

Manual Small Incision Cataract Surgery is Almost as Effective But Less Expensive than Phacoemulsification

Dr. Anil Narayan Kulkarni, Dr. Pooja Bhomaj, Dr. Gauri Bhade
(Presenting Author: Dr. Gauri Bhade)

As the world's population is aging, the incidence of cataract has increased. At present in India there is a backlog of 22 million cases. To cope with this, we would need to operate 5 million cases per year for the next 10 years as against the present rate of 1.2 million cataract surgeries per year.

Manual small incision cataract surgery is a term reserved for non-phaco cataract surgery through a small corneo-scleral tunnel (6-7mm) with help of self sealing corneal valve, through which the nucleus is delivered intact or by dividing into two or three pieces.

The advantage of this technique is that no sutures and early visual rehabilitation. The post op astigmatism is less and predictable. It doesn't require costly setup of phacoemulsification.

To compare safety, efficacy and cost effectiveness of MSICS with Phacoemulsification in high volume cataract surgeries (camp).

Materials and Methods

Randomised prospective clinical trial.

Settings: Multispeciality eye hospital, Lions NAB eye hospital Miraj. 200 cases were randomly assigned to MICS and Phacoemulsification.

MICS 100 cases (Group 1).

Phacoemulsification 100 cases. (Group 2)

Visually significant senile cataract were included in the study. Operated by experienced surgeon.

Inclusion criteria: Patients from either sex were included. Visually significant senile cataract, age group between 20-80 years.

Exclusion criteria: Astigmatism more than 2D Miotic pupil. Other ocular pathology that could reduce vision like retinal pathology, corneal opacity. Paediatric cataract, traumatic cataract, subluxated cataract. History of ocular surgery.

Main outcome measures: 1) Best corrected visual acuity, 2) Induced astigmatism, 3) Surgical time, 4) Surgical cost, 5) Spectacle independence, 6) Patient satisfaction at the end of 40 days.

Results

Table-1

Age group	Males	Females
20-30	0	2
30-40	6	5
40-50	11	10
50-60	30	19
60-70	50	43
70-80	14	10
Total	111	89

Table-2: Post operative astigmatism at the end of 40 days

Astigmatism	MSICS (%)	Phaco (%)
Up to 0.5D	9	60
0.5-1D	46	27
1-2D	36	10
>2D	9	3

Table-3: Induced Astigmatism

	MSICS	Phaco
WTR	10	33
ATR	85	64
Oblique	5	3

Table-4: Uncorrected astigmatism at the end of 40 days

UCVA	MSICS	Phaco
6/6	4	24
6/9-6/18	63	60
<6/24	23	16

Table-5: Best corrected visual acuity

BCVA	MSICS	Phaco
6/6	30	56
6/9-6/18	69	42
<6/24	1	2

Table-6: Uncorrected near vision at the end of 40 days

Near vision	MSICS (%)	Phaco
>N9	35	3
<N9-	46	16
N18	10	25
< N18	9	56

Table-7: Subjective Grading by patients regarding comfort levels at the end of the study
Grade A : 7-10 Grade B : 4-7 Grade C : <4

Comfort grade	Group1	Group2
A	46%	54%
B	48%	38%
C	16%	8%

Table-8: Cost of consumables for surgery

	MSICS	Phaco
Blades	30	30
Irrigating fluids	12.5	12.5
Drapes	5	10

Visco elastic	15	15
Gloves	8	8
Phaco machine	-	150
IOL	60	60/750
Drugs	25	25
Blurex	8.5	8.5
	Rs. 164	Rs. 319

Table-9: Comparison of critical parameters between study groups

Parameter	Group1	Group2
Surgical time	7 min	15 min
Surgical cost	Rs.164	Rs.319
Near vision better than N12	81%	19%
>6/18	98%	98%
Mean astigmatism	1.16D	0.6D
Subjective grading (A)	46%	54%

Discussion

MSICS is faster surgery

MSICS – 7-10 mins

Phaco----10-20 mins

Surgical time for Phaco changes with type of cataract

The cost of the surgery was calculated considering that each blade set was used for 5 cases, one bottle of irrigating fluid(500ml) was used for 2-3 cases ,also the phaco machine cost was distributed over a period of five years (average 10 cases per day)

This is in a high volume setting hence reduces the cost of surgery per case. The surgical cost will be higher if lesser surgeries are done per day. .

The fixed commodity cost was worked out to be 500 per case is not included in the table.

The majority of the patients we have operated are from rural background with very basic requirement. At 40 days follow up, we noticed better near vision in MSISC group and patient was satisfied with quality of vision without spectacles . But for the Phaco group the first complaint was that their near vision is grossly hampered .

Gogate P studied on similar basis and concluded that MSICS is more cost effective and less time consuming.

K M Nagpal studied that pseudophakia induced astigmatism give desirable effect of good near

and distance vision due to Sturm's conoid effect.

1) Both MSICS and Phaco achieved excellent visual results and minimal surgical

complications. 2) But MSICS is faster, cheaper, less technology dependent hence better surgical technique for high volume surgical load.

References

1. Gogate P et al. Why do phacoemulsification? Manual small incision cataract is almost as effective and less expensive. *Ophthalmology*. 2007;114(5):965-8.
2. Ruit Sanduk et al. Prospective randomized clinical trial of Phacoemulsification vs Small incision cataract surgery in Nepal. 2007;143:32-8.
3. K M Nagpal et al. Is pseudophakic astigmatism desirable goal. *IJO*. 2000;48(3):213-6.
4. P.M Gogate et al. Is Manual small incision cataract surgery more affordable in developing countries. *BJ Ophth* 2003;87(7):843-6.