

OUTREACH SURGICAL EYE CAMPS IN NORTH AND CENTRAL INDIA 2011-2015- AN EXPERIENCE

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ABSTRACT

BACKGROUND

We report our experiences of successfully conducting twelve surgical outreach eye camps and suggest protocol and strict allegiance to guidelines for the same, which have been mired in controversy and disrepute repeatedly due to associated blinding complications.

MATERIALS AND METHODS

Twelve operative eye camps were organised at various locations by the eye departments of two tertiary care hospitals between September 2011 and July 2015.

RESULTS

A total of 8039 patients were seen in OPDs. The common cases in OPD included refractive error 56.2%, dry eyes 19.9%, allergic conjunctivitis 7.8% and cataract 17.7%. 988 cases were operated for cataract, 5 for glaucoma and 21 for pterygium. 87% cases operated for cataract surgery had grade III and above nuclear sclerosis. 95.4% cases were operated by modern phacoemulsification technique of cataract surgery. Only, 1.5% cases developed complications due to surgery. No case developed postoperative infection.

CONCLUSION

Owing to the remarkable results, cataract surgery camps are way ahead of other medical discipline in combating the morbidity load of the society. If we follow the standard guidelines, results are always encouraging. It is not correct to stop and ban surgical eye camps for their occasional unexpected bad results. The protocols described by us have been derived on the guidelines of various authorities on the subject and the law of the land and we suggest that these guidelines maybe adopted by others in the endeavour of decreasing blindness from the world.

KEYWORDS

Eye Camps, Endophthalmitis, Intraocular Lenses (IOL), HEPA Filter, Phacoemulsification.

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BACKGROUND

Population-based surveys have identified cataract as the leading cause of blindness and visual impairment in India.^{1,2} As part of outreach programme, it is the endeavour of hospitals to provide best services at the doorstep of the needy in accordance with Vision 2020 Programme of Government of India, fulfilling 'Right to Sight' for all. Surgical eye camps are the only answer for people who are unable to reach eye hospitals due to neglect their disabilities or financial constraints. A camp serves as an effective and

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economical means of medical service delivery on a mass scale at the doorstep of the needy.³ Due to sheer number and remarkable results, ophthalmology is way ahead of other medical disciplines in tapping the potential of surgical camps as a very effective strategy in combating morbidity.⁴ Ophthalmic camps are diagnostic, operative or both. Diagnostic only camps though common leave us halfway through as they are not involved in any intervention. On other hand, cataract centric camps are more effective as the disease contributes to nearly 60% of blindness worldwide. Cataract surgical camps are sometimes the only medical modality available at doorsteps.^{5,6} We report our experiences and suggest protocol and strict allegiance to guidelines in conduct of a surgical eye camp, which have been mired in controversy and disrepute repeatedly due to associated blinding complications of endophthalmitis.

MATERIALS AND METHODS

Twelve operative eye camps were organised at various locations by the eye departments of two tertiary care hospitals between September 2011 and July 2015. The preparation of every eye camp started three months in advance of the actual dates. Based upon willingness to organise an eye camp and feedback from the host hospitals, a survey of the hospital was conducted by an ophthalmologist for feasibility of holding an eye camp. These host hospitals were already functional peripheral hospitals and had good catchment of cataract cases as reflected from their OPD workload, but lacked any specialised ophthalmic care facility. These host hospitals were catering to the medical needs of serving and retired defence service personnel and their families, either deployed or were natives of that area. This survey included assessment of the infrastructure for OPD, wards, operation theatre and laboratory services along with availability of skilled human resources. The host hospital also did the publicity to the forthcoming camp.

Once organising, a surgical camp was found feasible, camp dates were finalised in concurrence with the host hospital and permission was obtained from competent authority. A separate demand was raised with the competent financial authority to provide funds to cater for drugs, Intraocular Lenses (IOL), surgical consumables and other logistics and support like electric generator, potable water tanker, etc. Simultaneously, human resource and logistic planning regarding transport, equipment and consumables required for the camp were initiated. A detailed load table of all expendables and equipment was made and they were carried by trucks to the camp site.

With a target of 150 surgeries, every team consisted of 3 ophthalmic surgeons, 2 optometrists, 6 operation room assistants and 1 anaesthetist. Services of physician, where available, were also utilised.

Each eye camp was of six days duration. OPD and OT used to run parallel to each other with surgeons and other staff changing shifts. Patients were examined for their ailments and those needed surgery for cataract were screened out. Patients thus identified were initially subjected to CBC, urine, ECG and blood sugar analysis and a preanaesthetic examination by an anaesthetist. This was followed by assessment of IOL power and intraocular pressure. High-risk cases with comorbidity were identified to be operated by experienced surgeons only.

At the end of the each OPD day, list of surgery for the next day was prepared and written informed consent was obtained from the patients. All patients were administered a broad-spectrum antimicrobial, both topically and orally. Patients already on any systemic medication were advised to continue the same. Blood sugar level and blood pressure were maintained. Patients were also advised to maintain personal hygiene and cleanliness.

The preparation of an appropriate operation theatre was the most crucial task in a camp as a small mistake or ignorance in preparation of an OT can lead to unimaginable disasters. The team reached the camps two days in advance

and prepared the operation theatre by scrubbing and cleaning floors, walls, fixtures, furniture, instruments and equipment with detergent and disinfectants. All openings and cracks were sealed and the air conditioner, HEPA filter and other electrical appliances were checked and repaired. Following this, the equipment were installed and carbolicised. The OT was then fumigated and sealed to be opened after 48 hours on the first day of surgery. Subsequently, the operation theatre was fumigated again every day following the surgeries. Culture swabs were taken from OT daily and were sent to lab for microbiological assessment.

- No visitors, dignitaries or street clothes were allowed inside the operation theatre. Individuals suffering from any communicable disease were kept away from camp.
- Sterile and disposable surgical gloves were changed following every surgery. Surgeons and assistants rescrubbed after every five surgeries. No surgeon performed more than twenty surgeries in one day.
- Instruments were reused following a thorough cleaning and resterilising by autoclaving, only.

As a rule, phacoemulsification with foldable intraocular lens implantation was the method of surgery. However, SICS or ECCE with sutures was done in cases with very hard cataract, poor cornea or any existing comorbidity. Less experienced surgeons were allowed to operate under constant supervision of senior ophthalmologist. There was a strict no to trying a new technique, product or a new vendor.

The postoperative care was provided for a minimum of two days after the surgery. This included examination with slit lamp biomicroscope. Appropriate topical and systemic medications were dispensed on the first postoperative day along with postoperative care instructions. The operated cases were followed up by an ophthalmologist following ten days and four weeks, at the camp site, only. Cases with any surgical complications were transferred to base ophthalmic centre for advanced care. Cases were advised to follow up immediately in case of redness, watering, pain or dimness of vision.

RESULTS

A phenomenal response was noted in all the camps with patients coming from nearby areas in large numbers. The camps provided expert OPD services, which included consultation, remedial procedures, refraction, dispensing of medicines and corrective glasses. Those coming from far off places were admitted to the hospital. A total of 8039 patients (mean=670 patients per camp) were seen in OPDs (Table 1). The common cases in OPD included refractive errors 56.2% (n=4519), dry eyes 19.9% (n=1597), allergic conjunctivitis 7.8% (n=692), cataract 17.7% (n=1424), glaucoma 2% (n=157), Age-Related Macular Degeneration (ARMD) 6.1% (n=492), etc. Many cases had multiple morbidities (Table 2).

1014 cases (12.61%) underwent surgery (mean=84.5 cases per camp) of which 988 (12.3%) cases were operated for cataract, 5 for glaucoma and 21 for pterygium (Table 3). 27% (n=268) had vision less than 6/60 and thus their

surgery helped reducing backlog of blindness from the target population. Of these, 2.2% (n=22) cases required assisted ambulation on account of limb or spine pathologies. 1.3% cases of cataract (n=19) were either one eyed had previous history of acute uveitis, corneal opacity or concurrent glaucoma. 0.28% cases were diagnosed as congenital cataract (n=4) and 23 cases of cataract were in age group 12-40 years of which 11 underwent surgery, remaining were called to base ophthalmic centres for a more deliberate surgery. The grade wise distribution of cataract cases operated was noted (Table 3). 87% (n=868) cases operated for cataract surgery had grade III and above nuclear sclerosis. Various ophthalmic surgical procedures were conducted (Table 3). 95.4% (n=967) cases were operated

by modern phacoemulsification technique of cataract surgery. 2.1% (n=21) cases of cataract underwent either SICS or conventional ECCE. These cases had nuclear sclerosis of grade IV and V or were associated with comorbidity like trauma, zonular dehiscence, corneal opacity, etc. Only 1.5% (n=15) cases developed complications due to surgery. These complications were more with higher grade of cataract (Table 3). No case developed postoperative infection.

Poor turnout was noted at C₄ and C₅ and this could be attributed to poor publicity of the event and absence of a proper feasibility.

Sl. No.	Venue	Total Period	Surgery Days	OPD Load	Number of Patients who Underwent Surgery (%)
1.	C ₁	19-25 September, 2011	21-25 September, 2011	1222	101 (8.26)
2.	C ₂	21-26 November, 2011	23-26 November, 2011	1331	76 (5.71)
3.	C ₃	15-20 December, 2011	17-20 December, 2011	826	71 (8.59)
4.	C ₄	13-18 June, 2012	15-18 June, 2012	202	10 (4.95)
5.	C ₅	23-30 June, 2012	25-30 June, 2012	333	45 (13.51)
6.	C ₆	24-25 September, 2012	26-29 September, 2012	582	156 (26.80)
7.	C ₇	30-31 March, 2013	01-04 April, 2013	923	156 (16.90)
8.	C ₃	22-23 April, 2013	24-27 April, 2013	903	45 (4.98)
9.	C ₈	17-18 May, 2013	19-22 May, 2013	510	101 (19.80)
10.	N ₁	07-08 April, 2014	09 -12 April, 2014	322	61 (18.94)
11.	N ₁	16-17 January, 2015	18-21 January, 2015	408	94 (23.04)
12.	N ₁	13-14 July, 2015	15-18 July, 2015	477	72 (15.09)
Total				8039	1014 (12.61)

Table 1. Camp Schedule and Summary of Work Load

Legends- C₁, C₂, C₃ = Camp Locations in Central India.
N₁ = Camp Location in Northern India.

Sl. No.	Disease	Age Wise Break Up (in Years)			Number of Morbidities (%)
		<12	12-40	>40	
1.	Refractive error	435	2022	2062	4519 (56.2)
2.	Dry eyes	-	505	1092	1597 (19.9)
3.	Cataract	4	23	1397	1424 (17.7)
4.	Allergic conjunctivitis	136	422	134	692 (7.8)
5.	ARMD	-	-	492	492 (6.1)
6.	Glaucoma	-	11	146	157 (2.0)
7.	Ocular trauma	4	14	-	18 (0.2)
8.	Pterygium	-	36	5	41 (0.5)
9.	Diabetic retinopathy	-	5	50	55 (0.68)
10.	Uveitis	-	30	-	30 (0.4)
11.	Optic atrophy	-	14	8	22 (0.3)
Total		580	3082	5386	9048

Table 2. Prevalence of Various Eye Disorders (n=8039)

Note- Total number of patients seen were n=8039; however, since many patients had multiple diseases, the sum total of all morbidities under various groups was 9048.

Sl. No.	Surgical Procedure	Number of Cases	Nuclear Sclerosis Grade	Complications			
				Posterior Capsule Rent	Nucleus Drop	Iridodialysis	Retained Cortical Matter
1.	Phacoemulsification with foldable intraocular lens implantation 967 (95.4%)	14 (1.4%)	I	3	-	-	1
		85 (8.5%)	II	1	-	-	1
		415 (41.5%)	III	1	-	-	-
		432 (43.7%)	IV	5	1	1	-
2.	SICS/ECCE with foldable intraocular implant 21 (2.1%)	10 (1.1%)	IV	-	-	-	2
		11 (1.1%)	V	3	1	2	1
3.	Pterygium excision with conjunctival autografting	21 (2.1%)		-			
4.	Trabeculectomy	05 (0.5%)		-			

Table 3. Cases, Surgical Procedures and Complications (n=1014)

DISCUSSION

Despite the recent advances and progress in healthcare especially eye care delivery services, huge pockets of cataract blindness still exist in developing countries.^{3,4} The main reason for this is the severe lack of eye care delivery infrastructure in these areas. Till such permanent service systems are developed in these areas, surgical eye camps remain the major source of light to cataract blind.^{5,6}

The year 1986 was a watershed year in the chequered history of eye camps because of the fiasco at Khurja and Moradabad in UP in quick succession. 119 out of 390 operated cases lost their sight. It turned out that the surgeon didn't follow up his cases at one camp and moved to another with a small gap of 24 hours only. The camps were organised in dharamshalas, linen were not changed and instruments were neither autoclaved nor cleaned, in between surgeries. Following this episode, the Hon'ble Supreme Court of India came out with strict orders on conduction of these surgical eye camps, which are still in vogue. Hon'ble Supreme Court of India took serious cognisance of the fallacies in these camps and directed institution of the strict guidelines in conduction of such eye camps.⁷ Responding to Hon'ble Court's order, various governments in India have laid down norms of service delivery in eye camps.^{8,9} Recently, in September 2010, in Mandala, Madhya Pradesh, 38 out of 118 operated cases lost their sight of which 30 underwent evisceration. It turned out that the OT complex was shared with obstetrics and gynaecology and the upkeep was very poor. In December 2010, 18 out of 168 cases operated at Indore developed endophthalmitis due to Klebsiella contaminated water supply in scrub room. In September 2011, in an eye camp organised by Indian Medical Association at Balod, Chhattisgarh, 334 cases underwent cataract surgery of which 46 developed postoperative pseudomonas infection. The bacteria were later traced from OT trolleys, tables and other surfaces. It is also understood that there was a laxity in following universal asepsis measures and autoclaving.¹⁰

Instead of condemning surgical eye camps for their poor results, as it happened due to safety and reliability issues, it would be more prudent for eye care providers to do a bit of introspection, analyse their mistakes and shortcomings and develop and adopt standard clinical management and administrative protocols to improve upon their surgical eye

camp delivery systems.⁹ It is suggested that difficult and one eyed cases should be operated by the experienced surgeons to minimise complications. Also, the less experienced ophthalmologists should be allowed to operate under direct supervision of seniors. The model described in this paper has been implemented and replicated repeatedly with outstanding success. Once an organisation decides to develop and adhere strictly to such protocols, which may incur a bit more expenditure, eye camps would be able to shed their unsafe and unreliable image.^{11,12}

Camps as already pointed out have become cataract centric due to magnitude of cataract blindness and the dramatic results of surgery. However, as the facilities are taken to the doorsteps, other major causes of blindness can also be tackled. Add on services can be provided for conditions like glaucoma, diabetic retinopathy screening, refractive errors, low vision, etc. thus widening the scope of services delivered through surgical camps.^{13,14,15}

However, one should realise that surgical eye camps are an area of extraordinary stress for the entire team, not to mention the team leader and the organisation, as it is an unfamiliar, uncontrolled environment; part of the stress emanates from being prominently in the limelight, thus exposing oneself to public scrutiny and unscrupulous elements. It is advisable to tread with caution and strictly adhere with the guidelines as advocated by various authorities.^{16,17,18}

CONCLUSION

Owing to the remarkable results, cataract surgery camps are needed to combat the morbidity load of the society. We have learnt from the failures in our environment and have realised that if we follow the standard guidelines results are always encouraging. There is no stress on conducting phacoemulsification cases in the base hospitals where there is an existing functioning operation theatre rather than setting up a new operation theatre. Hence, it is not correct to condemn surgical eye camps for their poor results due to safety and reliability issues. Instead, it is important for eye care providers to do a bit of introspection, analyse their mistakes and shortcomings and develop and adopt standard clinical, management and administrative protocols to improve upon their surgical eye camp delivery systems. The protocols described by us have been derived on the

guidelines of various authorities on the subject and the law of the land and has been implemented and replicated repeatedly with outstanding success and can be adopted by others in the endeavour of decreasing blindness from the world.

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