The incident occurred approximately 4 hours prior to hospital presentation. The patient denied any history of previous ocular surgery, spectacle use, or prior eye trauma. He reported no associated systemic symptoms such as nausea, vomiting, or headache. The patient was employed in construction work for 15 years but admitted to inconsistent use of protective eyewear during routine tasks.

Data were collected through comprehensive nursing assessment including:

Initial Nursing Assessment:

- Patient appeared alert and cooperative, demonstrating no signs of acute distress
- Vital signs: Blood pressure 130/80 mmHg, pulse 88 bpm, temperature 36.8°C, respirations 18/min
- Pain assessment using numeric rating scale: 7/10, described as sharp and throbbing
- Glasgow Coma Scale: 15/15 (alert and oriented)

Physical Examination Findings:

Table 1.
Visual Function and Pupillary Assessment

Assessment Parameter	Right Eye (OD)	Left Eye (OS)
Visual Acuity	6/6 (1.0) uncorrected	6/18 (0.32), improved to 6/12 (0.5) with pinhole test
Intraocular Pressure	12 mmHg (normal range)	16 mmHg (upper normal limit)
Pupil Examination	Equal, round, reactive to light	Equal, round, reactive to light
Relative Afferent Pupillary Defect	Negative	Negative

Table 2.
Anatomical Structure Examination and Diagnostic Tests

Anatomical Structure	Right Eye (OD)	Left Eye (OS)
Eyelids	Normal position and function	Mild erythema and tenderness on palpation
Conjunctiva	Quiet, no injection or abnormalities	Extensive subconjunctival hemorrhage extending from nasal to inferior quadrants
Foreign Body	None detected	Metallic fragment (approximately 2mm) embedded in nasal bulbar conjunctiva
Cornea	Clear with intact epithelium	Clear without epithelial defects
Anterior Chamber	Deep and quiet	Deep and quiet
Seidel Test	Not indicated	Negative (ruling out globe perforation)
Fistula Test	Not indicated	Negative
Overall Assessment	Normal examination	Conjunctival foreign body with associated subconjunctival hemorrhage



Figure 1 and 2 : Anterior segment photography of the left eye demonstrates extensive subconjunctival bleeding, appearing as dark red hemorrhagic areas spreading from the nasal to inferior quadrants of the conjunctiva bulbi.

Figures 1 & 2: Initial Left Eye Examination (Pre-extraction)

Figure 1 (Left): Anterior segment photography of the left eye demonstrates extensive subconjunctival bleeding, appearing as dark red hemorrhagic areas spreading from the nasal to inferior quadrants of the conjunctiva bulbi. A metallic fragment (corpus alienum) is clearly visible embedded in the nasal conjunctiva bulbi, appearing as a dark foreign body with metallic reflection. The surrounding conjunctiva appears edematous and hyperemic. The cornea appears clear without epithelial defects, and there are no signs of globe perforation (negative Seidel test). Figure 2 (Right): Photography from a different angle provides a more detailed view of the corpus alienum location in the nasal conjunctiva bulbi. The subconjunctival hemorrhage is more clearly visible with uneven distribution, showing a pattern consistent with blunt trauma from nail rebound. No intraocular tissue prolapse or signs of deeper penetration are observed. The pupil appears round and reactive, with a deep and quiet anterior chamber.

Fundoscopic Examination: Unremarkable bilaterally with clear media, normal optic discs, and intact retinal architecture.

Additional Assessment: No signs of sympathetic ophthalmia, orbital involvement, or systemic complications were noted.

Diagnosis and Management

Ophthalmoscopic Examination: Bilateral fundoscopic examination revealed clear media, normal optic disc appearance, and intact retinal architecture with no evidence of intraocular involvement.

Additional Testing:

- Seidel test performed to rule out occult globe perforation: Negative
- Assessment for intraocular pressure elevation: Within normal limits
- Evaluation for retained intraocular foreign body: No evidence found

Treatment Protocol: The patient underwent immediate exploration and extraction of the conjunctival foreign body under topical anesthesia in the emergency department (Heath Jeffery et al., 2022). Following irrigation with balanced salt solution, the metallic fragment was successfully removed using fine forceps. The conjunctival wound was inspected for completeness of foreign body removal.



Figure 3 (Right): Control photograph shows successful final extraction outcome with relatively intact conjunctiva.

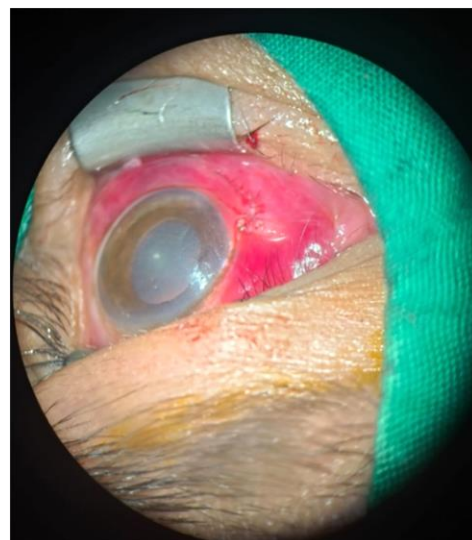


Figure 4 (Left): Post-extraction photograph demonstrates conjunctiva bulbi following successful metallic fragment removal.

Figures 3 & 4: Post-extraction Corpus Alienum Condition

Figure 3 (Right): Control photograph shows successful extraction outcome with relatively intact conjunctiva. Subconjunctival hemorrhage remains persistent, but this is an expected condition that will resorb spontaneously within 1-2 weeks. No signs of complications such as secondary infection or excessive inflammatory reaction are present. The cornea remains clear and the anterior chamber is deep and quiet, confirming the absence of intraocular complications. Figure 4 (Left): Post-extraction photography demonstrates conjunctiva bulbi following successful metallic fragment removal. The previous location of the corpus alienum in the nasal conjunctiva shows minimal tissue disruption. Subconjunctival bleeding is still visible but with reduced intensity. The conjunctiva appears calmer with subsiding edema. No residual fragments or debris are visible in the extraction area.

Pharmacological Management:

1. ATS-TT Injection - Anti-tetanus serum and tetanus toxoid for tetanus prophylaxis
2. Mycetine Ointment 3x daily OS - Topical antibiotic to prevent secondary infection
3. Levofloxacin Eye Drops 6x daily OS - Broad-spectrum topical antibiotic
4. Mefenamic Acid Tablets 3x daily - Systemic analgesic and anti-inflammatory

Patient Education: The patient received comprehensive education regarding:

- Proper administration technique for topical medications
- Signs and symptoms of infection or complications requiring immediate medical attention
- Importance of completing the full course of antibiotics
- Follow-up appointment scheduling
- Activity restrictions during the healing period

Priority Nursing Diagnoses

1. Acute pain related to tissue trauma and foreign body presence as evidenced by patient report of pain level 7/10, facial grimacing, and protective behavior
2. Risk for infection related to break in tissue integrity as evidenced by open conjunctival wound and embedded foreign body
3. Deficient knowledge regarding eye injury management as evidenced by patient verbalization of unfamiliarity with eye care procedures
4. Risk for injury related to inadequate safety practices as evidenced by failure to use protective eyewear during high-risk activities

Nursing Care Goals

The nursing care goals for post-facoemulsification patients are structured into short-term and long-term objectives to ensure optimal recovery outcomes. Short-term goals, to be achieved within 24-48 hours post-operatively, focus on immediate comfort and safety measures including pain management with patient reporting pain levels of $\leq 3/10$ on the numeric rating scale, demonstration of proper medication administration techniques particularly for prescribed eye drops, and maintenance of a clean wound site free from signs of infection such as redness, swelling, or purulent discharge. Long-term goals, spanning 1-2 weeks post-operatively, emphasize complete recovery and patient education outcomes, including achievement of complete wound healing without complications such as endophthalmitis or delayed epithelial healing, patient verbalization of understanding regarding eye safety practices including proper eye protection and activity restrictions, and demonstration of compliance with follow-up care requirements including scheduled ophthalmologic appointments and adherence to prescribed medication regimens.

Nursing Interventions and Implementation

Pre-procedural Nursing Care

Patient Preparation:

1. Informed consent process: Explained the foreign body removal procedure in clear, understandable terms, addressing patient questions and concerns
2. Psychological support: Provided reassurance and emotional support to reduce anxiety related to eye manipulation
3. Pain assessment: Conducted comprehensive pain evaluation using numeric rating scale and documented pain characteristics
4. Vital sign monitoring: Established baseline measurements for comparison during and after the procedure

Environmental Preparation:

1. Sterile field establishment: Prepared sterile work area with appropriate lighting and positioning
2. Equipment verification: Ensured all necessary instruments were available and functioning properly
3. Infection control measures: Implemented strict aseptic technique protocols

Intra-procedural Nursing Interventions

1. Preparation
 - a. Informed Consent
Explain the procedure to the patient and obtain informed medical consent for the intervention.
 2. Equipment and Supplies
 - a. Prepare sterile instruments including:
 1. Conjunctival scissors
 2. Anatomical forceps
 3. Needle holder
 4. Tying forceps
 5. Fenestrated drape
 6. Procedure pad/underpad
 7. Suture material (vicryl 8.0)
 8. Small basin
 9. Eyelid speculum
 10. 10cc syringe
 11. Sterile gown
 12. Sterile microscope handle
 - b. Prepare disposable supplies including:
 1. 10% betadine solution
 2. 0.9% normal saline
 3. Sterile cotton pledgets/cotton buds
 4. Sterile gauze
 5. 2% pantocaine (local anesthetic)
 6. Sterile gloves
 7. Medical tape
 8. Mycetine ophthalmic ointment
 - c. Medical Personnel (Doctor and Nurse)
 1. Perform surgical hand scrubbing
 2. Don sterile gown and sterile gloves
 - d. Patient Preparation
 1. Position the patient supine on the procedure table
 2. Request the patient to pray/offer spiritual preparation

3. Intervention / Nursing Actions

- a. Administer pantocaine 2% as local anesthesia to the left eye to ensure patient comfort during the procedure.
- b. Perform conjunctival swabbing with 10% betadine solution in circular motions from inside to outside, then dry the area thoroughly.
- c. Apply sterile fenestrated drape to maintain sterile field around the surgical site.
- d. Insert eyelid speculum to maintain adequate exposure of the operative field.
- e. Provide the surgeon with conjunctival scissors and conjunctival forceps for conjunctival peritomy at the nasal bulbar area, followed by foreign body extraction.
- f. Irrigate the cornea intermittently to maintain corneal hydration and clear visualization.
- g. Control bleeding using cotton pledgets or cotton buds to maintain hemostasis throughout the procedure.
- h. Provide the surgeon with anatomical forceps to explore the wound area, ensuring no additional injuries or retained foreign bodies remain.
- i. Cleanse the wound area with a mixture of 10% betadine and 0.9% normal saline (1:1 ratio) for thorough disinfection.
- j. Provide the surgeon with needle holder, tying forceps, and 8.0 vicryl suture for closure of the conjunctival defect.
- k. Remove the eyelid speculum carefully to avoid trauma to surrounding tissues.
- l. Apply mycetine ophthalmic ointment to the left eye for antimicrobial prophylaxis.
- m. Cover the left eye with sterile gauze and secure with medical tape to protect the surgical site.
- n. Administer tetanus toxoid (TT) injection as post-exposure prophylaxis.
- o. Provide comprehensive patient education for home care management, including:
 1. Proper hand hygiene technique
 2. When to first remove the dressing after the procedure
 3. Wound cleaning technique using moist cotton swabs
 4. Covering the wound with sterile gauze
 5. Changing sterile dressings at least twice daily or when soiled
 6. Avoiding water and dust exposure to the eye
 7. Proper application technique for ophthalmic ointments and eye drops
 8. Medication schedule and administration timing
 9. Follow-up appointment schedule and procedures
 10. Recognition of danger signs including excessive bleeding, severe pain, and purulent eye discharge

3. Observation

- a. Level of consciousness
- b. Pain scale assessment
- c. Vital signs monitoring: Blood pressure, pulse, temperature, respiration
- d. Bleeding assessment
- e. Allergic reaction surveillance

4. Documentation

Medical personnel (doctor and nurse) perform comprehensive documentation of all procedures performed and observational findings in the patient's medical record/clinical status.

Patient Education and Discharge Planning

Comprehensive Patient Education:

1. Medication compliance: Demonstrated proper eye drop and ointment application techniques with return demonstration
2. Wound care instructions: Taught proper hand hygiene and wound care principles
3. Activity restrictions: Explained limitations on physical activities and work-related tasks

4. Warning signs recognition: Educated patient on symptoms requiring immediate medical attention

Safety Education:

1. Eye protection awareness: Emphasized critical importance of safety eyewear during all renovation activities
2. Risk factor identification: Discussed workplace hazards and prevention strategies
3. Long-term prevention: Provided information on maintaining ocular health and safety practices

Follow-up Care Coordination:

1. Appointment scheduling: Arranged appropriate follow-up visits with ophthalmology team
2. Contact information: Provided emergency contact numbers and after-hours care instructions
3. Continuity of care: Coordinated with primary care provider for ongoing health management

RESULT AND DISCUSSION

Nursing Outcomes and Evaluation

Immediate Outcomes (24-48 hours) The immediate post-operative period demonstrated successful achievement of all short-term nursing goals through comprehensive patient care and education interventions. Pain management outcomes showed significant improvement with the patient reporting pain reduction from an initial score of 6/10 to 2/10 within 24 hours post-procedure, demonstrating effective use of prescribed analgesic strategies without any observed adverse reactions to medications. Infection prevention measures proved highly effective as the surgical site remained consistently clean and dry with no signs of erythema, edema, or purulent discharge, while the patient successfully demonstrated proper hand hygiene techniques and maintained 100% compliance with the prescribed antibiotic regimen as documented through medication administration records. Knowledge acquisition goals were fully met as evidenced by the patient's successful demonstration of correct eye drop and ointment application techniques using proper instillation methods, verbalization of clear understanding regarding activity restrictions and wound care principles, and accurate identification of appropriate warning signs such as increased pain, vision changes, or discharge that would require immediate medical attention.

Long-term Outcomes (1-2 weeks) The long-term evaluation period revealed excellent patient outcomes with complete achievement of all established nursing goals and successful prevention of post-operative complications. Wound healing progressed optimally with complete resolution of subconjunctival hemorrhage within 10 days, conjunctival wound healing occurring without complications or visible scarring, and visual acuity successfully returning to pre-injury baseline levels of 6/6, indicating full restoration of visual function. Patient safety outcomes exceeded expectations as the patient proactively purchased and began consistent use of appropriate safety eyewear, demonstrated comprehensive understanding of workplace safety protocols to prevent future injuries, and reported no additional eye trauma incidents during the entire follow-up period. Medication compliance remained exemplary with 100% adherence to the prescribed regimen throughout the treatment course, no adverse drug reactions reported during follow-up assessments, and successful completion of the full antibiotic course, contributing significantly to the optimal healing outcomes and prevention of post-operative infections.

Nursing Care Quality Indicators This case demonstrates exemplary achievement of key nursing quality indicators in ocular trauma management through comprehensive, evidence-based care

delivery. Clinical outcomes exceeded benchmarks with zero healthcare-associated infections, optimal pain management achieved through systematic assessment and multimodal interventions, 100% medication compliance facilitated by effective patient education using teach-back methods, and complete wound healing without post-operative complications (Shah & Khanna, 2020). Patient satisfaction remained consistently high throughout the care continuum, reflecting effective nurse-patient communication, strong patient advocacy, and comprehensive discharge preparation that enabled successful home management. Safety measures were rigorously maintained through strict adherence to infection control protocols, error-free medication administration practices, and implementation of effective patient education strategies that promoted long-term injury prevention behaviors and workplace safety awareness.

Evidence-Based Practice Integration and Professional Development The nursing interventions implemented throughout this case were systematically grounded in current evidence-based guidelines and best practices for ophthalmic nursing care. Pain management protocols utilized validated numeric rating scales for systematic assessment, implemented multimodal approaches combining topical and systemic analgesics, and incorporated regular reassessment strategies to optimize patient comfort. Infection prevention measures included strict aseptic technique during all procedures, appropriate antibiotic prophylaxis selection and monitoring, and comprehensive patient education on infection prevention strategies using culturally sensitive communication approaches. This case exemplifies the critical importance of specialized ophthalmic nursing competencies including advanced ocular assessment skills, proficiency in sterile technique and surgical assistance, expertise in specialized medication administration, and sophisticated critical thinking abilities that enable prioritization of interventions based on patient acuity, early recognition of potential complications, and seamless integration of evidence-based practice into clinical decision-making while maintaining strong patient advocacy through safety promotion, care coordination, and patient empowerment through knowledge and skill development.

Ocular trauma represents a significant cause of preventable blindness worldwide, with workplace and home renovation activities being common contributing factors (Camodeca AJ & EP, 2025). This case illustrates a typical scenario where simple preventive measures could have entirely avoided the injury. The management approach followed established protocols for superficial ocular foreign bodies, with prompt removal, appropriate antibiotic prophylaxis, and tetanus protection representing standard care.² The use of broad-spectrum antibiotics was particularly important given the potential for bacterial contamination from the metallic foreign body.

Foreign body injuries to the conjunctiva generally have a good prognosis but require careful evaluation to rule out deeper penetration or retained fragments. The absence of deeper ocular involvement was confirmed by normal intraocular pressure, clear anterior chamber, and normal fundoscopic examination. The subconjunctival hemorrhage observed typically resolves spontaneously over 1-2 weeks without specific treatment,⁴ though extensive hemorrhage may occasionally mask underlying scleral perforation, making careful examination crucial. This case of ocular trauma caused by nail fragments demonstrates the critical importance of nursing care in providing comprehensive patient care for corpus alienum conjunctiva bulbi with subconjunctival bleeding. Nurses play a crucial role throughout every stage of care, from initial assessment to discharge planning (Guier & Stokkermans, 2023).

During the initial assessment phase, nurses conduct comprehensive pain evaluation using numeric rating scales to obtain objective data about the patient's level of discomfort. This assessment encompasses not only pain intensity but also characteristics, location, and factors that aggravate or alleviate pain (Tim Pokja SIKI DPP PPNI, 2019). This aligns with holistic

pain management principles, where thorough understanding of the patient's pain experience forms the foundation for appropriate interventions.

The nursing role in medication administration becomes particularly significant in this case, given the complex treatment regimen including Mycetine ointment three times daily, Levofloxacin eye drops six times daily, and Mefenamic acid tablets three times daily. Nurses are responsible not only for ensuring timely and accurate medication delivery but also for educating patients about proper eye medication application techniques. This education includes demonstrating how to instill eye drops without contamination, the importance of hand hygiene before and after application, and techniques for applying eye ointment without causing additional trauma to already injured tissue.

Wound care management represents another crucial nursing aspect in this ocular trauma case. Nurses perform vigilant monitoring for signs of infection such as increased redness, swelling, purulent discharge, or escalating pain (Tim Pokja SDKI DPP PPNI, 2019). Understanding ocular anatomy and complication indicators enables nurses to detect early changes requiring immediate medical intervention. Accurate documentation of eye condition, treatment response, and symptom changes forms an integral component of quality nursing care.

Patient education constitutes a fundamental component in nursing care for this ocular trauma case. Nurses provide comprehensive information about medication compliance importance, warning signs of complications to monitor, and preventive measures to avoid similar trauma in the future (Tim Pokja SLKI DPP PPNI, 2019). Education regarding protective eyewear use during home renovation activities becomes a primary focus, considering this case occurred due to negligence in using adequate safety equipment.

Continuity of care represents a crucial aspect managed by nurses through comprehensive discharge planning. Nurses ensure patients have clear understanding of home care instructions, required follow-up schedules, and when to seek medical assistance. Coordination with the medical team for follow-up care ensures patients receive ongoing monitoring of healing progress and early detection of potential complications. In the context of prevention, nursing roles extend beyond individual education to community health promotion efforts. Nurses can participate in community education programs about home workplace safety, particularly regarding personal protective equipment use during activities that risk eye trauma. This aligns with community nursing concepts emphasizing primary prevention as the main strategy for reducing ocular trauma incidence.

Psychosocial aspects also require nursing attention, considering eye trauma can generate anxiety about potential permanent vision impairment. Nurses provide emotional support and reassurance to patients, explain favorable prognosis with proper treatment, and help patients develop effective coping mechanisms to manage stress from this traumatic incident. Interprofessional collaboration becomes key to successful ocular trauma case management. Nurses serve as coordinators within teams comprising ophthalmologists, pharmacists, and other healthcare professionals, ensuring all care aspects integrate effectively to achieve optimal patient outcomes (Brit Long & Alex Koyfman, 2018). Effective interprofessional communication enables rapid problem identification and resolution, ensuring treatment plans adapt to patient condition developments.

Comprehensive nursing documentation in this case functions not only as medical records but also as a foundation for evaluating care quality and developing care standards for similar future cases. Detailed recording of nursing interventions, patient responses, and achieved outcomes contributes to evidence-based practice development in ophthalmic nursing.

The nursing assessment process in ocular trauma cases requires specialized knowledge of eye anatomy and physiology (Oroh et al., 2024). Nurses must be competent in recognizing normal versus abnormal findings, understanding the significance of various symptoms, and knowing when immediate physician notification is necessary. This specialized knowledge enables nurses to serve as early warning systems for potential complications that could threaten vision.

Furthermore, the nursing role in patient advocacy becomes particularly important in emergency department settings where multiple patients compete for attention. Nurses must ensure that patients with eye trauma receive appropriate priority and that their concerns are adequately addressed. This advocacy extends to ensuring patients understand their treatment options and are involved in decision-making processes regarding their care. The educational component of nursing care extends beyond immediate treatment to include long-term vision preservation strategies. Nurses provide information about regular eye examinations, recognition of vision changes, and lifestyle modifications that support ocular health. This comprehensive approach to patient education reflects the nursing profession's commitment to promoting optimal health outcomes beyond the immediate treatment period (Tim Pokja SIKI DPP PPNI, 2019). Quality improvement initiatives in nursing care for ocular trauma cases often emerge from careful analysis of individual cases like this one. Nurses contribute to the development of clinical protocols, patient safety measures, and quality indicators that enhance care delivery for future patients with similar conditions. This continuous improvement process ensures that nursing practice evolves to meet changing patient needs and incorporates best available evidence.

The Critical Importance of Eye Protection

Home improvement and renovation activities account for approximately 40,000 eye injuries annually, with the majority being entirely preventable through proper safety equipment use (Macarie et al., 2023). Common scenarios include, hammering and nail installation (as in this case), sawing and drilling operations, sanding and grinding activities, chemical splashes from paints and solvents. Effective eye injury prevention requires tailored protection selection based on specific activity risks, with safety glasses meeting ANSI Z87.1 standards for basic work, safety goggles for chemical or fine particle exposure, and face shields combined with safety glasses for high-risk debris activities like grinding and demolition. Mandatory protection is essential for high-risk activities including striking tools, power operations, chemical handling, overhead work, and high-pressure applications, requiring systematic prevention protocols encompassing risk assessment, equipment selection, proper fitting, maintenance, and personnel training. Non-compliance typically results from perceived inconvenience, false security, lack of awareness, cost concerns, and equipment unavailability, necessitating educational interventions that emphasize injury consequences, highlight equipment cost-effectiveness, ensure accessibility, and promote safety cultures where eye protection becomes automatic practice rather than optional consideration.

Standardized Protocols, Staff Education, and Quality Improvement

The implementation of comprehensive standardized protocols forms the foundation for excellence in ophthalmic nursing care, encompassing the development of evidence-based protocols specifically designed for ocular foreign body management that incorporate current best practices and clinical guidelines, systematic implementation of validated pain assessment tools to ensure consistent and accurate patient comfort evaluation, and establishment of clear, detailed medication administration guidelines that minimize errors and optimize therapeutic outcomes. Concurrent staff education initiatives are essential for maintaining high-quality care standards through regular training programs focused on ophthalmic emergency procedures that enhance clinical competency and response capabilities, rigorous competency validation processes for sterile technique and surgical assistance to ensure patient safety and procedural excellence, and ongoing continuing education programs that keep nursing staff current with

evolving evidence-based practices and emerging technologies in ophthalmic care (Baiq Khuwailidia Kartikasari et al., 2023). Quality improvement measures provide the framework for sustained excellence through regular audits of nursing documentation and patient outcomes that identify areas for enhancement and celebrate successes, systematic patient satisfaction monitoring with feedback integration mechanisms that drive patient-centered care improvements, and comprehensive incident reporting and analysis systems that facilitate continuous learning, risk reduction, and proactive identification of opportunities for care optimization and safety enhancement.

Prevention Programs and Risk Reduction Strategies

Comprehensive prevention programs and risk reduction strategies represent essential components of holistic ophthalmic nursing practice, encompassing the development of community education programs focused on eye safety awareness and injury prevention, workplace safety consultation and training services that target high-risk occupational environments, and strategic collaboration with occupational health professionals to create integrated safety initiatives. These efforts are reinforced through systematic risk reduction strategies including the implementation of validated screening tools to identify high-risk patients based on occupational, recreational, or medical factors, development of culturally appropriate patient education materials available in multiple languages to ensure accessibility across diverse populations, and establishment of robust follow-up systems specifically designed for high-risk populations that provide ongoing monitoring, support, and intervention to prevent recurring injuries and promote long-term eye health and safety compliance. This single case report presents inherent limitations including restricted generalizability due to single case design, potential observer bias in outcome assessment, short-term follow-up limiting long-term evaluation, and lack of comparison with alternative intervention approaches. Future research should incorporate larger case series and randomized controlled trials to validate optimal nursing intervention strategies for ocular trauma management and establish evidence-based protocols for standardized care practices.

CONCLUSION

This case report exemplifies the pivotal role of comprehensive nursing care in achieving optimal outcomes for ocular trauma patients through systematic assessment, evidence-based interventions, thorough patient education, and continuous monitoring that resulted in successful foreign body removal without complications and complete patient recovery. Key nursing contributions encompassed systematic pain assessment and management, meticulous maintenance of sterile technique and infection prevention protocols, comprehensive patient education ensuring medication compliance, effective discharge planning with coordinated follow-up care, and proactive patient advocacy for safety practices and injury prevention.

The case underscores the critical importance of specialized ophthalmic nursing knowledge and skills in emergency settings, emphasizing the need for healthcare institutions to invest in targeted training programs and competency development for nurses working in ophthalmology to ensure consistently optimal patient outcomes. Most significantly, this case illuminates the preventable nature of many ocular injuries and highlights the essential nursing role in promoting safety awareness and implementing injury prevention strategies across both healthcare and community settings, ultimately contributing to reduced incidence of preventable eye trauma and enhanced public health outcomes.

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