

## Ocular Injuries Caused by Hens

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### Abstract

**Background:** Ocular injuries caused by birds are rarely reported in literature. The species of birds implicated depends on the geographical location. Hens are a common occurrence in agrarian countries. Here, we describe the spectrum of ocular injuries caused by hens.

**Methods:** Retrospective analysis of all cases of open globe injuries between January 2015 to January 2017 at a tertiary care centre was undertaken. Injuries caused by hens were analysed.

**Results:** We saw only four hen injuries out of 250 open globe injuries. Three out of the four cases were toddlers. Two patients had corneal tears and two presented with limbal-scleral tears. All of them underwent surgical repair with intracameral moxifloxacin. All patients received pre and post-operative systemic and topical antibiotics. There was no case of endophthalmitis. The final outcome was good in all but one patient.

**Conclusion:** Hens can cause significant ocular trauma. Early institution of systemic and intraocular antibiotics may help prevent endophthalmitis and improve the visual outcomes.

**Keywords:** Hens; Ocular Injuries; Endophthalmitis; Antibiotics

### Introduction

Ocular injuries in children constitute a major cause of visual morbidity. In a study conducted in Nepal, the incidence has been found to be 300/100000/year [1]. Injuries due to birds are rare and sparsely reported in literature. Different species of birds have been implicated in causing eye injuries depending on the geographic location. Hens are a common occurrence in agrarian countries. Here, we describe the spectrum of ocular injuries caused by hens. To the best of our knowledge this is the largest case series of hen injuries in children from the Indian subcontinent.

### Methods

Two hundred and fifty case records of open globe injuries between January 2015 to January 2017 were reviewed at our centre. Institutional Review Board approval was obtained to carry out the research. Four cases of injuries caused by hens were recorded. All patients received intravenous cefotaxime with hourly moxifloxacin eye drops pre operatively, What is the reason for IV therapy? Postoperatively, intravenous cefotaxime was continued for five days along with topical moxifloxacin and cycloplegic drops. Topical steroids were commenced on day four after the repair in all the cases (Table 1).

Age (yrs)	Sex	Eye	Mode	Zone	Lens	Posterior segment	Injury to Surgery (hours)	Lensectomy during primary repair	Intracameral moxifloxacin	Intravitreal antibiotics	Endophthalmitis	Initial BCVA (Snellen)	Final BCVA
1	M	R	Hen peck	1	Cataract	Uninvolved	19	Yes	Yes	No	No	CA	-
3	M	L	Hen peck	1	Clear	Uninvolved	22	No	Yes	No	No	CA	6/7.5
0.5	F	R	Hen claw	2	Clear	Uninvolved	24	No	Yes	No	No	CA	-
18	M	R	Hen peck	2	Cataract	Vitreous Hemorrhage Retinal edema	1 week	No	Yes	Yes	No	6/9	6/9

**Table 1:** Summary of cases.

*M: Male; F: Female; R: Right; L: Left; CA: Could not be assessed*

## Case Report

### Case 1

A one year old male child was brought to the emergency with a history of a hen peck injury to the right eye. Ocular examination showed a central full thickness corneal tear with corneal infiltrate, iris prolapse and lens injury. There were no adnexal injuries. Immediate suturing of the corneal tear, iris abscission, lens aspiration and anterior vitrectomy were done with intracameral injection of moxifloxacin. Fibrin glue and a bandage contact lens were placed due to persistent leak from the stellate corneal wound. The patient received topical natamycin eye drops in addition postoperatively. At three weeks follow up, the corneal wound showed healing with early scar formation. The patient was lost to follow up and presented at three months with a corneal infiltrate with loose sutures. This progressed to a corneal ulcer necessitating a therapeutic keratoplasty. Culture of the corneal button was negative. He was treated with topical moxifloxacin and natamycin eye drops. The infection resolved but primary graft failure ensued. Posterior segment was normal on ultrasound examination throughout the course.

### Case 2

A three year old male child presented 12 hours after a hen peck injury to his left eye. Vision could not be assessed at presentation. Ocular examination revealed a paracentral corneal tear with iris prolapse. The lens was uninvolved and there were no adnexal injuries. He underwent corneal tear suturing with iris abscission and intracameral moxifloxacin. At the end of three months follow up, his vision was 6/7.5 with a paracentral corneal scar (Figure 1).



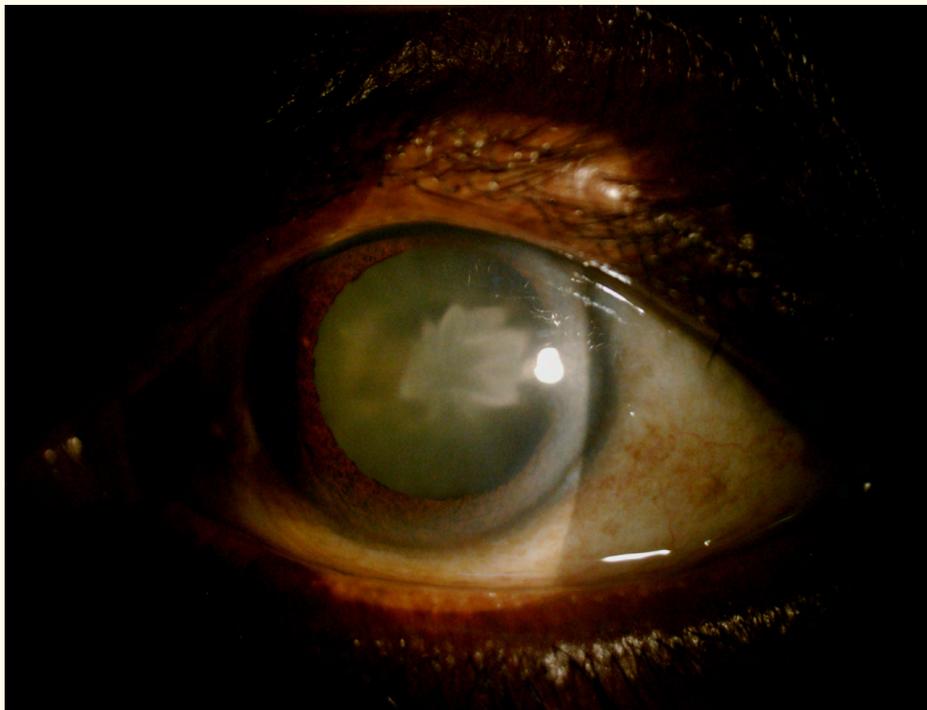
**Figure 1:** Clinical photograph of the anterior segment (case 2) at three months follow up showing a paracentral corneal scar, iris defect and a clear lens.

### Case 3

A six month old female child was brought seven hours after a hen claw injury to the right eye. On examination, there were no adnexal injuries. There was a subconjunctival hemorrhage temporally with an underlying limbal-scleral tear and vitreous prolapse. Fundus examination showed retinal hemorrhages. She underwent emergency scleral tear repair with anterior vitrectomy and intracameral moxifloxacin. At the end of two months, the scleral tear healed well with resolution of retinal hemorrhages. The patient was lost to follow up after this.

### Case 4

An 18 year old boy presented with pain and lid edema of the right eye following an accidental encounter with a hen 7 days ago. His visual acuity in that eye was 6/9. Anterior segment showed a bleb in the inferotemporal quadrant, iritis and a rosette cataract. Fundus examination showed patches of retinal edema in the temporal mid periphery with vitreous hemorrhage. Wound exploration revealed a small scleral tear adjoining the limbus at the site of the bleb, which was repaired and intracameral moxifloxacin was injected. At the end of one month, his vision was 6/9. Iritis, vitreous hemorrhage and retinal edema resolved (Figure 2).



*Figure 2: Clinical photograph of the anterior segment (case 4) at three months follow up showing a rosette cataract.*

### Discussion

Birds are considered harmless because of their tendency to fly away at the least sign of threat. However, it has been shown that different species of birds can have different personalities. Domesticated hens are usually benign. However, complex behavioral expressions like aggression depend on the genetic make-up, state of hormonal metabolism, rearing conditions (like feed restriction, housing type and influence of opposite sex during the growth period), existence of hostile stimuli and social learning. In general, roosters are more aggressive than their female counterparts, hens [2].

Ocular injuries due to bird attacks are rare. During the two year period, we saw only six cases of bird injuries (four due to hens and two cases were due to cranes), it was 4 cases???? How do you justify 6? Most reports show that children are the common victims. Three out of the four patients in our series were children. Children have a tendency to explore things around them which puts them at risk for such unusual modes of injury.

Eyes are preferred targets for these birds owing to the bright iris color and eye movement [3]. Zone 1 injuries are most common. In a large case series of ocular injuries due to birds of different species conducted in Iran, 86% involved zone 1 [4]. Although the tears are small in size, they are challenging to repair due to irregular edges and sometimes tissue loss [5]. In the first case, the tear margins could not be completely apposed necessitating use of fibrin glue and a bandage contact lens.

We did not have any case of endophthalmitis although we had one patient with corneal infiltrate at presentation. All patients were started on prophylactic intravenous broad spectrum antibiotic (cefotaxime) pre-operatively which was continued postoperatively for five days. Also, they received hourly topical moxifloxacin eye drops preoperatively and postoperatively for five days. Intracameral moxifloxacin was used in all cases. The role of prophylactic intraocular antibiotics in preventing endophthalmitis has been proven in the past. Soheilien., *et al.* [6] showed a positive role of intracameral/intravitreal gentamycin with clindamycin in preventing endophthalmitis. Due to the inherent toxicity of gentamycin with intraocular use, we chose to inject moxifloxacin which has a wide spectrum of action with proven safety for intraocular use. It is unclear if bird beak injuries pose an increased risk of endophthalmitis when compared to other penetrating injuries. Tabatabaei., *et al.* [4] has reported an endophthalmitis rate of 10% in bird peck injuries which is not significantly higher than that following other causes of penetrating trauma (7%) [7]. In our series of injuries caused by hens, even the patient who presented seven days following the injury did not present with endophthalmitis. A similar case of occult scleral tear due to a rooster peck in a two year old boy has been reported where endophthalmitis did not occur. Instead, the patient presented with hypotony due to cyclitic membrane formation secondary to fibrous ingrowth from the site of scleral tear [8]. The microbial flora associated with the beaks of these birds has not been studied but there have been reports of alpha streptococci endophthalmitis following rooster pecks [9].

In our series, retinal hemorrhages and edema were seen in cases with scleral tear but not corneal tears. There was no case of retinal detachment. There have been reports of giant retinal tear following rooster pecks [6]. We saw two cases of lenticular injury (one involving direct injury to the anterior lens capsule and one rosette cataract). It has been hypothesized that rosette cataract occurs due to shock waves transmitted through the lens. Total aniridia following a mynah peck has been reported [9]. These authors have postulated that a rapid rise in intraocular pressure just before the beak penetrates the cornea and sudden decompression following penetration could be the cause of disinsertion of the iris. We presume such rapid changes in intraocular pressures could have transmitted shock waves leading to the formation of rosette cataract [10].

### Conclusion

In conclusion, this case series exemplifies the spectrum of injuries that can be caused by apparently harmless hens. Larger case series maybe needed to establish the role of prophylactic broad spectrum systemic and intraocular antibiotics in bird peck injuries.

### Financial Disclosures

Authors have no financial disclosures.

### Conflicts of Interest

Authors report no conflicts of interest. This has not been presented in any conference.

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