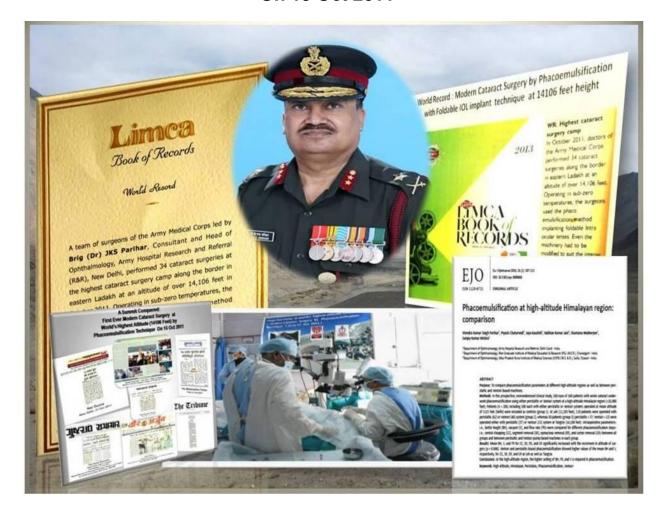
A Summit Conquered: First Ever Modern Cataract Surgery at World's Highest Altitude (14106 Feet) by Phacoemulsification Technique On 15 Oct 2011



By

Maj Gen (Then Brigadier) JKS Parihar ,SM ,VSM\*\*(Retd), Formerly Addl Director General Armed Forces Medical Services (Medical Research , Health &Trg ,Education) & HOD ,Professor & Consultant Ophthalmology & Ant Segment Micro surgery Army Hospital (Research & Referral) Delhi Cantt 10

# Modern Cataract Surgery by Phacoemulsification Technique at High Altitude :The Armed forces module of three tier comprehensive eye care



Maj Gen (Then Brigadier) JKS Parihar (Retd) had organized Eye camps and Community Ophthalmic Services in Eastern Ladakh areas of J&K at high altitude in 2011-12 and performed Phacoemulsification with foldable IOL implantation at 14106 feet height probably maiden event ever and anywhere in the world in the history of Ophthalmic surgery. These activities have been widely acknowledged and acclaimed all over by National/International print and Electronic Media. The Limca Book of Records 2013 has acknowledge and endorsed this event as World Record of Phacoemulsification surgery at Highest altitude of 14106 feet .



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Brig JKS Parihar is performing Cataract surgery by Phacoemulsification technique at 14106 feet height on 15 Oct 2011

First Ever Phacoemulsification with Foldable IOL implant Cataract Surgery at 14106 feet altitude

The Armed forces module of three tier comprehensive eye care has been thoughtfully designed and focused at restoring sight by providing the ultimate comprehensive and modern surgical technology on the anvil, aimed at the Civilian Population residing in the far reaches of Eastern Ladakh, where in addition to extreme cold and breezy environment, the paucity of natural resources and access to modern health care facilities are by far distant for the local populace. The comprehensive health care and community ophthalmic activities have been knitted with other activities of social engineering pertaining to health care, national integration and environmental protection as well. The exercise is also aimed to quantify the solidarity the Indian Armed Forces shares with its fellow citizens residing in such a uniquely beautiful and yet unforgivable environment.

These eye camps have been a culmination of a concerted effort of the entire formation of the Trishul Div wherein invaluable support was provided to the doctors at various stages. This included the numerous small medical camps held in the periphery by the non medical personnels in coordination with the medical staff at places as distant as 200 - 350 Kms from basic and forward surgical setup in the most inhospitable terrain and in extremely adverse weather conditions. These diagnostic camps were equipped with all essential facilities like Mobile lab, ECG and other medical examination. In addition to provide treatment for common medical problems these medical camps helped to identify potential cases for the eye treatment and subsequent surgeries if required. In this phase of the module, about 25 initial screening camps were organized in 2011 and 12 over a period of three months in very remote and discrete villages adjoining Tangtse, Chushul, Demchok, Fukche and Nyoma of Eastern Ladakh, where more than 3200 patients were examined and treated for various common medical ailments as well as screened for surgery. eve

The second tier of comprehensive eye care was comprised of detailed ocular evaluation by eye specialist at various far flung locations, wherein specialized eye examination equipment such as the Keratometer and A Scan biometry were made available at Secondary level diagnostic eye camps during the month of Sep 2011and May –Jun 2012 respectively. The entire exercise involving the Primary and Secondary tier eye care camps saw an unprecedented level of enthusiasm among the populace. The final and third phase has witnessed a rare and unique land mark in the history of modern ophthalmic history where cataract surgeries were performed at the height of 14106 feet height using Phacoemulsification with foldable Intraocular lens implant technique probably first time ever and anywhere in the world .

A total 130 patients have been operated for cataract as third phase of module. The technique involves breaking of the natural cataractous lens within the eye using ultrasound energy to fragment it into smaller pieces thereby emulsifying it and hence the name phacoemulsification. The emulsified lens is then sucked out and an artificial lens is placed within the eye through a small opening. This precise surgery requires utmost skill and deft handling a feat that becomes even more insurmountable at high altitude. The modern machines involve fluidics and vaccum settings that help pace the surgery .These parameters change in a fraction of seconds normally during surgery. At high altitudes setting and controlling these parameters is all the more challenging due to the low atmospheric pressure. To tide over the challenges of performing this surgery at high altitude requires an astute and professionally more than competent surgeon with years of experience backing him.

Since the eye camps drew patients from a wide area of Eastern Ladakh and patients had to be transported by the Indian Army for the same. The extensive logistics arrangements to organize such activities were herculean task. To motivate patients to undergo a surgical procedure and as well for them to also travel almost 200 to 350 Kms was a huge challenge in itself. To convert a forward surgical centre into a standard eye operation theatre equipped with latest surgical equipments required great efforts .In addition to activating the operation theatre, the post operative ward, other logistic facilities were also extended to the patients and their attendants. The latest ophthalmic surgical microscope and Phacoemulsifier machines along with other sophisticated eye equipment were brought in from Delhi and Leh respectively.

# **Research Publications / Presentations at** International /National forum



### Phacoemulsification at high-altitude Himalayan region: comparison

### ar<sup>a</sup>, Piyush Chaturvedi<sup>1</sup>, Jaya Kaushik<sup>1</sup>, Vaibhav Kumar Jain<sup>1</sup>, Shi mar Singh Par

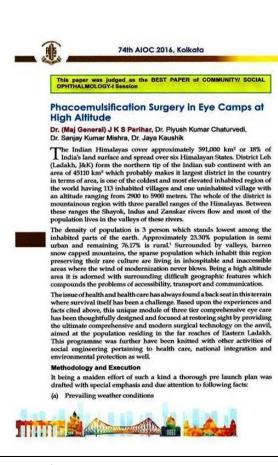
Army Hospital Research and Referral, Delhi Cantt - India Post Graduate Institute of Medical Education & Research (P.G.I.M.E.R.), Chandigarh - India Uttar Pradesh Rural Institute of Medical Sciences (U.P.R.I.M.S. & R.], Saifal, Etawah - India

km<sup>1</sup>, or 27% of the ear an-about 1.2 bil gical advan

iy 31, 2015 er 16. 2015

et al (3) reported high prevalence as the high adjude Tibletan population, which has become a on public heading problem. With the introduction of phaceemulaitication by Cha-Relman (4) in 1957, ophthalmic cataract surgery took a list and the adjude strategy guided, software-based surgers into a new er procedures, treating the These machi mal prevailir

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Scientific article published in European Journal of Ophthalmology (Eur J Ophthalmol)2016;26(2):107113.DOI:10.5301/ejo.5000668 (PMID:26391162) International journal of very high reputation with Impact Factor: 1.068.

Media Appreciation of Cataract Surgery at The High Altitude by Modern Technique of Phacoemulsification Surgery



New Delhi ,31 Oct 2011

New Delhi ,31 Oct 2011



The Maharashtra Times Pune ,31 Oct 2011

### The Gujrat Samachar (Daily News Paper in Gujrati) Ahmedabad, 31 Oct 2011 World Record of Phacoemulsification Surgery at the height of 14106 feet by Brig JKS Parihar, SM,VSM



## Sainik Samachar : Jun 2012 : Sight at Height : Modern Cataract Surgery Camps at 14106 feet height



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Electronic Media (On GOOGLE) Appreciation of Cataract Surgery at the High Altitude by Modern Technique of Phacoemulsification Surgery

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"This is also a part of our research work where we are trying to find if surgeries using septembered matchines can be a traggles. Through the surgery we have ensure that if can be performed successfully. Many of these capacities upon had been virtually long in the dark world of blandmax for many years." General Rivel Dashees, OOC, 1: PT1 Transfullmen basis, booler 20, 3011-11 37		He lied the fail of colordy who consolute we are general phaceometalication with implementation of foldable linter O technique, where a threasound power is used out to break the minute precises, which are then sucked out through a sm foldable lens of the required power is them implanted. Conventional method as channess of failure of a fungery at temperatures there could lead to lot of infection posts su why we carried our machines and surprisingly machine not suitable to the environment. We had to modify setting	Cular Lenses e cataract into all incision and a Ave did not try the re too high. The rgery. That is s parameters are
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Glimpses of First Ever Mega Camp at the height of 14106 feet : Modern Cataract Surgery by Phacoemulsification Technique at High Altitude : Sep - Oct 2011



Primary Screening Camps in a remote locations about 200 Km away from main city



Primary Screening : Recording of Visual Acuity by Non Medicals

# Secondary Eye Camps: Treatment & preoperative Investigations for subsequent Phacoemulsification Surgery





Secondary Eye Camp at High Altitude : 28 -29 Sep 2011



A Scan Biometry by Ophthalmologist at Secondary Camp to calculate presumed power of IOL implant

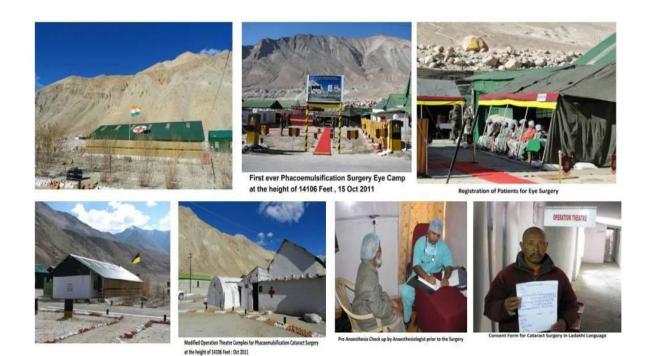


Refraction with the help of Streak Retinoscope at Secondary Camp



Keratometry by Ophthalmologist at Secondary Camp to calculate presumed power of IOL implant

Tertiary Eye Camps on 15 to 17 Oct 2011 at the height of 14016 feet to conduct Cataract Surgery by Modern technique of Phacoemulsification with Foldable Intra Ocular Lens implantation





Pre Operative Care & Preparation by Nursing Staff



Surgeon Gearing up for the first ever Phacoemulsification Cataract Surgery at the height of 14106 feet on 15 Oct 2011



First ever Phacoemulsification Cataract Surgery is under progress at the height of 14106 feet on 15 Oct 2011



Post Operative Care.



Post Operative Care by Operating Surgeon



Make Shift Eye Ward for Post Operative Care

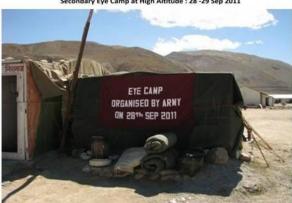




Secondary Eye Camp at High Altitude : 28 - 29 Sep 2011



Reception & Waiting Area : Secondary Eye Camp at High Altitude : 28 -29 Sep 2011

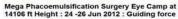


Secondary Eye Camp at High Altitude : 28 - 29 Sep 2011

# Glimpses of Second Mega Eye Camp at the height of 14106 feet: Modern Cataract Surgery by Phacoemulsification Technique at High Altitude : 24 – 26 Jun 2012









Screening Camp at High Altitude Jun 2012



Eye Camp at High Altitude : Jun 2012 Pre Anaesthetic checkup



Second Mega Eye Camp at 14106 ft height : 24 - 26 Jun 2012 : Operating Team with patient soon after Phacoemulsification Surgery

## Post Operative Ward & Care at 14106 feet



Mega Eye Camp at High Altitude of 14106 ft: Post Operative care : Jun 2012



Mega Eye Camp at High Altitude : Post Operative Care by Surgeon : Jun 2012



Drug Distribution : Mega Eye Camp at 14106 ft height : 24 - 26 Jun 2012



2nd Mega Eye Camp at 14106 ft height : 26 Jun 2012 : Post Operative followup



We are always with you

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We are together : solidarity of Indian Armed forces