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# Posterior segment ultrasonic evaluation of cases of traumatic corneo-scleral lacerations in pediatric eyes

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**Abstract**
**Background:** From harmless corneal abrasion to vision-threatening retinal detachment, ocular injuries manifest in a wide variety of ways. Frequently, injuries are preventable, and these incidents in children can result in lifelong disabilities which pose a substantial socioeconomic burden on society. Ophthalmic ultrasound is a medical imaging tool used to assess posterior segment lesions in eyes with opaque ocular media. Whenever other radiological tests (X-Ray) are negative, B-scan ultrasound offers beneficial data with regard to the existence of any type of ocular foreign body. It guides therapeutic decision-making concerning the late impacts of ocular trauma.
**Aim of the Work:** the purpose of this prospective work was to assess the posterior segment in pediatric patients with corneo-scleral lacerations using B-scan ultrasonography.
**Patients and Methods:** This prospective work was performed on 50 eyes of 50 kids with traumatic corneo-scleral lacerations was attending the Ophthalmology Hospital in Tanta University during the period from January 2020 to January 2021. Each participant had received the following: Comprehensive taking of history (A detailed history about trauma), Comprehensive ophthalmologic assessment (fundus examination, anterior segment assessment utilizing slit lamp, Uncorrected distance visual acuity (UDVA)), plain X-ray to exclude intraocular foreign bodies, Surgical repair, Postoperative medications (Antibiotic, steroids, cycloplegics and mydriatics), Postoperative ultrasonic follow up and finally, Postoperative evaluation by B scan.
**Results:** Our prospective work consist of 50 eyes of 50 individuals with eye trauma (34 males and 16 females). Age ranging between 3 and 17 years. Time for seeking medical advice ranged from 1 - 72 hrs. The most traumatic agent was metal 24 (48%), The wound presented in the right eye of 30 (60%) of eyes. there were 47 (94%) eyes had corneo-scleral wound. the scleral length ranged from 1-6 mm. there were 35 (70%) eyes had monopolar scleral wound. The site of wound ranged from 1-12 O'clock. Regarding ultrasound of vitreous during follow-up, in the 1st visit there were 48 (96%) eyes had dense floaters and 2 (4%) eye had moderate floaters. In the 5th visit, there were 6 (12.8%) eyes had complete PVD, 7 (14.9%) eyes had partial PVD, 19 (40.4%) eyes had minimal floaters while 15 (31.9%) eyes were normal as 1 (2%) case excluded due to retinal detachment. Regarding ultrasound of choroid during follow-up, in the 1st visit, 16 (32%) eyes had normal choroid and 34 (68%) eyes has thickened choroid. In the 5th visit, 46 (97.9%) eyes had normal choroid and 1 (2.1%) eye had thickened as 1 (2%) eye was excluded due to retinal detachment. Regarding ultrasound during the follow-up, the retina was in place in 50 (100%) eyes in the 1st and 2nd visit. In the 3rd visit, the retina was in place in 49 (98%) eyes while 1 (2%) case had retinal detachment which then excluded. During the 4th visit the retina was in place in 47 (95.9%) eyes, while 2 (4.1%) eyes had retinal detachment which then excluded. In the 5th visit, the retina was in place in 45 (95.7%) eyes while 2 (4.3%) eyes had retinal detachment which then excluded.
**Conclusion:** Posterior Segment Ultrasonic Evaluation of Cases of Traumatic Corneo-Scleral Lacerations in Pediatric Eyes is proven to be very important imaging modality in the management of corneoscleral lacerations. Wound length was a significant predictor for retinal detachment. The frequency of RD was higher in neglection of medical advice.

**Keywords:** Posterior Segment Ultrasonic, ocular trauma, corneoscleral lacerations, pediatric

## Introduction
An injury that may accompany blunt or penetrating trauma to the eyes is a corneo-scleral lacerations. The harm may result from sports, airbag inflation, vehicular accidents, or at work [1]. Along with these types of injuries, the eye's lens, retina, uvea, or vitreous may also suffer damage. A prior procedure, including extracapsular cataract surgeries, increases the risk of a corneo-scleral lacerations [2]. Although the frequency of corneoscleral laceration is unclear, the overall incidence of all injuries to the eyes is believed to be between 8.2 and 13 per 1000 people. Males in their twenties have the greatest incidence of eye injuries [1, 2].

It is challenging to anticipate the visual result in individuals who have corneo-scleral injuries. Individuals with low visual acuity at presentation, individuals with late presentation, as well as individuals who experience injuries connected to agriculture often have poor outcomes [3].
The likelihood of recovery is more favorable for those who just have a little corneoscleral injury and no further intraocular injuries. Individuals with delayed presentation, suffer endophthalmitis, additional intraocular harm, or intraocular foreign substances often have a bad prognosis [3].
Of all pediatric accidents, damage to the eyes make up between 8% and 14%. Children are more vulnerable to ocular trauma than adults because of their reckless behavior and inability to comprehend the nature of potentially harmful things. Ocular trauma represents one of the most common causes of curable visual deterioration and blindness. 90% of eye injuries may be avoided by attending to little details [4, 5, 6].
In eyes with opaque ocular media brought on by anterior chamber opacity, corneal opacity, dense cataract, hemorrhaging of the vitreous, or inflammatory opaqueness that make medical evaluation and ophthalmoscope assessment challenging as well as less helpful ophthalmic ultrasound is an imaging diagnostic technique [7].
For instance, B-scanultrasonography is helpful in determining if any sort of ocular foreign bodies is present when additional radiological tests, such as X-ray, come out negative. B-scan provides the precise position of the foreign substance within the eye as well as the degree of harm caused to the tissues that surround it, including the vitreous, lens, and retina, and it helps clinicians make decisions about how best to treat the lasting consequences of ocular trauma [8, 9].

**Aim of the work**
The aim of this prospective (follow up) work was to assess the posterior segment in pediatric patients with corneo-scleral lacerations using B-scan ultrasonography.

**Patients and Methods**
This prospective (follow up) work was performed on 50 eyes of 50 children with traumatic corneo-scleral lacerations was attending the Ophthalmology Hospital in Tanta University during the period from January 2020 to January 2021.

**Inclusion criteria**: Patients presented with traumatic corneo-scleral lacerations and age from the first day of life to 18 years old.

**Exclusion criteria:** Patients with any of the following (corneal lacerations only, previous ocular diseases such as; cataract, ocular tumors, patients more than 18 years old, neglected trauma more than one week, any other congenital eye anomalies)

**Methods: The following procedures were applied to all individuals:**
**A thorough history is taken,** including information on the trauma's sex, age, time, and kind. a thorough examination of the patient's trauma history. The period since the accident, the form of harm, the usage and breaking of spectacles, any projectiles to the eye, previous medicine or therapy received elsewhere, and the circumstances of the incident all contribute to planning and prognosticating their injuries. Additionally, it's crucial to rule out any related head or body traumas.

**Comprehensive ophthalmological assessment, which should always include**
Testing for uncorrected distance visual acuity (UDVA). Slit lamp is used to examine the anterior segment in order to evaluate the sclera, cornea, anterior chamber (AC), AC angle, and lens. When probable, get your fundus examined**.**
Trauma patients are examined as soon as they arrive at the clinic. The ophthalmologist can determine the type, severity, and urgency of the disease by observing the patient's stride, ability to move about the area, and capacity to open the eye. The individual's visual acuity has to be evaluated after a thorough history is taken and a quick torchlight assessment. For recording the visual acuity and evaluate the individual when the lids are swollen or there is conjunctival chemosis, one must manually retract the lids softly. When using a slit light, one must evaluate the severity of the damage and check for corneal or scleral tears. There may be times when it is impossible to examine the posterior portion**.**

**Investigations**: Plain X-ray to exclude intraocular foreign bodies (IOFBs)
**Surgical repair:** The individual is as quickly as possible ready for operation. Surgery's main goal is to fix the globe's anatomical integrity.

**Postoperative medications: Antibiotic:** Topical antibiotics as moxifloxacin or tobramycin eye drops are used for prophylaxis against infections.
**Steroids:** Intensive topical steroid therapy as prednisolone acetate eye drop are used to reduce postoperative inflammation.
**Cycloplegics and mydriatics:** Cyclopentolate eye drops 0.5% or atropine eye ointment are used to relieve ciliary muscle spasm.

**Postoperative ultrasonic follow up:** The department's ophthalmologist may employ ultrasound to help decide the course of future therapy. One must be particularly cautious while doing a sterile and mild B-scan in the event of an open globe damage. According to some writers, it is preferable to wait until following a main repair has been completed. On a B-scan, a detachment of the retina appears as a membrane that is connected to the optic disc and has little after movements. A matching high amplitude peak may be seen on the A-scan. The retina may roll inward and become detached as a result of a large retinal tear. A deep optic cup may be seen on a B-scan as a bean pot-like configuration in chronic instances or instances of glaucoma. On a B-scan, several mobile point echoes are indicative of vitreous hemorrhage. Typically, such echoes have a mild to moderate amplitude on an A-scan. Keep the gain at the recommended level, which is about 70 dB, since excessive gains (100 decibels) cause numerous echoes even in healthy eyes and might mislead people into thinking they have vitreous hemorrhage. It is possible that the posterior vitreous has detached if a highly mobile membrane is present but not linked to the optic nerve head. Severe adhesions at the vortex veins, scleral spur, and optic nerve act as barriers to a choroidal detachment, which is shown as a spherical mound. It moves quite slowly. The "M-shaped" or double-peaked peak on the A-scan corresponds to this peak. On an A-Scan, the suprachoroidal space may exhibit mild to moderate point echoes of hemorrhagic fuid-suggestive amplitude. It is referred described as "kissing choroidals" whenever both domes of the detachment of the choroid come into contact.

These conditions need for immediate surgical intervention since they may result in persistent adhesion. The positioning of the supra-choroidal haemorrhage determines the site of drainage, and a B-scan also detects clot lysis. Following the open globe damage was surgically repaired, the posterior section underwent B-scan ultrasonography. In the second post-operative day, cases are examined. After the operation, the second day is usually the first follow-up, followed by the second, third, and sixth months.

**Postoperative assessment:** Primary results from all reports of B-scan ultrasonography that were accessible were evaluated, and they were subsequently uploaded into a computerized database together with demographic and medical information for examination and analysis. Vitreous hemorrhaging retinal tears, RD, posterior vitreous detachment, detachment of choroid, choroidal versus retinal detachment, vitreoal membranes, and choroidal thickness were among the ultrasonography abnormalities that were noted. Sex, Age, the time and location of the damage, the process of the harm, the first examination, the open globe repair, the follow-up exams, and the results were all incorporated into the data. Data on corrected and uncorrected vision, corneal oedema, intraocular pressure, cataract development, endophthalmitis, choroidal detachment, hyphema, glaucoma, and ultimately choroid, retina, and vitreous were recorded during each clinic visit.

## Results

**Table 1:** Baseline characteristics of the studied eyes

| | | N= 50 |
|---|---|---|
| Age (Year) | Mean±SD | 7.9±3.21 |
| | Range | 3 - 17 |
| Sex | Male | 34 (68%) |
| | Female | 16 (32%) |
| Time for seeking medical advice (hr.) | Mean±SD | 23.00±29.62 |
| | Range | 1 - 72 |
| Neglected cases | 10 (20%) | |
| Traumatic agent | Metal | 24 (48%) |
| | Glass | 1 (2%) |
| | Knife | 6 (12%) |
| | Plastic pipe | 1 (2%) |
| | Tree branch | 1 (2%) |
| | Stone | 15 (30%) |
| | Wire | 2 (4%) |

**Table 2:** Side and type of wound of all the studied cases:

| | | N = 50 |
|---|---|---|
| Side of wound | OD | 30 (60%) |
| | OS | 20(40%) |
| Type of wound | Corneoscleral | 47 (94%) |
| | Scleral | 3 (6%) |

**Table 3:** Ultrasound of retina of all the studied eyes during follow-up:

| | Retina (N =50) | |
|---|---|---|
| 1st visit (2 day) | In place | 50 (100%) |
| 2nd visit (1 week) | In place | 50 (100%) |
| 3rd visit (1month) | In place | 49 (98%) |
| | Retinal detachment | 1 (2%) |
| 4th visit (3 month) (n=49) | In place | 47 (95.9%) |
| | Retinal detachment | 2 (4.1%) |
| 5th visit (6 month) (n=47) | In place | 45 (95.7%) |
| | Retinal detachment | 2 (4.3%) |

**Table 4:** Univariate logistic regression of wound length for prediction of retinal detachment:

| | Odds ratio | 95% CI | p-value |
|---|---|---|---|
| Wound length | 1.99 | 1.240 - 3.197 | <0.001* |

**Table 5:** Relation between retinal detachment and neglection of medical advice

| | Neglected (n=10) | Unneglected (n=40) | p-value |
|---|---|---|---|
| Retinal detachment | 6 (60%) | 1 (2.5%) | < 0.001* |
| No retinal detachment | 4 (40%) | 39 (97.5%) | |

**Case (1)**
Male child aged 3 years presented with neglected Rt rupture globe. Wound repaire was done 3 days after rupture

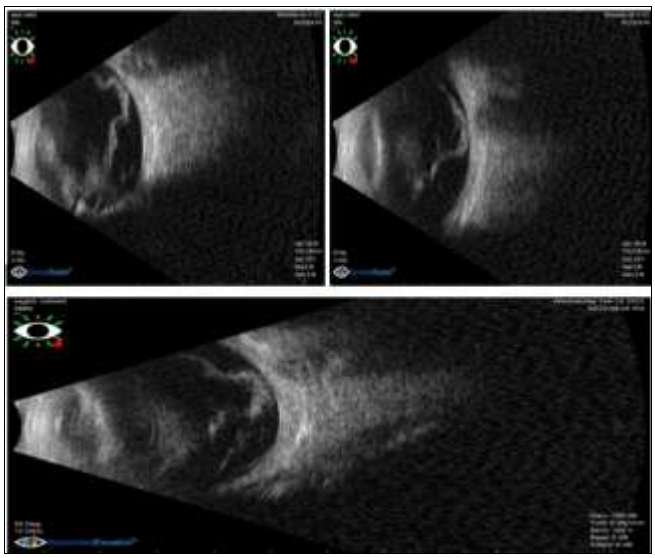
**Preoperative data**
**Traumatic Agent:** metal ruler

**Time for seeking medical Advice:** 3 days
**Side:** OD
**Type:** corneoscleral
**Scleral length:** 1mm & 2mm
**Whole length:** 14 mm
**Site (clock hour):** 1 o'clock & 7 o'clock

**Post-operative data**

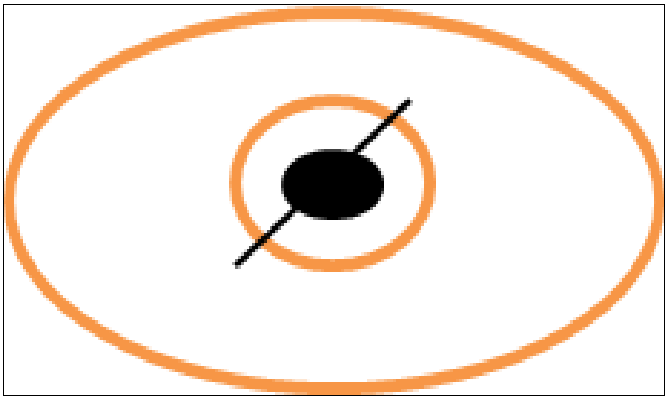
**Table 6:** Ultrasound evaluation was done

| | Vitreous | Choroid | Retina |
|---|---|---|---|
| 2nd day | HGE | Thickened | In place |
| 1 weak | Moderate floaters | Thickened | In place |
| 1 month | Minimal floaters | Thickened | In place |
| 3 month | Minimal floaters | Normal | In place |
| Six months | Minimal floaters | Normal | RD |



**Case (2)**
Female child aged 5 years presented with Lt Rupture globe Wound repaire was done 3 hours after rupture.

**Preoperative data**
**Traumatic Agent:** scissors
**Time for seeking medical Advice:** 3 hours
**Side:** OS
**Type:** corneoscleral
**Scleral length:** 2mm

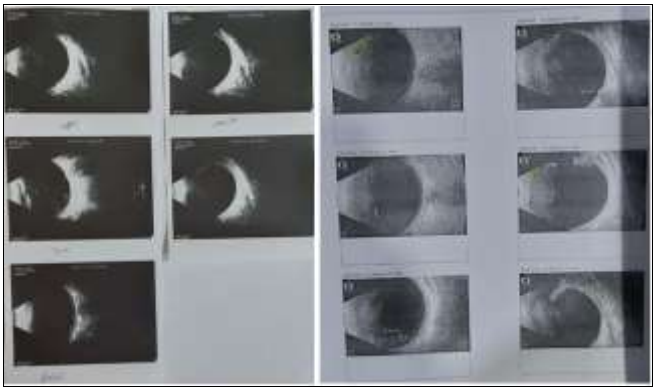


**Whole length:** 4 mm
**Site (clock hour):** 12 o'clock

**Post-operative data**

**Table 7:** Ultrasound evaluation was done

| | Vitreous | Choroid | Retina |
|---|---|---|---|
| 2nd day | HE | Thickened | In place |
| 1 weak | Moderate floaters | Thickened | In place |
| 1 month | Minimal floaters | Thickened | In place |
| 3 month | Minimal floaters | Normal | In place |
| Six months | Minimal floaters | Normal | In place |



**Discussion**

Closed and open globe injuries to the eyes are the two main categories, however there may be some overlap depending on what caused the damage [10]. Corneoscleral and scleral deficiencies among kids sometimes result from trauma. Trauma-related corneoscleral malformations caused by recent open or closed trauma [11].

Most pediatric ocular traumas are avoidable, although they tend to be uniocular and unintentional [12]. Approximately 20–50% of all injuries to the eyes recorded in various nations are pediatric ocular trauma [13].

Previous reports indicate that the prognosis for injuries to the globe in general and for corneoscleral lacerations in particular has improved in the last years. However, of all corneoscleral lacerations, only a few have reported follow-up [14].

Pediatric patients need ultrasound more frequently than other individuals because of their younger ages and more challenging clinical situations. Therefore, a skilled ophthalmologist using B-scan ultrasonography on these individuals will aid in the identification of substantial posterior segment abnormalities [15].

The purpose of this work was to assess the posterior segment in pediatric individuals with corneoscleral lacerations using B-scan ultrasonography.

This prospective cohort work was performed on 50 eyes of children with traumatic corneoscleral lacerations.

In our study, time for seeking medical advice ranged from 1 - 72 hrs. with a mean of 23.00±29.62 hrs. There were 10 (20%) neglected eyes. Regarding traumatic agent, there were 24 (48%) wounds caused by Metal, 1 (2%) by glass, 6 (12%) by knife, 1 (2%) by plastic pipe, 1 (2%) by tree branch, 15 (30%) by stone and 2 (4%) caused by wire.

In the study by Rubsamen *et al*., (1994) [16] retrospectively contrasted the intraoperative results in 46 eyes of 45 individuals receiving pars plana vitrectomy following penetrated ocular trauma accompanied with dense media opaqueness and the preoperative ultrasonography diagnosis in those eyes. They indicated that traumatic agent was stone (l eye), metallic (9 eyes), and organic (l eye).

In line with our study, Premanandam *et al*., (2015) [17] included 95 kids who are under the age of 14 yrs old and have ocular harm. Demographic information, the kind and source of the trauma, any related systemic harm, the ocular structures damaged, and the length of the injury's duration were all noted. They showed that injuries with stick were 22 (23%) and stone were 13 (14%). Needle were 2(2%), Glass was 1 (1%), Fireworks were responsible for nine injuries, or 9% of all injuries.

Also, Ali *et al*., (2020) [18] enrolled 50 consecutive patients, with corneoscleral lacerations. 18% (n=9) underwent primary evisceration 84% (n=42) were available for at least 6 months follow up. Their study reported that the injury was caused by the sharp objects in 28 (46%) and by blunt objects in 22(44%).

In our study, the wound presented in the right eye of 30 (60%) of eyes while it was in the left eye of 20 (40%) of eyes. Regarding the type of the wound, there were 47 (94%) eyes had corneoscleral wound while 3 (6%) eyes had scleral wound.

In agreement with our study, Premanandam *et al*., (2015) [17] revealed that the wound presented in the right eye of 50 (52%) of eyes and 44 (46%) in left eye. There were 50 (36%) eyes had cornea wound while 7 (5%) eyes had scleral wound. In addition, Ali *et al*., (2020) [18] showed that there were 18 eyes had corneoscleral wound while 10 eyes had scleral wound.

In disagreement with our study, Saxena *et al*., (2002) [19] included 204 kids under the age of 14 who presented to the emergency department of a tertiary care facility with an eye injury. Demographic information, the kind and origin of the injury, the time between the incident and the ophthalmologist's presentation, and the diagnosis were all documented. They discovered that no single instance had bilateral involvement, with the wound evident in 110 (54%) instances involving the left eye and 94 (46%) instances involving the right eye. The type of the wound, there were (43%) eyes had corneoscleral wound while (19%) eyes had scleral wound. The controversy between results might be because of our study's limited sample size.

Also, Yucel *et al*., (2016) [20] found that Right eye scleral rupture occurred in 28 (45.9 percent) of 61 instances, while left eye scleral rupture had been existing in 33 (54.1percent). Different environmental risk factors of traumatic corneoscleral lacerations which depend on the country of the study could justify this contradiction.

In our study, in the studied eyes, the scleral length ranged from 1-6 mm with a mean of 7.89±3.21 mm, there were 35 (70%) eyes had monopolar scleral wound and 15 (30%) eyes had bipolar scleral wound. The total wound length ranged from 2 – 14 mm with a mean of 5.8±2.31 mm. The site of wound ranged from 1-12 O'clock with a mean of 7.14±2.92 O'clock.

In consistency with our study, the study of Ali *et al*., (2020) [18] who documented that size of laceration ranged from < 4 mm to > 9mm. Also, Yucel *et al*., (2016) [20] noted that the lengths of scleral was 9.04±5.9 mm.

In the study of Barr *et al*., (1983) [21] retrospectively reviewed all cases of corneoscleral lacerations that were primarily repaired at Eye Institute. Length of laceration ranged from 1-32 mm. This study did not in line with our study because of the different study types and large sample size of their study.

Regarding our study ultrasound of vitreous during follow-up, in the 1st visit there were 48 (96%) eyes had dense floaters and 2 (4%) eye had moderate floaters. In the 2nd visit, there were 40 (80%) eyes had dense floaters, 10 (20%) patient had minimal floaters. In the 3rd visit, there were 35 (70%) eyes had minimal floaters, 15 (30%) eyes had clear vitreous. During 4th visit, there were 1 (2%) patient had complete PVD, 15 (31%) eyes had clear vitreous, 30 (61%) eyes had minimal floaters and 3 (6%) eyes had partial PVD as 1 (2%) case excluded due to retinal detachment. In the 5th visit, there were 6 (12.8%) eyes had complete PVD, 7 (14.9%) eyes had partial PVD, 19 (40.4%) eyes had minimal floaters while 15 (31.9%) eyes were normal as 1 (2%) case excluded due to retinal detachment.

Ali *et al*., (2020) [18] showed that after at least 6 months of follow up, vitreous opacities and haemorrhage were present in 5 (12.21%) of the cases.

Yucel *et al*., (2016) [20] concluded that the prevalence of phthisical eye had been 24.6 percent (15/61) throughout the period of follow-up. 100% (15/15) of phthisical eyes were found to have vitreous hemorrhage and 86.7 percent (13/15) of phthisical eyes had detached retinas..

Regarding our study ultrasound of choroid during follow-up, in the 1st visit, 16 (32%) eyes had normal choroid and 34 (68%) eyes has thickened choroid. In the 2nd visit, 25 (50%) eyes had normal choroid, and 25 (50%) eyes had thickened choroid. In the 3rd visit, 47 (94%) eyes had normal choroid, 3 (6%) eyes had thickened choroid. During the 4th visit, 47 (95.9%) eyes had normal choroid, 2 (4.1%) eyes had thickened choroid as 1 (2%) eye was excluded due to retinal detachment. In the 5th visit, 46 (97.9%) eyes had normal choroid and 1 (2.1%) eye had thickened as 1 (2%) eye was excluded due to retinal detachment.

Regarding our study ultrasound during the follow-up, the retina was in place in 50 (100%) eyes in the 1st and 2nd visit. In the 3rd visit, the retina was in place in 49 (98%) eyes while 1 (2%) case had retinal detachment which then excluded. During the 4th visit the retina was in place in 47 (95.9%) eyes, while 2 (4.1%) eyes had retinal detachment which then excluded. In the 5th visit, the retina was in place in 45 (95.7%) eyes while 2 (4.3%) eyes had retinal detachment which then excluded.

In the study of Rubsamen *et al*., (1994) [16] reported that At the final clinical evaluation, the retina had been found to be attached within 40 (87 percent) of the 46 eyes which endured surgeries. 21 (81 percent) of 26 eyes presenting with retinal detachment (RD) had been effectively reattached. One failed eye was initially reattached, however Bacillus cereus endophthalmitis afterwards developed, necessitating enucleation. At the final follow-up assessment, 19 of the 20 eyeballs that had been detected at presentation were still attached. However, 3 (15%) eyes which developed RDs in the postoperative period necessitated a further operation.

Moreover, Andreoli *et al*. (2014) [22] reached the conclusion that Frequently, B-scan results predicted operative outcomes. On ultrasound, 2 of the 4 individuals diagnosed with closed funnel RD were determined to be inoperable. A single individual out of all 4 with an irregular posterior contour was revealed to be suffering from an inoperable RD. throughout surgery, 3 of 4 individuals with kissing choroidal detachments were discovered to have RD. The B-scan finding of 'disorganized posterior contents' indicated a dismal prognosis. two (thirteen percent) of these sixteen individuals had no follow-up, three (19 percent) needed secondary enucleation, 8 (fifty percent) were determined to have no light perception (NLP) at their last follow-up, three (19 percent) were determined to have light perception (LP) at their final follow-up, and 3 (19 percent) underwent retinal surgeries. All three individuals who underwent surgical follow-up had been diagnosed with total RD (one eye was declared inoperable and 2 instances were labeled with proliferative vitreoretinopathy).

In addition, El-Asrar *et al*., (2000) [23] observed that following an average of 8.6 months of follow-up, 65.6 percent of eyes possessed visual acuity (VA) of 20/200 or higher, and 9.4 percent of eyes had total RD exacerbated by inoperable proliferative vitreoretinopathy.

Additionally, according to Petrovic *et al*., (2004) [24], The records of 52 individuals with open eye injuries to the posterior segment have been examined retrospectively. Particular elements of a classification system for mechanical eye injuries were examined. The final visual outcome and rate of retinal attachment were documented. 50% of eyes achieved visual acuity of 0.5 or higher, 27% of eyes achieved visual acuity of 0.1 or worse, and 10% of eyes had definitive retinal detachment following a mean follow-up of 20.0±10.5 months.

In univariate regression analysis, the length of the incision was a significant predictor of retinal detachment (OR: 1.99, 95% CI: 1.240 - 3.197, $p$<0.001).

El-Asrar *et al*., (2000) [23] on univariate analysis, impaired initial VA, uveal prolapse, corneoscleral entrance wound, prolapse of vitreous, iris that exists rrauma, and the occurrence of RD were indicators of impaired vision (hand movements or less). In contrast, the lack of endophthalmitis, uveal prolapse, and RD were indicators of a favorable visual outcome (20/200 or greater). prolapse of the uvea, corneoscleral entrance wound, and the occurrence of RD were the only factors substantially correlated with poor visual outcome, as determined by multivariate analysis. Only the lack of uveal prolapse was strongly correlated with a favorable visual outcome.

Petrovic *et al*., (2004) [24], The aforementioned variables had been indicators of adequate vision (visual acuity <0.5 compared to visual acuity $p$<0.5) as determined by univariate analysis: grading of injury, the injury zone, afferent pupillary response, incision size, and initially RD. the zone of injury, relative afferent pupillary defect, laceration length, and initial retinal detachment were indicators of impaired vision (visual acuity 0.1 in comparison to visual acuity $p$>0.1). With proliferative vitreoretinopathy, relative afferent pupillary defect and first detachment of the retina had been indicators of ultimate RD.

Yucel *et al*., (2016) [20] discovered that. There was a moderately adverse relationship among the duration of the scleral lesion and the ultimate VA. In their research, detachment of the retina was observed in 40.9 percent of individuals; RD was associated with a poor ultimate VA prognosi. This is shown that there is relation between wound length and retinal detachment. Based on the aforementioned findings which stated that wound length can predict poor VA and RD can also predict poor VA, we can conclude that wound length can predict RD.

The incidence of RD in neglected group was substantially higher than retinal detachment in un-neglected group. The higher prevelance of RD in the neglected group could be clarified by mentioning that the standard preferred management of corneal laceration is within 24 hours to reduce risk of complication including RD. Hence, neglected group who did not seek the medical advice on time suffered from considerable risk of RD [25].

**Conclusion:** Posterior Segment Ultrasonic Evaluation of Cases of Traumatic Corneo-Scleral Lacerations in Pediatric Eyes is proven to be very important imaging modality in the management of corneoscleral lacerations. Wound length was a significant predictor for retinal detachment. The frequency of RD was higher in neglection of medical advice.

**Conflict of Interest**
Not available

**Financial Support**
Not available

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