Original Article

Frequency and Outcome of Emergency Oculoplastic Cases with Adaptations in Management during Covid-19 Pandemic

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ABSTRACT

Purpose: To determine whether treating emergency oculoplastic conditions with protective modification have any effect on treatment outcome visiting tertiary oculoplastic service.

Study Design: Interventional case series.

Place and Duration of Study: Department of Ophthalmology, Lady Reading Hospital, from March to September 2020.

Methods: We included all patients operated during pandemic at oculoplastic service. Protective modifications included; use of loupe instead of surgical microscope, avoidance of General Anesthesia, judicial use of cautery, use of absorbable suture and follow up through phone call and minimum visits.

Results: A total of 117 patients were eligible with a mean age of 25.399 ± 34.89 years. Majority of the patients were male, 74 (63.2%). The mean follow-up time was 04 months. Satisfactory surgical and functional outcome was seen in 107 (91.5%) patients. There was no statistically significant difference in outcome with reference to gender (p-value of 0.824) and treatment (p-value of 0.168). Similarly, treatment outcome was statistically insignificant (p value 0.342) in different oculoplastic conditions. Unsatisfactory outcome due to various complications was seen in 10 (8.5%) patients at follow up of 01 to 05 months which were then given special treatment at followup.

Conclusion: With adopted protocols and modifications in techniques, outcome was acceptable in common emergency oculoplastic conditions. Proper follow up through telemedicine was helpful in picking up the complicated cases for timely intervention to get satisfactory outcome during Covid 19 pandemic.

Key Words: Coronavirus disease, COVID-19, Orbit, Oculoplastics.

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INTRODUCTION

As Coronavirus disease, COVID-19 pandemic has spread across the globe, it is evident that health care workers especially those who come in close contact with respiratory and ocular secretions are at increased risk of contracting SARS-CoV-2.[1] COVID-19 is a main concern in health system because of global pandemic since December 2019 as it is highly contagious especially through oral, nasal, and eye mucous membranes.[2] Operation room may serve as a source of viral transmission as the virus can remain suspended for long time in air.[3] Orbit and oculoplastics is one of major branch of ophthalmology and pose great risk of infection during pandemic because of its lengthy procedures.[4] During this pandemic, we treated

different emergency orbit and oculoplastic conditions specifically eyelid and orbit trauma, dacryocystorhinostomy (DCR) surgery for chronic dacryocystitis (CDC) with acute exacerbation and tumors. These procedures are associated with high chance of getting COVID-19 infection due to long procedure time. According to an alert issued by the American Academy of Ophthalmology, wearing masks and eye safety while examining patients of conjunctivitis with respiratory disease and history of travel is strongly recommended.[5]

Data on death of COVID-19 affected individuals show that many health care workers including doctors, nurses, paramedics, and other helping staff were affected. Some medical specialties were more exposed to danger of getting affected than the others. In Ophthalmology, especially orbital and oculoplastics for their lengthy procedures, is one of the top specialties with a high risk of cross-infection.[4]

Fortunately, most of our patients are of elective category of management but some cases are the real challenge which are included in emergency and are picked at our triage designed to timely manage without delay. The rationale behind our present work is to determine whether treating these emergent conditions with protective modification have any effect on outcome.

METHODS

This is an interventional case series. Sample size included all patients treated during the study period. We selected cases operated during pandemic from March to September 2020 at oculoplastic service, eye unit, Lady Reading Hospital. The cases were first screened at triage system to reduce exposure to both the patient and health care providers. Most of the cases were treated under local anesthesia and lengthy procedures were tried to be completed as early as possible to protect staff and the patient. Treated patients had a follow up of one month to 5 months, mostly with the help of telemedicine and through phone calls to avoid un-necessary visits and treatment outcomes were recorded. Complicated cases were treated by revision surgeries. All such revision surgeries were treated as day cases to avoid any hospital admission to reduce exposure. Patients were treated with maximal standard personal protective equipment (personal protective equipment, hand hygiene, telemedicine, and social isolation).[6] They were treated in a negative pressure operating rooms.[7] Protective modifications were adopted to treat emergency cases which included; use of loupe instead of surgical microscope to keep safer distance, avoidance of General Anesthesia (GA) and use of local anesthesia where possible. Cautery was used judicially with an effort to complete the case as early as possible. Patients were followed through phone call and advised minimum visits. We used absorbable suture so that later removal of suture was not needed. Comparison of gender and treatment with outcome of cases using modified approach was done using Chi-Square test. Comparison of Oculoplastic cases treated during COVID-19 with outcome was done using t-test for significance.

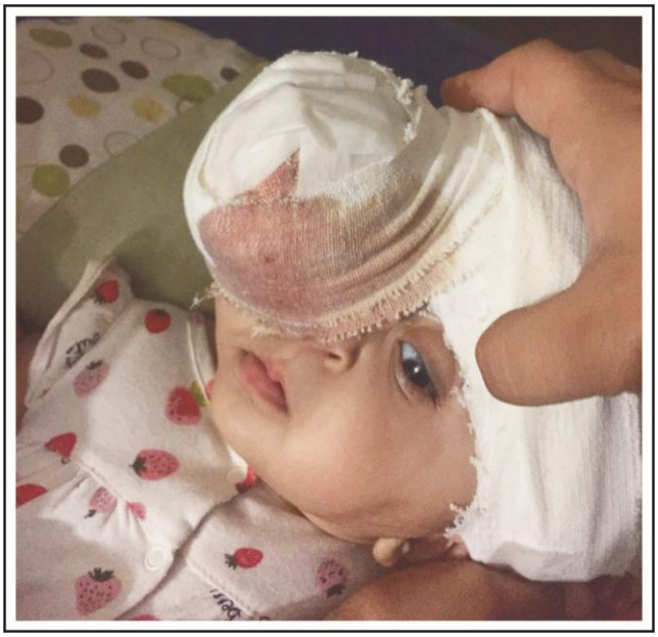

Figure 1A: Child with enlarged right orbital mass secondary to recurrent retinoblastoma.

RESULTS

A total of 117 patients were eligible for inclusion in the present study with a mean age of 25.399 ± 34.89 years. Majority of the patients were male, 74 (63.2%). The mean follow-up time was 04 months (range 1–5 months). Details of cases and procedures with outcomes are shown in Tables 1 and 2. All surgical procedures and medical treatment were performed by ophthalmic reconstructive plastic surgeon, with COVID 19 preventive protocols and modifications. Satisfactory surgical and functional outcome was seen in 107 (91.5%) patients. There was no statistically significant difference in outcome with reference to

gender (p-value of 0.824) and treatment (p-value of 0.168). Similarly, treatment outcome was statistically insignificant (p value 0.342) in different oculoplastic conditions (Table 2). Unsatisfactory outcome due to various complications was seen in 10 (8.5%) patients at follow up of 01 to 05 months and its detail is shown in Table 3.

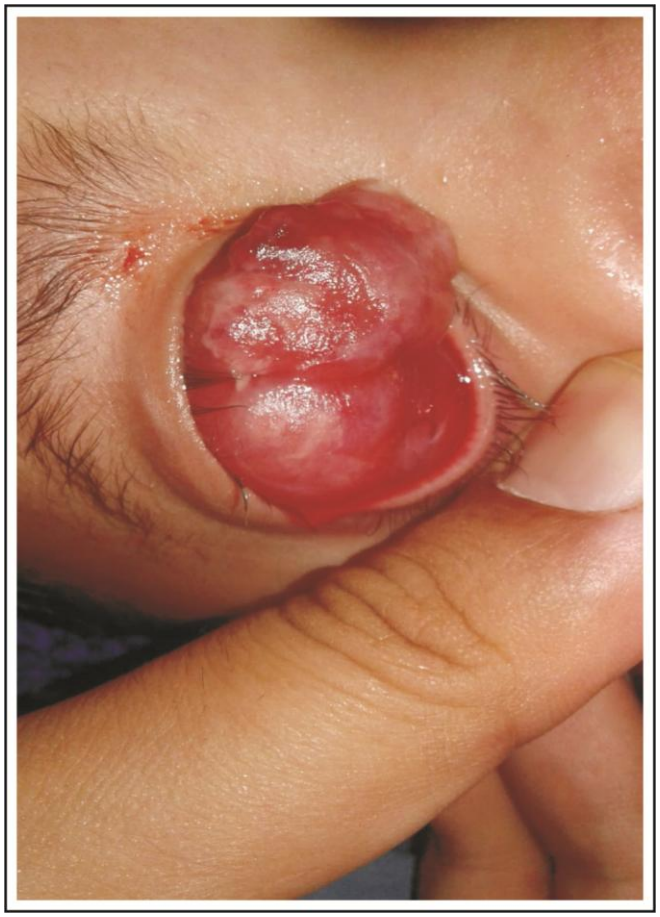

Figure 1B: Right Orbital tumor in a child.

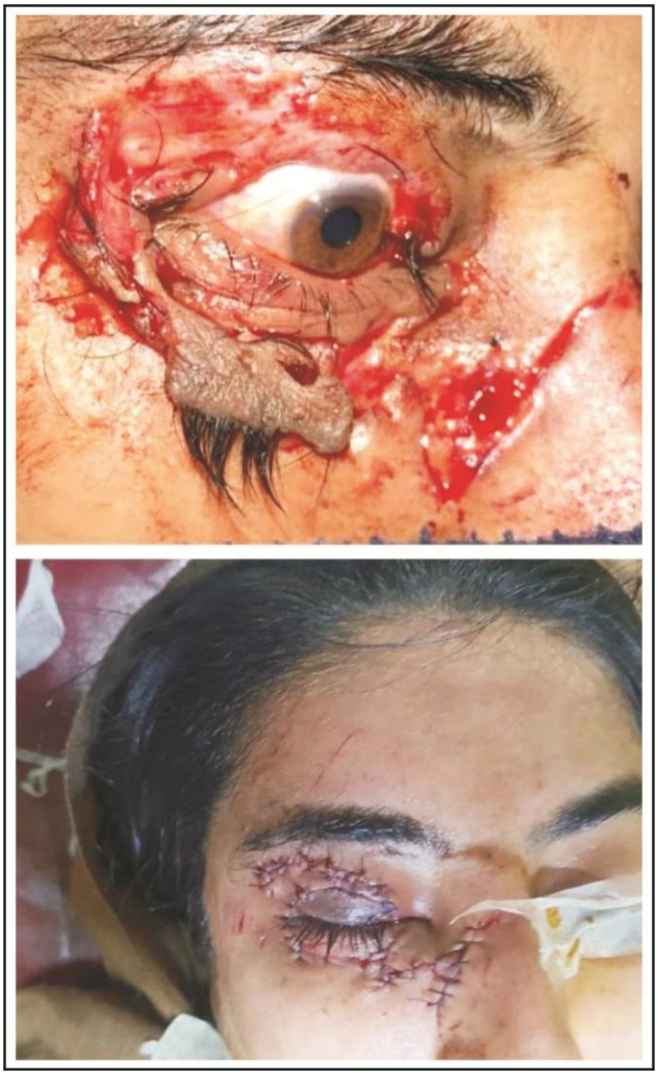

Figure 2: Extensive eyelid laceration and after reconstruction.

DISCUSSION

Trauma, tumors, infections and inflammatory conditions involving orbit and eyelids including lacrimal system are emergency cases, which need timely management to prevent serious complications. According to survey by oculoplastic surgeons conducted at the Asia-Pacific region, major cases of lacrimal system were chronic dacryocystitis with acute exacerbation and blocked nasolacrimal duct in children, which were high risk conditions for health personnel during pandemic.[8,9,10] We therefore performed surgeries on chronic cases with acute exacerbation. Less acute cases however were postponed with clear instructions antibiotic use when required. Due to such selective approach to protect the oculoplastic surgeons as they were at a higher risk of acquiring COVID-19 infection along with other health care workers, this greatly affected service provision as well as training of postgraduate residents.[11,12,13,14] Major Oculoplastic procedures treated as emergency were trauma to eyelid and orbit. Such cases were associated with potential for aerosolization of secretions containing viral particles during surgical procedures.[15.16.17,18] Orbit and oculoplastic cases were mostly non-urgent but some of them were real emergencies notably trauma. As per our experience working as oculoplastic surgeon, in the past few months, eyelid lacerations, orbital cellulitis affecting both children and old patients with very advanced

Table 1: *Outcomes of different oculoplastic cases in relation to gender and treatment performed using modified approach.*

		Outcome		p-value
		Satisfactory	Unsatisfactory	
Gender	Male	68 91.9%	6 8.1%	0.824
	Female	39 90.7%	4 9.3%	
Treatment	Eyelid/Orbit trauma reconstruction	49 92.5%	4 7.5%	0.168
	Medically with antibiotics	11 100.0%	0 .0%	
	Eyelid /Orbit tumor excision and reconstruction	14 100.0%	0 .0%	
	DCR	9 81.8%	2 18.2%	
	Systemic steroids	4 100.0%	0 .0%	
	Evisceration	4 100.0%	0 .0%	
	Enucleation	1 50.0%	1 50.0%	
	Probing	15 83.3%	3 16.7%	

Table 2: *Outcome of different oculoplastic cases treated during COVID-19 pandemic.*

		Outcome		p-value
		Satisfactory	Unsatisfactory	
Disease	Eyelid/orbit trauma	49 96.1%	2 3.9%	0.342
	Orbital Cellulitis	11 100.0%	0 .0%	
	Eyelid /Orbit tumor	14 82.4%	3 17.6%	
	chronic CDC with acute exacerbation	9 81.8%	2 18.2%	
	Acute thyroid related orbitopathy	4 100.0%	0 .0%	
	Endophthalmitis	4 100.0%	0 .0%	
	Retinoblastoma	1 100.0%	0 .0%	
	Blocked Nasolacrimal Duct	15 83.3%	3 16.7%	

Table 3: *Detail of Unsatisfactory/complicated cases with additional intervention and final outcome.*

S. No.	Unsatisfactory/Complicated Cases	Gender	Age	Outcome
1.	Failed Probing	M	4 months	Satisfactory
2.	Failed Probing	F	5 months	Satisfactory
3.	Failed Probing	F	2 months	Satisfactory
4.	Revisional sutures for opened wound after tumor surgery	F	67 years	Satisfactory
5.	Revision sutures for opened wound after tumor surgery	M	81 years	Satisfactory
6.	Infected wound after repair	M	11 years	Satisfactory
7.	Infected wound after repair	M	71 years	Satisfactory
8.	DCR needs re suturing of skin wound/tube manipulation	M	65 years	Satisfactory
9.	DCR needs re suturing of skin wound/tube manipulation	F	42 years	Satisfactory
10.	Enucleation with exposed implant	M	04 years	Satisfactory

tumors and as well as inflammatory condition like acute cases of thyroid orbitopathy were referred to us as an emergency which needed urgent intervention especially extensive eyelid laceration reconstruction. Figure (1 and 2).

For follow up we adopted use of telemedicine and mobile phone services. Literature shows that telemedicine helped postoperative follow-up without physical presence at hospital premises with no effect on the outcome.[19,20,21]

During pandemic, a lot of work was done to protect health care workers and patients but to provide best services through different modifications. Following safety techniques were adopted to treat emergency cases:

1- Surgical microscope was replaced with a loupe to help keep safer distance from operating subject.

2- Avoidance of GA where possible as the main hazard was aerosol spread both during and after induction of anesthesia.[2]

3- In lacrimal procedures, picking only chronic dacryocystitis cases with acute exacerbations. While other chronic cases were rescheduled. Meanwhile advice for manual removal of tear secretions accumulated at the blocked lacrimal system along with antibiotics eye drops.

4- Use of cautery to stop bleeding during surgery on eyelid and orbit. Since, cautery can be a source of virus spread therefore with judicial use of cautery along with an effort to complete the case as early as possible.

5- Use absorbable suture to avoid extra visit for removal.

We recommend these strategies, which have a very favorable outcome. More research with larger sample size and more follow up time is recommended which are the short comings in our present study.

CONCLUSION

Common emergency oculoplastic conditions include trauma, orbital cellulitis and advance tumors. With adopted protocols and modifications in techniques, outcome was acceptable. Proper follow up through telemedicine was helpful in picking up the complicated cases for timely intervention to get satisfactory outcome during Covid 19 pandemic.

Conflict of Interest: Authors declared no conflict of interest.

Ethical Approval: The study was approved by the Institutional review board/Ethical review board **(Lady reading Hospital, IRB # 14, dated 9-11-2018).**

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