



STUDY OF EFFICACY AND SAFETY OF 'CHANGS HYDRODISSECTION CANNULA' IN MANUAL SMALL INCISION CATARACT SURGERY

KEYWORDS

CHANGS HYDRODISSECTION CANNULA, Manual small incision cataract surgery (SICS), hydrodissection.

Dr. Sohel Irfan Mohd Khan

Associate Professor, Dept. of Ophthalmology, Govt. Medical College, Nanded, Maharashtra, India.

Dr. Nikhil Rajendra Kamble

Senior Resident, Dept. Of Ophthalmology, Indira Gandhi Govt. Medical College, Nagpur, Maharashtra, India.

ABSTRACT Purpose- To study efficacy and safety of CHANGS HYDRODISSECTION CANNULA for doing hydrodissection in Manual small incision cataract surgery (SICS) in all types of cataract.

Design- Prospective, Interventional, Institutional based, Observational study.

Patient and method- Patients were selected randomly irrespective of age and sex.

Thorough pre-op investigations were done to diagnose the type of cataract.

Intra-operative CHANGS HYDRODISSECTION cannula was used during hydrodissection to see the prolapse of the nucleus.

Result- Hydrodissection by Changs cannula is safe in Manual SICS. We found that in 95.4 % patient, equator of nucleus prolapsed in first attempt.

Conclusion- Hydrodissection by Changs cannula in Manual Small incision cataract surgery(SICS)is proved to be safe, extremely effective.

Hydrodissection in manual SICS very important step in prolapsing nucleus out of the capsular bag. Fine's hydrodissection is defined as separation of cortex from adjacent capsule. It ensures nuclear rotation, loosens and facilitates removal of epinuclear shell and shears the cortico-capsular attachment making cortical aspiration safer and faster [1]. Hence complications related to prolapsing of the nucleus and cortical clean-up are effectively avoided.

Wrongly done hydrodissection may lead to various intra-operative complications. Such as difficult removal of remaining cortex, which can lead to zonular dehiscence and may lead to posterior capsule rent[2].

CHANGS HYDRODISSECTION CANNULA ensures very effective prolapse of one pole of the nucleus out of the capsular bag. Hence reduces surgical time and aids in better surgical outcome[3].

Our study will explore the efficacy of CHANGS HYDRODISSECTION cannula during hydrodissection in Manual SICS.

Patient and Method-

This prospective study was carried out over a period of 24 months from 2013 to 2015. All patients were operated by same surgeon with Manual small incision cataract surgery. All patients of all age group and either sex were included in study. Exclusion criteria were patients having traumatic cataract, posterior polar cataract, zonular dialysis, eyes in which can-opener capsulotomy done, patients not willing to be a part of study.

Description of instrument-

It is a 27 gauge metallic cannula bent at 90 degree, creating a fan shaped fluid jet. It fits snugly between anterior capsular rim and underlying cortex.

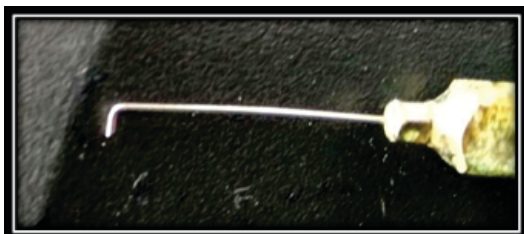


Figure 1 - Changs Hydrodissection Cannula

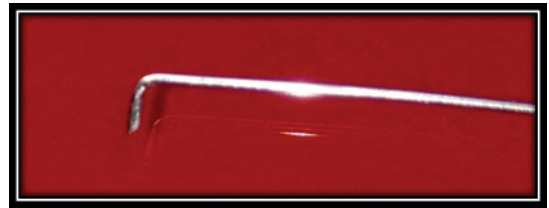


Figure 2 - Changs Hydrodissection Canulla Meatllic Tip

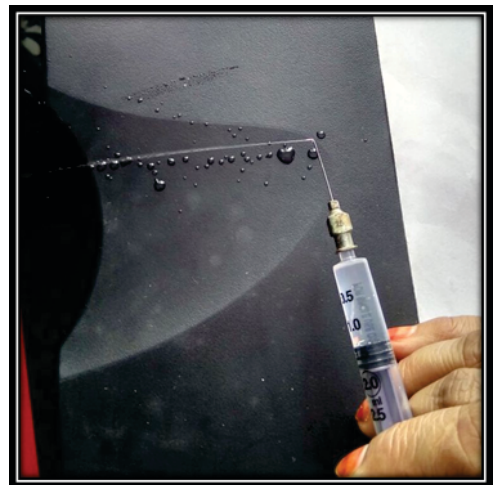


Figure 3 - Fluid Jet

Surgical technique-

All the routine steps for manual SICS were followed. In brief, under peribulbar block, after doing the conjunctival fornix based peritomy, frown shaped scleral tunnel was made. After staining anterior capsule with blue dye, free hand large size continuous curvilinear capsulorhexis of size 6-7 mm was performed.

To do the hydrodissection, Changs cannula was exclusively used. Cannula is placed under anterior capsule at 1 to 2 O' clock position. Slow and steady stream of Ringer Lactate(RL) was injected by tenting the anterior capsule. Hydrodissection wave as observed posteriorly with resultant hydroprolapse of one pole of the nucleus which was then subsequently removed by viscoexpression. After thorough

cortical clean up, rigid PMMA Posterior Chamber intra ocular lens (PCIOL) is placed in capsular bag.

Result-

We included 2996 eyes in our study. Of which, Males were - 1631(54.4%) and Females were-1365(45.6%).

We noticed uneventful hydrodissection in all eyes. In 95.4% of patient i.e. in 2858 eyes, equator of the nucleus prolapsed in first attempt.

Only in two cases we encountered a small radial tear at anterior capsule at 1-2 O' Clock position which were converted to can opener capsulorhexis and rest surgery procedure was uneventful.

Discussion-

Chang's cannula is 27 gauge metallic cannula bent at 90 degree creating fan shaped fluid jet. It fits snugly between anterior capsule rim and underlying cortex[3].

This ergonomically designed cannula used in this study greatly facilitated hydro prolapse of the one pole of nucleus from the capsulorhexis edge, reducing one more challenging step of nuclear subluxation out of the capsular bag into anterior chamber. One more advantage is that it also loosens the sub-incisional cortex[3].

In our study, Hydrodissection by Chang's cannula was found to be safe in manual SICS.

We found efficient prolapse of nucleus pole in AC in first attempt(95%). In most of the cases no need arise for repeat hydrodissection. So it saves a lot of time and intra operative manoeuvres.

Conclusion-

Hydrodissection by Chang's cannula in Manual Small incision cataract surgery(SICS) is proved to be safe, extremely effective.

Financial Interest- None

Reference-

1. Peng Q, Apple DJ, Visessook N, et al, (2000) Part 2: Enhancement of cortical clean up by focusing on hydrodissection.
2. Assia E, Blumenthal M et al. (1992) Hydrodissection and viscoextraction of nucleus in planned ECCE, Eur J implant Refractive surgery, 4, 3-8.
3. David f. Chang, 2013, Phaco Chop and Advanced Phaco Techniques, Thorofare, NJ, Slack Incorporated