


## Radiological Picture of Ocular Trauma in Ct-Scan of the Head with Orbital Centering: Literature Review

Andi Fitri Nurul<sup>1</sup>, Febie Irsandy Syahrudin<sup>2</sup>, Munjia Assagaf<sup>3</sup>

Program Studi Pendidikan Dokter, Fakultas Kedokteran, Universitas Muslim Indonesia. Departemen Radiologi, Fakultas Kedokteran, Universitas Muslim Indonesia. Departemen Oftamologi, Fakultas Kedokteran, Universitas Muslim Indonesia

Article Info	ABSTRACT
<b>Keywords:</b> CT-Scan, ocular trauma, Orbit, visual diagnosis. Ocular Trauma Score.	Ocular trauma is a leading cause of preventable vision impairment and blindness, with its incidence continuing to rise, including in Indonesia. Computed Tomography (CT-Scan) plays an important role in early diagnosis, injury assessment, and initial clinical decision-making for adult ocular trauma patients. This study aims to review the latest scientific evidence on the use of CT-Scan in managing adult ocular trauma using the PRISMA method. This is a systematic literature review covering sources from international databases and national journals (2020–2025). Of the 120 articles identified, 20 met the inclusion criteria and were analyzed narratively and descriptively. The results show that CT-Scan has high sensitivity in detecting orbital rupture, orbital fractures, intraocular foreign bodies, and vitreous hemorrhage. CT-Scan is also crucial in determining the Ocular Trauma Score (OTS) and visual prognosis, as well as aiding decision-making in emergency rooms and ICUs. Overall, CT-Scan is a fast, accurate diagnostic modality with significant prognostic value in managing adult ocular trauma
This is an open access article under the <a href="https://creativecommons.org/licenses/by-nc/4.0/">CC BY-NC</a> license 	<b>Corresponding Author:</b> Andi Fitri Nurul Department of Medicine, University of Muslim Indonesia Makassar, Indonesia <a href="mailto:andifitrinurul14@gmail.com">andifitrinurul14@gmail.com</a>

### INTRODUCTION

Ocular trauma refers to mechanical injury to one or more parts of the eye (such as the cornea, sclera, iris, lens, retina, or optic nerve) and/or surrounding tissues (eyelids, conjunctiva, orbit), which may involve blunt (non-penetrating) or open (penetrating or perforating) trauma, leading to vision impairment or ocular dysfunction, ranging from mild to severe and sometimes permanent. This also includes injuries caused by foreign objects, corneal/scleral layer lacerations, intraocular hemorrhage, ocular rupture, and long-term complications if not addressed promptly (Sumual, 2025).

One study in the International Journal of Surgery Open defines ocular trauma as a leading cause of preventable blindness. Several types of injuries, such as corneal and scleral lacerations and penetrating trauma, result in symptoms such as eye pain, blurred vision, eyelid edema, and difficulty identifying ocular structures due to injury (Sumual, 2025).

In countries with limited resources, ocular trauma is a significant cause of visual morbidity and blindness, with an estimated 55 million eye injuries occurring annually

worldwide, many of which cause permanent vision impairment if not diagnosed and treated promptly (Pelletier, 2025).

In clinical practice, evaluating ocular trauma is often challenging based on physical examination alone, particularly when eyelid edema or hemorrhage is present. Therefore, radiological imaging modalities play a crucial role in assessing the degree of damage and determining management strategies.

Computed Tomography (CT-Scan) has become the primary imaging modality for ocular trauma cases, especially in emergency departments. The advantages of CT-Scan include rapid acquisition, high sensitivity in detecting orbital fractures, intraorbital or intraocular foreign bodies, retrobulbar hematoma, and globe contour changes indicative of ocular rupture. Compared to other modalities, CT-Scan excels in detecting significant soft tissue abnormalities. Literature also indicates that findings on CT-Scan not only aid in diagnostics but also offer prognostic value through their correlation with the Ocular Trauma Score (OTS). This correlation emphasizes that CT-Scan can help predict a patient's visual outcome and support more accurate therapy planning (Cellina, 2022).

Thus, CT-Scan is essential in ocular trauma, not only as a diagnostic tool but also as a means of accelerating clinical decision-making, identifying critical findings that threaten vision, and estimating long-term visual prognosis (Cellina, 2022).

## METHODS

This study employs a systematic literature review design with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach to analyze scientific evidence related to the role of Computed Tomography (CT-Scan) in diagnosing and managing adult ocular trauma. Data sources were obtained from various national and international databases, including PubMed, ScienceDirect, SpringerLink, MDPI, Hindawi, Frontiers, Garuda, and Neliti, with publications from 2020 to 2025. Searches were conducted using the keywords: “ocular trauma,” “orbital fracture,” “computed tomography,” “CT findings in eye injury,” and “adult ocular trauma management.”

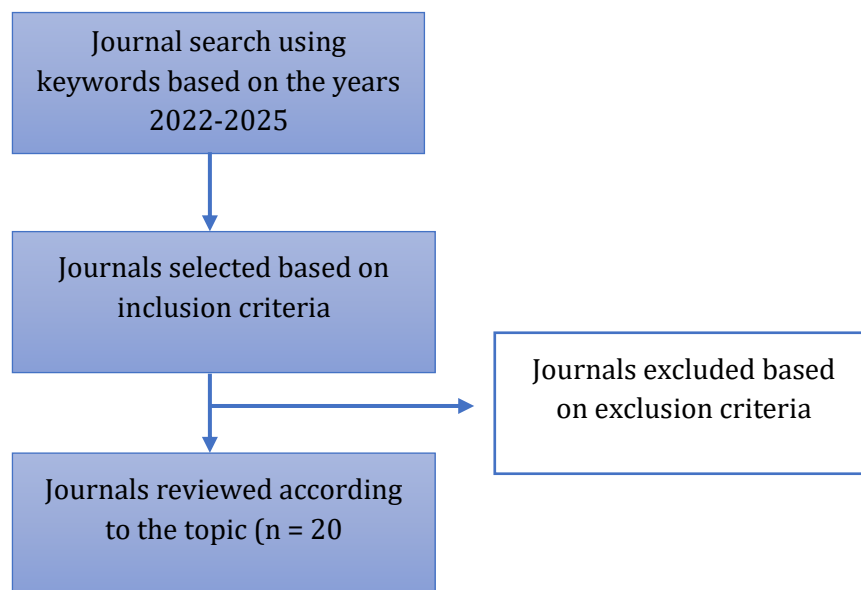
Inclusion criteria for this study include articles discussing adult ocular trauma with CT-Scan as the primary diagnostic modality, published in English or Indonesian, and available in full text. Articles focused on pediatric trauma, animal studies, or those not detailing CT examination methods were excluded from the analysis. Of the 120 articles identified, a step-by-step selection process was applied based on title, abstract, and full text, leaving 20 articles that met the criteria for in-depth analysis following the PRISMA flow diagram.

Data analysis was performed narratively and descriptively, assessing the characteristics of each article, including the topic or etiology of trauma, diagnostic methods, initial interventions, clinical relevance in emergency department (ED/ICU) services, and the type of journal. Each finding was synthesized and presented in a table of article characteristics to observe patterns across studies. The final results of this analysis were used to identify the strategic role of CT-Scan in providing rapid diagnosis, injury severity, and visual prognosis in adult ocular trauma patients.

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**Table 2 1.** Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Original research articles, reviews, or case reports discussing ocular trauma in adults	Articles focusing only on pediatric trauma without adult components
Use of or discussion of CT-Scan as the primary diagnostic modality	Articles not involving CT-Scan examination
Published within the 2020–2025 period	Animal studies or non-clinical laboratory test
Available in full text in English or Indonesian	Articles lacking complete methodological data (abstract only)



**Figure 1.** PRISMA Flowchart (Systematic-Narrative Literature Review)

## RESULTS AND DISCUSSION

**Table 1** Result Systematic Review

No	Source (Author, Year)	Topic/Etiology	Initial Diagnosis	Initial Intervention	ED/ICU Relevance	Journal Type
1	Karataş, E. et al. (2025). Exploring computerized tomography findings and ocular trauma score in open globe injuries. BMC Ophthalmology, 25(1), 357.	Correlation of CT-Scan findings with Ocular Trauma Score (OTS) in open globe injuries.	High-resolution CT detects scleral rupture, vitreous hemorrhage, and ocular deformities	Determining visual prognosis and surgical prioritization.	Relevant in ED for ocular trauma stratification	International Journal (SpringerOpen)
2	de Santana, I.H.G. et al. (2024). Orbital floor fracture and its repercussions on eye movement: a systematic review. Eur J Med Res, 29(1), 427.	Impact of orbital floor fractures on eye movement	CT (coronal, axial) detects tissue herniation and blowout fracture	Conservative observation and reconstructive surgery if entrapment is present	Relevant in ED for complex facial trauma evaluation	International Journal (PubMed, Scopus)
3	Chen, H. et al. (2024). Characteristics and scoring method of computed tomography in open-globe injuries. BMC Ophthalmology, 24(1), 2.	Development of a CT scoring system for open-globe injuries	Non-contrast CT assesses foreign bodies and disorganization of the globe	Evaluating injury severity for early surgical decision	Relevant for rapid triage in ED	International Journal (SpringerOpen)

No	Source (Author, Year)	Topic/Etiology	Initial Diagnosis	Initial Intervention	ED/ICU Relevance	Journal Type
4	You, Y., Wang, X., Cheng, S., Zhu, R., Wang, B., Li, S., & Jiang, F. (2022). Clinical analysis of 96 patients with intraorbital foreign bodies: A 10-year retrospective study. <i>Frontiers in medicine</i> , 9, 1018905.	Clinical analysis of 96 patients with intraorbital foreign bodies	CT (head/orbit) localizes foreign bodies, assesses size, and relationship with intraorbital structures	Surgical excision/exploration and prophylactic antibiotics	Critical in ED for immediate intervention	International Journal (Frontiers)
5	Setiawan, D., Subuh, L. Z., Suparman, A. S., & Fitra, Y. J. (2024). Pediatric Ocular Trauma Management: A Case Study Of Effective Intra-Orbital Foreign Body Iofb Extraction. <i>Jurnal Rekonstruksi dan Estetik</i> , 9(1).	Pediatric ocular trauma with intraorbital foreign body extraction	3D CT (head/orbit) locates foreign bodies and involved structures	Surgical evacuation through additional incisions	Penting di ED: triase trauma anak; jika ada cedera kranio-fasial/orbita berat bisa masuk	National Journal (Case study open access)
6	Axa, A. P., Amiruddin, P. O., & Caesarya, S. (2024). Clinical	A retrospective study of pediatric ocular trauma (not	Initial clinical examination (visual acuity, pupil reflex,	Medical and surgical interventions were provided as needed	Relevant for ED triage and referral to	National Journal

No	Source (Author, Year)	Topic/Etiology	Initial Diagnosis	Initial Intervention	ED/ICU Relevance	Journal Type
	Characteristics and Management of Pediatric Eye Trauma in National Tertiary Eye Hospital in Indonesia. <i>Jurnal Profesi Medika: Jurnal Kedokteran dan Kesehatan</i> , 18(2), 161-169.	exclusively CT-scan but including severe ocular trauma) at a national referral hospital	motility) and imaging indications for severe trauma (including CT) were recorded	(67.37% operative/medical)	ICU/surgery; although not specifically focused on radiology CT-scan, it still provides context for the management of severe ocular trauma in the Indonesian setting.	
7	Muse, M. et al. (2024). <i>Gambaran CT Scan Kepala Sentrasi Orbita pada Pasien Proptosis</i> . <i>Fakumi Medical Journal</i> , 4(4), 285–292.	CT findings in proptosis due to trauma	CT (head-orbit) assesses retrobulbar lesions and ocular deviation	Early detection of hematoma and decompression when necessary	Relevant in ED for preventing optic neuropathy.	National Journal (UMI)
8	Chairunnisa, S & Syarifah.R.(2024). <i>Trauma Tumpul Okuli</i> . <i>Jurnal Kesehatan</i>	Blunt ocular trauma.	CT scan is used to detect orbital fractures, intraocular hemorrhage, and papillary contusion;	Observation, conservative management, or surgical referral if	High triage guidelines and the use of CT in ED are discussed	National Journal

No	Source (Author, Year)	Topic/Etiology	Initial Diagnosis	Initial Intervention	ED/ICU Relevance	Journal Type
	Masyarakat. Vol. 1, No. 7 : 107–119		CT is mentioned as an important supportive examination.	fractures are significant/complicated		
9	Shafa, S. et al. (2022). Traumatic globe enucleation after blunt head injury. <i>Cureus</i> , 14(4).	Case of ocular enucleation due to blunt head trauma.	CT of the head and orbit shows globe dislocation	Emergency management and orbital reconstruction.	Very important in ED and ICU for severe head trauma.	International Journal (Cureus)
10	Maunula, M.K. et al. (2024). Isolated Orbital Fracture – Treatment and Outcomes. <i>Craniofacial Trauma &amp; Reconstruction</i> , 17(4).	Evaluation of treatment outcomes for isolated orbital fractures.	3D CT assesses fracture complexity.	Orbital reconstruction surgery and postoperative monitoring.	Relevant in ICU for post-severe facial trauma care.	International Journal (SAGE).
11	Lee, M. et al. (2024). Objective analysis of orbital rim fracture CT images. <i>Scientific Reports</i> , 14(1), 27925.	Objective analysis of orbital rim fractures using CT-based measurements of area/curve.	3D CT assesses orbital bone deformities.	High-precision surgical planning based on CT models.	Relevant in ED for identifying complex fractures.	International Journal (Nature Portfolio, Q1)
12	Aljuhani, G. & Aljuhani, N. (2025). CT accuracy and features in	Meta-analysis of CT accuracy in detecting open globe injuries.	Analysis of 12 studies correlating	Recommendations for high-resolution CT as	Relevant in ED for quick diagnosis of	International Journal

No	Source (Author, Year)	Topic/Etiology	Initial Diagnosis	Initial Intervention	ED/ICU Relevance	Journal Type
	detecting open globe injuries: A meta-analysis. Journal of Medicine and Life, 18(1), 20.		CT findings with surgical findings	the standard for early diagnosis.	ocular globe trauma.	(PubMed Indexed)
13	Park, J.W. et al. (2024). Bony realignment in surgically treated orbital blowout fractures based on CT. BMC Ophthalmology, 24(1), 511.	Evaluation of bony realignment after surgery for orbital blowout fractures.	Pre- and post-operative CT assesses structural correction.	Orbital bone reconstruction using titanium plates.	Relevant in ICU for postoperative monitoring.	International Journal (SpringerOpen)
14	Pirhan, D. et al. (2023). CT findings and ocular trauma score in pediatric globe injuries. Turkish Journal of Trauma & Emergency Surgery, 29(11), 1280.	Diagnostic value of CT and OTS in pediatric globe injuries.	CT of the orbit assesses scleral rupture and intraocular foreign bodies.	Emergency interventions based on CT findings.	Relevant in pediatric ED for rapid detection.	Jurnal International Journal (PubMed, Scopus)
15	Ren, P. et al. (2022). Predictive value of CT findings for poor visual outcome in traumatic eye injury. Journal of	Predictive value of CT findings for poor visual outcomes	CT assesses vitreous hemorrhage, posterior rupture,	Early prognosis and indications for surgical exploration.	Relevant in ED for predicting visual outcomes.	International Journal (Hindawi)

No	Source (Author, Year)	Topic/Etiology	Initial Diagnosis	Initial Intervention	ED/ICU Relevance	Journal Type
16	Ophthalmology, 2022(1), 4995185. Giri, P.A.W.W. & Ayusta, D.P. (2020). Evaluasi radiologi pada trauma tembus kompleks nasoorbitoethmoid. <i>Medicina</i> , 51(3).	Evaluation of complex nasoorbitoethmoid trauma cases.	and intraocular disorganization. Multidetector CT detects complex fractures and sinus involvement.	Planning for naso-orbital reconstruction surgery.	Relevant in ED for managing multiple facial trauma cases.	National Journal (Sinta 2)
17	Durmuş Ece, B. Ş. et al. (2025). Relationship Between OTS and CT Findings in Penetrating Globe Injuries. <i>Diagnostics</i> , 15(7), 830.	Correlation of CT findings with ocular trauma score in penetrating globe injuries.	High-resolution CT identifies globe deformities and foreign bodies.	Prediction of visual outcomes and indications for surgical exploration.	Relevant in ED for stratifying visual loss.	International Journal (MDPI, Q2)
18	Cellina, M. et al. (2022). CT in traumatic orbital emergencies: pictorial essay and report flowchart. <i>Insights into Imaging</i> , 13(1), 4.	Illustrative review of the role of CT in orbital trauma.	Multislice CT shows fracture patterns, hemorrhage, and foreign bodies	Systematic guide for reporting CT orbital trauma.	Relevant in ED/ICU as a radiology clinician's guide.	International Journal (Springer Nature)
19	Pelletier, J. et al. (2025). Epidemiology of ocular trauma in limited-	Epidemiology of ocular trauma in developing countries.	Clinical examination and CT when available.	Prevention and workplace safety education.	Relevant in ED settings with limited resources.	International Journal (Frontiers)

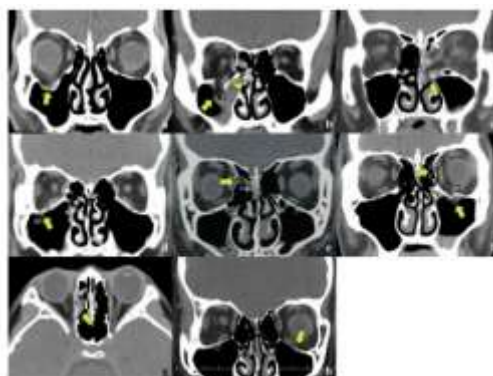
No	Source (Author, Year)	Topic/Etiology	Initial Diagnosis	Initial Intervention	ED/ICU Relevance	Journal Type
	resource settings: a narrative review. Frontiers in Medicine, 12, 1585527.					
20	Clevenger, L.M. et al. (2024). Demographics and outcomes of adult patients with ocular trauma. Journal of Ophthalmology, 2024(1), 8871776.	Epidemiology, risk factors, and outcomes of adult ocular trauma.	Initial CT and ophthalmological evaluation.	Conservative and surgical management based on injury severity.	Relevant in ED and ICU as a prognosis guide.	International Journal (Hindawi)

### The Role of CT-Scan in Early Diagnosis of Ocular Trauma

CT-Scan is the primary imaging modality for the early evaluation of ocular trauma patients, particularly in emergency department (ED) settings. This examination is superior in detecting orbital bone fractures, retrobulbar hematomas, intraorbital foreign bodies, and ocular rupture that may not be identifiable through clinical examination alone.

Various studies have demonstrated that CT-Scan plays an essential role in providing fast and highly accurate visualization of orbital and ocular structures. Research conducted by Karataş et al. (2025) and Chen et al. (2024) revealed that CT-Scan has high sensitivity in detecting scleral ruptures, the presence of foreign bodies within the eye, and disorganization of ocular structures themselves.

These findings align with studies by Cellina et al. (2022) and Maunula et al. (2024), which confirmed that CT-Scan is the gold standard for diagnosing orbital fractures, retrobulbar hematomas, and orbital emphysema. Setiawan et al. (2024) also highlighted the value of 3D CT in pediatric trauma cases, where it helps precisely determine the location, orientation, and depth of foreign bodies, greatly assisting pre-surgical planning. In contrast, Sedaghat et al. (2021) emphasized that CT is the most sensitive modality for identifying signs of acute orbital injury, including globe deformities and extraocular muscle entrapment. Thus, CT-Scan not only enhances the accuracy of ocular trauma diagnosis but also expedites the diagnostic process, reduces the risk of harmful manipulation of an eye that might rupture, and serves as the basis for early clinical decision-making in the ED.



**Figure 1.** CT Scan of Paranasal Sinus with Orbital Centering, Coronal Slice

a. Right orbital floor fracture showing bone fragments surrounding prolapsed orbital fat with mild fat displacement (arrow). b. Right orbital floor fracture showing prolapsed orbital fat crossing the separation of bone fragments (arrow). The inferior rectus muscle (head arrow) is located below the original orbital floor (dashed line). c. Left medial orbital wall fracture showing prolapsed orbital fat extending into the nasal cavity (arrow). d. Right orbital floor fracture lateral to the infraorbital groove/canal with insertion of orbital fat (arrow). e. Right medial orbital wall fracture with insertion of orbital fat (arrow). f. Left medial orbital floor fracture adjacent to the infraorbital groove/canal and left medial orbital wall fracture with insertion of orbital fat (arrow). g. Right medial orbital wall fracture with insertion of the medial rectus muscle (arrow). h. Right medial orbital floor trapdoor fracture to the infraorbital groove/canal with incarceration of orbital fat and branches of the inferior oblique muscle and

oculomotor nerve. The left branch can be identified (arrow).

Source : Radiological Findings of Orbital Blowout Fractures : a Review,2020

### Correlation Between CT-Scan Findings and Ocular Trauma Score (OTS)

Recent studies, including those by Chen et al. (2025) and meta-analysis by Liu et al. (2023), have shown a significant correlation between CT findings and the Ocular Trauma Score (OTS) — a system used to assess visual prognosis post-trauma. CT findings such as ocular deformity, vitreous hemorrhage, posterior wall disruption, and optic nerve involvement are linked to lower OTS scores, indicating a poorer visual prognosis. Therefore, CT-Scan not only serves as an anatomical diagnostic tool but also acts as an objective prognostic indicator for risk stratification and future care planning.

Research by Durmuş Ece et al. (2025) and Karataş et al. (2025) found that the more severe and complex the structural abnormalities detected on CT images, the lower the OTS score, suggesting that the patient's visual prognosis is likely to be worse. Similar findings by Pirhan et al. (2023), which focused on pediatric ocular trauma using the Pediatric Ocular Trauma Score (POTS), indicated that the more abnormalities visible on CT, the worse the predicted visual outcomes. This correlation is of great clinical importance as it allows clinicians in the ED to predict a patient's visual prognosis even before surgical intervention is performed. This enables better decision-making regarding the course of treatment for ocular trauma patients.

### Common Radiological Findings in Orbital Trauma

The most frequently encountered radiological findings in orbital trauma include blowout fractures, herniation of orbital fat, dislocation of extraocular muscles, vitreous hemorrhage, and globe rupture.

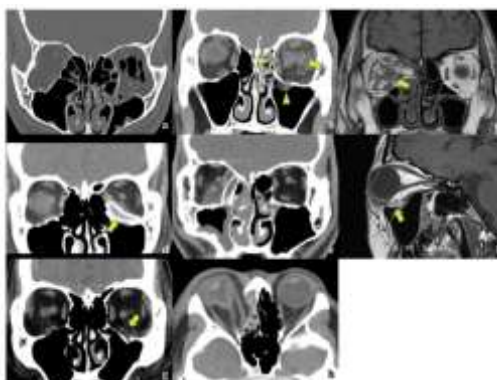


Figure 2. CT Scan of the Maxillary Sinus with Orbital Centering, Coronal Slice

a. Left orbital floor fracture with emphysema, b. Left orbital floor fracture and medial orbital wall fracture (arrow) along with orbital hematoma (head arrow), resulting in orbital compartment syndrome, c. Right medial orbital wall fracture with orbital hematoma around the optic nerve (arrow), d. Left hematoma cyst after silicone sheet implantation (arrow), e. Right orbital cellulitis and ethmoid and maxillary sinusitis after the implantation of the silicone sheet, f and g. Left orbital floor fracture with incomplete rupture of the inferior rectus muscle (arrow), h. Right medial orbital wall fracture with open globe injury.

Source : Radiological Findings of Orbital Blowout Fractures : a Review,2020

Lee et al. (2024) and de Santana et al. (2024) reported that blowout fractures are among the most common findings in patients with ocular trauma. To improve diagnostic accuracy, Lee et al. (2024) developed a new quantitative method involving curve and area measurements, which allows for objective evaluation of orbital rim deformities on CT-Scan. This approach provides clearer, more measurable imaging in the assessment of orbital injuries. Additionally, Cellina et al. (2022) emphasized the importance of using a systematic reporting flowchart, which can help radiologists detect subtle abnormalities with greater consistency. In cases of more complex penetrating trauma, as reported by Giri & Ayusta (2020), CT-Scan plays a vital role in mapping the penetration path of foreign objects, determining the depth of penetration, and offering clear guidance for required surgical exploratory steps.

### Prognostic Value of CT Findings for Visual Outcome

Ren et al. (2022) revealed that radiological findings such as ocular collapse and optic nerve injury provide strong predictions for poor visual outcomes in patients. However, the absence of abnormal CT findings does not always guarantee a good prognosis, as microscopic injuries to ocular tissues may not be detectable through imaging..



Figure 3. CT Scan of Paranasal Sinus with Orbital Centering, Coronal Slice

The coronal reconstruction shows retrobulbar emphysema due to a fracture of the right lamina papyracea, appearing as air within the upper right orbit, resembling the eyebrow (asterisk). This is an important indirect sign of an orbital bone fracture.

Source : Computed Tomography in Traumatic Orbital Emergencies : a Pictorial Essay- Imaging Findings, tips, and Report Flowchart ,2022

This finding is further reinforced by a meta-analysis study by Aljuhani & Aljuhani (2025), which concluded that although CT-Scan has over 90% accuracy in detecting open globe injuries, the results are highly dependent on the quality of image acquisition techniques and the operator's level of experience. Therefore, while CT-Scan is invaluable in providing diagnostic images, careful interpretation is still necessary, especially in cases involving subtle injuries or those difficult to detect.

### Clinical Benefits of CT-Scan in ED and ICU

CT-Scan has become the primary procedure in emergency departments due to its ability to quickly map orbital structures, without hindering vision-saving interventions (Maunula et

al., 2024; Cellina et al., 2022). In the ICU context, particularly for patients with complex head injuries, CT also plays a crucial role in distinguishing between primary intraocular lesions and secondary injuries caused by increased intracranial pressure (Pelletier et al., 2025). Research by Muse et al. (2024) highlights the importance of collaboration between radiologists, ophthalmologists, and emergency physicians in ensuring a fast and accurate diagnosis in the early stages. Axa et al. (2024) stress the need for CT integration in pediatric emergency algorithms, while Setiawan et al. (2024) emphasize the collaboration between ophthalmologists, anesthesiologists, and radiologists to ensure procedural safety for pediatric patients.

### **Challenges and Limitations of CT-Scan Examination**

Several studies, such as those by Chen et al. (2024) and Durmuş Ece et al. (2025), have revealed the limitations of CT-Scan, including its inability to detect microstructural injuries in the retina or optic nerve, as well as the radiation exposure risks that need to be carefully considered. While CT plays an important role in trauma management, differences in imaging protocols across various facilities remain a major challenge in achieving consistency and standard interpretation. This inevitably affects the quality of diagnosis and medical decisions made. Therefore, several researchers, including Cellina et al. (2022) and Gaskin (2021), recommend standardizing orbital CT parameters, such as setting slice thickness to <1 mm, using multiplanar reconstruction, and employing specific orbital windows. This approach is expected to produce more consistent imaging and enable comparison across centers, ultimately improving accuracy in case management.

### **Integration of Clinical and Radiological Data**

Most recent studies emphasize the importance of integrating CT-Scan results with other clinical and ophthalmological information, such as visual acuity, pupil reflex, and fundus status. Park et al. (2024) and Karataş et al. (2025) highlight how this data integration can assist in determining the optimal timing for surgical intervention and reducing the risk of postoperative complications. With this more holistic approach, where various disciplines work together, diagnostic accuracy can be improved, and long-term visual outcomes for patients are better ensured (Clevenger et al., 2024). Therefore, implementing a multidisciplinary strategy is key to achieving more optimal treatment outcomes.

## **CONCLUSION**

Based on the review of twenty scientific articles, it can be concluded that CT-Scan is the primary, most accurate, and efficient imaging modality for detecting various forms of ocular and orbital trauma in adult patients. This examination plays a vital role in providing early diagnosis, assessing injury severity, predicting visual prognosis, and guiding clinical decision-making in emergency departments (ED) and intensive care units (ICU). The correlation between CT findings and the Ocular Trauma Score (OTS), as well as other clinical findings, shows a strong relationship with visual outcomes. Therefore, optimizing the use of CT, standardizing imaging protocols, and enhancing multidisciplinary collaboration between emergency physicians, radiologists, and ophthalmologists are essential to accelerate diagnosis and improve outcomes for patients with ocular trauma.

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