

Narrative Review : Characteristics Of Senilist Cataract Surgery Complications With Phacoemulsification Technique

Andi Dwyndha Pratiwi^{1*}, Marlyanti Nur Rahmah², Diah Tantri Darkutni³, A Faridah Amien⁴,
Hanna Aulia Namirah⁵

Program Studi Profesi Dokter Fakultas Kedokteran, Universitas Muslim Indonesia¹, Departemen Ilmu Kesehatan Mata Fakultas Kedokteran, Universitas Muslim Indonesia², Departemen Ilmu Kesehatan Mata, Universitas Muslim Indonesia³

| Article Info | ABSTRACT |
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| Keywords: Senile Cataract, complications surgery, phacoemulsification | Disease cataract is one of eye disorders human, cataract is condition Where lens eye experience turbidity caused Because hydration lens (additional fluid), denaturation of lens proteins or happen consequence both of them. Surgical action is governance definitive For cataract moment This, Purpose of Surgical Procedure cataract is For repair sharp vision consequence cloudy lens. Surgical technique phacoemulsification have excess like healing fast wound healing, repair vision more good, and no cause astigmatism post surgery. Regardless from benefit action surgery cataract with technique phacoemulsification that is For repair sharp vision, but action surgery cataract with technique phacoemulsification also does not off from complications that can occur happen Good during or after Operation. Research This is studies literature with approach narrative review. Reviewed literature is literature obtained from the database that has been accredited or indexed sinta. The result of studies literature This obtained that complications surgery senile cataract with technique phacoemulsification can cause complications intraoperative and also postoperative. |
| This is an open access article under the CC BY-NC license | Corresponding Author: Andi Dwyndha Pratiwi Universitas Muslim Indonesia adwyndhapratiwi23@gmail.com |



INTRODUCTION

Cataract is a condition Where lens the eyes that are usually clear and transparent become cloudy. Origin of the word cataract from the Greek word *cataracta* which means waterfall. This is due to Because patient cataract as if see something like covered by waterfall in front of his eyes. Cataracts can due to Because the disturbance mechanism control water and electrolyte balance, because denaturation of lens proteins or combination both of them. (Sudrajat, A et al., 2021)

Reason the occurrence disease cataract various. However, generally occurs at the age of advanced (cataract) senile), cataracts can also happen in a way congenital consequence viral infection during growth period fetus, genetics, and disorders development. besides that, therapy corticosteroids metabolic, traumatic, and disorders systemic or metabolic, such as

diabetes mellitus, galactosemia, and dystrophy myotonic, is factor the occurrence cataracts. (Zulfina et al., 2021)

According to WHO, cataracts responsible answer against 51% of the world's blindness which represents around 20 million people. Although cataract can handled with surgery, but Still many countries still own limitations For patient can access surgery, so that cataract Still become reason main blindness in the world. (Musfirah et al., 2020). Surgical procedures is governance definitive For cataract moment This. Purpose of Surgical Procedure cataract is For repair sharp vision consequence cloudy lens. (Astari et al., 2018)

Phacoemulsification technique have excess like healing fast wound healing, repair vision more good, and no cause astigmatism post surgery. Phacoemulsification techniques can also be used control depth camera anterior ocular and have effect protector to pressure positive vitreous and hemorrhage choroid. Surgical technique cataract type This become choice major in developed countries. (Astari et al., 2018). Regardless from benefit action surgery cataract that is For repair sharp vision, but action surgery cataracts also do not off from complications that can occur happen Good during or after operation. Engineering knowledge and strategy correct operation required For reduce risk the occurrence complications in patients cataracts.(Howes FW et al., 2022)

Most of the complications after operation cataract No seriously, but a number of between complications can bother visual and impactful results negative on expectations patient. So that We need know For prevent more early the occurrence complications (Pitta R et al., 2018). Based on description on push researcher For know more carry on about characteristics complications surgery senile cataract with technique phacoemulsification through studies assessment with approach literature review.

METHOD

Types of research in research This use studies literature with approach *narrative review*. Research This done with review in a way narrative to related articles with complications surgery senile cataract with technique phacoemulsification. Reviewed literature is literature that has been published on the database that has been accredited Synta such as Google Scholar, Elsevier/Clinical Key, and Pubmed. The literature used in the form of studies report cases that have been rise in 10 years final since study This started. The literature obtained in accordance with objective study This obtained totaling 15 pieces of literature later arranged in a way narrative.

RESULTS

Based on results search obtained as many as 3,215 articles. Journal or article filtered on base title, abstract, and keyword search "Complications Surgery", "Senile Cataract", "Phacoemulsification" 88 articles were obtained which will be processed back. All journal or article filtered return see overall appropriate text, namely 21 journals or article in the form of study research. Search results after filtered, namely 10 years the last one then filtered return with see conformity Contents articles and accessibility article. Final result from search and

filter 15 relevant articles found For used in this narrative review.

Table 1. Results table review literature

| No. | Journal (Year, Origin, Author) | Title | Methods and Diagnosis | Complications | Disease Comorbid | Conclusion |
|-----|--|--|--|--|------------------|--|
| 1. | Journal of Medical Studies (Indonesia, Southeast Asia, 2023) Natasya Fadia Haya Anindya Hanis, et al. | Improvement overview vision as well as complications intraoperative or postoperative in patients operation senile cataract at H. Abdul Manap City Hospital Jambi period January 2021 – December 2021 | Observational descriptive Senile cataract | <ul style="list-style-type: none"> • Complications intraoperative phacoemulsification, namely rupture posterior capsule (4.35%). • Complications post-operative phacoemulsification, namely SIA (4.35%) and corneal edema (4.35%). • Complications intraoperative EKEK, as many as 25 cases, namely : prolapse vitreous (21 eyes), posterior capsule rupture (2 eyes), iris prolapse (1 eye), and iridodialysis (1 eye). • Complications post- EKEK surgery, as many as 49 cases, namely : corneal edema (5 eyes), cystoid macular edema (3 eyes), uveitis (3 eyes), and surgically induced astigmatism (38 eyes). | | Characteristics patient postoperative senile cataract most common age 60-69 years and type sex man more Lots. Vsus on the whole eye patient postoperatively in EKEK, SICS, and phacoemulsification techniques has experience repair. Complications intraoperative or The most frequent postoperative cases are the EKEK technique. |

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| | | | | <ul style="list-style-type: none"> • Complications intraoperative SICS, as many as 2 cases, namely : prolapse vitreous (1 eye) and posterior capsule rupture (1 eye). • Complications Post-operative SICS as many as 2 cases, namely corneal edema (1 eye), cystoid macular edema (1 eye) and surgically induced astigmatism (5 eyes). | | |
| 2. | Journal Medical Meditek (Indonesia, Southeast Asia, 2018) Silvia Gunawan, et al. | Prevalence Complications Operation Cataract with Phacoemulsification Technique at Family Medical Center Hospital January- December 2016 Period | Observational descriptive Senile cataract | <ul style="list-style-type: none"> • Complications intraoperatively occurred, 1 piece the eye on the iris is traumatic • Complications post-operative events that occur is 3 pieces eye experience syndrome eye dry, 5 pieces eye experienced corneal edema, 8 pieces eye experience syndrome toxic anterior segment, 1 piece eye experience hypertension oculi, and 3 pieces eye experience turbidity posterior capsule. | <ul style="list-style-type: none"> • Hypertension as much as 9.1% • Diabetes mellitus and Hypertension as much as 12.1% • Diabetes mellitus as much as 7.3 % | From the results study obtained complications highest that is syndrome toxic anterior segment with number incident 4.8% (8 pieces) eyes), and corneal edema 3.0% (5 pcs eye). Syndrome toxic anterior segment and corneal edema is reversible complications, improving in 1-2 weeks postoperative. |

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| 3. | Faculty of Medicine and Health Science (Indonesia, Southeast Asia, 2018) Ichwan Putra Wijaya, et al. | Incident Number Post-Surgical Complications Cataract with Phacoemulsification Technique at PKU Muhammadiyah 1 Hospital Yogyakarta | Retrospective analytic Senile cataract | Seen existence Complications of Cystoid Macular Edema occurred in 1 person (1.1%) from a total of 92 records. medical and not found complications other | <ul style="list-style-type: none"> • Diabetes mellitus as many as 12 • Surgery Intraocular as much as • Glaucoma as many as 1 | Surgery cataract use technique Phacoemulsification at PKU Muhammadiyah 1 Hospital Yogyakarta resulted in number complications post surgery by 1.1% of all patients undergoing surgery. |
| 4. | Archives Brazilian Ophthalmology (Brazil, South America 2019) Larisa Lucas, et al. | Complications in the first 10 phacoemulsification cataract surgeries with and without prior simulator training | Retrospective Senile cataract | <ul style="list-style-type: none"> • Complications without stimulator: 13 ruptures posterior capsule (18.57%), one aphakia (1.43%), three eye with dislocation fragment nucleus to in cavity vitreous (4.29%), and two times conversion to KPL (2.86%), • Complications with stimulator: seven rupture posterior capsule (10%), one eye with dislocation fragment nucleus to in cavity vitreous (1.43%), and one conversion to ECS (1.43%) | | Training with surgical simulator cataract Eyesi ® in significant reduce amount complications intraoperative in 10 operations cataract phacoemulsification the first thing done by a doctor specialist eye. |
| 5. | MedPulse International Journal of | Study of complications and outcomes of phacoemulsification | Observational retrospective | • Complications common intraoperative happen is rupture posterior capsule with | | Incident complications operation cataract with technique |

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| <p>Ophthalmology (India, South Asia, 2021) Kedar Dighe, et al.</p> | <p>cataract surgery at a tertiary hospital</p> | <p>Senile cataract</p> | <p>lost vitreous (31.82%), rupture posterior capsule without lost vitreous (18.18%), zonular dialysis (13.64%), and ablation Descemet's membrane (13.64%). Complications other more intraoperative seldom happen is failure implantation lens (9.09%), iris prolapse (4.55%), elongation capsulorhexis (4.55%), and damaged haptics (4.55%). • Complications common post - operative happen are corneal edema (37.5%), leakage wounds (20.83%), glaucoma secondary (12.5%), and defects epithelium (12.5%). Complications post-operative other more seldom happen is hyphema (8.33%), material retained cortical (4.17%), and decentered IOL (4.17 %).</p> | <p>phacoemulsification more a little bit, but anticipation to complications This Still less, and preparation and action prophylaxis can lower incident complications This.</p> |
| <p>6. Indian Journal of Public Health Research & Development</p> | <p>Study of Complications and Outcomes of Phacoemulsification Cataract Surgery</p> | <p>Observational retrospective Senile cataract</p> | <p>• Intraoperative Complications : The rupture posterior capsule with vitreous loss 34.78%, Rupture posterior capsule</p> | <p>Although risk problem from operation cataract with technique phacoemulsification more</p> |

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| | (India, South Asia, 2022) | Gudla Vasantha | | without Vitreous loss 17.39%, Zonular Dialysis 13.04%, Detachment Descemet's membrane 13.04%, Failure implantation lens 8.69%, Iris Prolapse 4.34%, Elongation Capsuloreflexia 4.34%, Haptic Fracture 4.34%. • Postoperative complications : Corneal edema 37.03%, wound leak 22.22%, glaucoma Secondary 17.39%, damage epithelium 13.04%, hyperemia 8.69%, material retained cortical 4.34%, IOL that has No worthy 4.34%, | | low, anticipation to risk this, and preparation and action prevention, can help reduce risk difficulty. |
| 7. | Bosowa University (Indonesia, Southeast Asia 2022) | Characteristics and Outcomes in Patients Undergoing Senile Cataracts Operation Catarrhal Phacoemulsification Technique at Dr. Tadjuddin Chalid General Hospital in 2021 | observational with studies descriptive retrospective Senile cataract | Complications from operation cataract technique phacoemulsification most without complications namely 26 cases (92.86%). | Hypertension 7 cases (25%). | Research conclusion obtained repair results vision sufferer before operation and the 21st day after operation that is as many as 22 cases (78.57%) from 28 samples case. There is also repair on the patient's IOP before and 21st day after operation as many as 27 cases (96.43%) from 28 samples case. |

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| <p>8. Investigative Ophthalmology & Visual Science (Mexico, South America 2019) Ruben Espino Icazbalceta, et al</p> | <p>Complications in resident-performed phacoemulsification cataract surgery at an ophthalmology center in Mexico City: Results of 7 years.</p> | <p>Observational retrospective Senile cataract</p> | <p>The most frequent complications found is rupture posterior capsule in 51.1%, zonular dialysis in 13.9%, tear rexis in 13.3%, Descemet ablation in 7.8%, incision wounds that do not heal made with both in 2.7%, and retrobulbar hemorrhage in 2.5% of cases.</p> | <p>Amount operated patient during 7 year period This range around 35,000 in the department Anterior Segment at home our hospital, with 733 complications reported. This produce incident complications in 2.1% of operations. The most common happen is rupture posterior capsule in 51.1%. Complications This can handled with the same procedure on almost all case and only need operation additional 6.6% (posterior vitrectomy for remove fragment lens from vitreous cavity). Rupture rate reported posterior capsule in literature is around 1-3%, our research shows same findings even in residents who are during training.</p> |
| <p>9. British Journal of Ophthalmology:</p> | <p>Complications in resident-performed</p> | <p>Retrospective</p> | <p>The most frequent complications found among others disturbance</p> | <p>Resident can do phacoemulsification with</p> |

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| | (United States, North America, 2020) | phacoemulsification cataract surgery at New Jersey Medical School | Senile cataract | posterior capsule occurred in 48 (6.7%), loss vitreous in 39 (5.4%) and fragments dislocated lenticular in 7 (1.0 %) of the 719 cases performed with technique phacoemulsification. | Good with level very low complications, without training previously with technique extraction cataract extracapsular |
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| 10. | Journal of Community Empowerment for Health (Indonesia, Southeast Asia, 2019) | Comparison complications between phacoemulsification and manual small-incision cataract surgery (mSICS) in surgery cataract mass : A study cohort retrospective | Cohort retrospective Cataract | Complications in the form of tear capsule posterior lens and aphakia in phacoemulsification, | Amount complications tear capsule posterior lens and aphakia in the technique phacoemulsification different meaningful between level operator skills. |
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| 11. | National Research Health Journal (Indonesia, Southeast Asia, 2017) | Incision Type Relationship Cataract with Incident Dry Eye Syndrome in Post-Operative Patients Cataract | Descriptive correlation Cataract | There were 5 respondents who underwent it phacoemulsification experience syndrome eye dry. | Types of incisions cataract own significant relationship to incident syndrome eye dry. Therefore that, nurse expected can give care and provide IEC (communication, information and education) for reduce complications that occur. |

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| I Nyoman Widiadnyana, et al. | | | | | |
| 12. | Althea Medical Journal (Indonesia, Southeast Asia, 2014) Nadia Khairina Budiman, et al. | Success Rate of Phacoemulsification for Cataract in Patients with High-Degree Myopia in National Eye Center Cicendo Eye Hospital Bandung, Indonesia | Descriptive Cataract | Corneal edema as 1 day complication post-surgery phacoemulsification Enough Lots happen that is as much as 45.6%. | Procedures for cataracts myopia tall show results good vision and complications minimum, but in accompanying cataracts myopia tall Still there is patients who have refraction sufficient manifest heavy. |
| 13. | MVP Journal of Medical Sciences (India, South Asia, 2021) Rajas Premraj Daware | Intraoperative Complications during Phacoemulsification in Cataract Surgery at a Tertiary Care Hospital | Observational prospective Cataract | Complication rate intraoperative in our research is 9.1%. Among complications said, difficulties emulsification nucleus (5.4%) is the most common occurred, followed by posterior capsular rent (2.2%), a complication associated with with CCC (1.6%). Iris prolapse occurred in 1.1%, while ablation Descemet's membrane, loss of vitreous and decreased nucleus each occurred in one (0.5%) patient. | In our study, the level of complications intraoperative is 9.1% which is comparable with report previously. Difficulty in emulsification nucleus is the most complications happen |

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| 14. | Pakistan Journal of Ophthalmology (India, South Asia, 2021) Abrar Ali, et al. | Phacoemulsification: Complications in First 300 Cases | Retrospective Cataract | <ul style="list-style-type: none"> • Complications intraoperative that is the rupture posterior capsule is the most common occurs in cases our beginning. • Complications postoperative namely corneal edema, after three week, vision to be 6/12 or more good in 83% of cases. | The level of complications on the curve learning beginning more high, which is not satisfying for doctor surgeon and patient. More results Good achieved with more Lots experience and adopt more techniques Good. |
| 15. | International Archives of Medical Research (Istanbul, Turkey, 2019) Sedat ava | Intraoperative Surgery in the Learning Process | Retrospective Cataract | Complications intraoperative in phacoemulsification detected as rupture posterior capsule in 36 cases, capsular tear in 20 cases, iris defect or iridodialysis during emulsification nucleus in 20 cases, resolution operation as classical ECCE in 2 cases, zonulosis (zonular dialysis) in 2 cases, zonulosis (zonular dialysis) in 2 cases, rupture posterior capsule and nucleus prolapse in 2 (1.8%) cases. | In our research, we found that Lots complications important intraoperative can seen during the learning process surgery phacoemulsification. Therefore that, level complications can reduced with increase experience in surgery phacoemulsification and perform selection more cases Good. |

Discussion

Based on review library characteristics complications surgery senile cataract with technique phacoemulsification can cause complications intraoperative and also post-operative, In line with development knowledge medicine and technology, action surgery cataract experience change drastically. Currently, phacoemulsification is technique operation the most common cataract used. The purpose of phacoemulsification is For to get sharp vision without correct with time get well soon 2 as well as complications minimal surgery.

From the results findings, criteria eligibility filled by 15 studies published 10 years final that is 2014 to 2024 and take 100% journal based article journal. Research by Natasya Fadia Haya Anindya Hanis et al (2023) presents research originating from from Indonesia, Southeast Asia. Based on results research, characteristics patients are dominated by groups age 60-69 years and type sex man more many. Vision before and after operation cataract with EKEK, SICS and phacoemulsification techniques experience repair. Complications intraoperatively using the EKEK technique as many as 25 eyes patient including prolapse vitreous (21 eyes), rupture posterior capsule (2 eyes), iris prolapse (1 eye) and iridodialysis (1 eye). While complications postoperatively using the EKEK technique in 49 eyes including corneal edema (5 eyes), macular edema cystoid (3 eyes), uveitis (3 eyes), and surgically induced astigmatism (38 eyes). Complications intraoperatively in the SICS technique in 2 eyes patient including prolapse vitreous (1 eye) and rupture posterior capsule (1 eye). While complications postoperatively using the SICS technique in 2 eyes including corneal edema (1 eye), macular edema cystoid (1 eye) and surgically induced astigmatism (5 eyes). Complications intraoperative technique phacoemulsification only obtained in 1 eye patient, namely rupture posterior capsule. While complications post-operative technique phacoemulsification as many as 2 eyes including corneal edema (1 eye) and surgically induced astigmatism (1 eye). Intra and postoperative complications are greatly influenced by operator skill and technique. operations performed. In rupture posterior capsule and prolapse vitreous can influenced by perfection at stage capsulotomy performed by the operator. Corneal edema is complications post-operative the most. This is can happen Because existence inflammation or injury to the endothelium cornea during the operation process cataracts, as well as mechanical trauma consequence effect from use solution irrigation. Because cornea is one of the refraction media which if There is injury to the endothelium cornea can cause worsening vision in patients. (Hanis et al., 2023)

Research by Silvia Gunawan et al. (2018) presents research originating from from Indonesia, Southeast Asia. Research This show that operation cataract use technique phacoemulsification at Family Medical Center Hospital resulted in number incident complications a total of 21 pieces eyes (12.7%) and those who do not experience complications a total of 144 pieces eyes (87.3%). Of the 21 pieces eyes that experience complication, one fruit eye experience complications intraoperative and 20 pieces eye experience complications postoperatively. From 165 pieces operated eye, complications the highest that occurred that is syndrome toxic anterior segment with number incident 4.8%, followed by with 3.0% corneal edema. Intra and postoperative complications especially corneal edema that occurred in the study This nature reversible, improving in time One week

and not until cause keratopathy. From the results study conducted by Claesson, as many as 43% of patients experiencing corneal edema persistent quick after operation cataracts, factors risk main allegedly consequence phacoemulsification and disease endothelium that has There is previously.(Gunawan et al., 2018)

Study Ichwan Putra Wijaya et al (2018) present research originating from from Indonesia, Southeast Asia. Research This show results that surgery cataract use technique Phacoemulsification at PKU Muhammadiyah 1 Hospital Yogyakarta resulted in number complications post surgery by 1.1% of all patients who are operated on, things This in accordance with study previously that is number incident not enough of 5%. Intra and postoperative complications especially in the form of cystoid macular edema (CME), progressive retinopathy diabetic in complications of diabetes mellitus, inflammation and glaucoma secondary.(Wijaya et al., 2018)

Study Ichwan Larisa Lucas et al (2019) present research originating from from Brazil, South America. Research This is study First in Brazil about use of simulators as tool help learning For operation cataract phacoemulsification. Although study This own limitations, including design retrospective in his analysis, however No There is the mistake resident use tool very productive learning this, and in the end put patients at higher risk high. Intra and postoperative complications happen because lack of experience using a surgical simulator cataract Eyesi ®, which is significant reduce amount complications intraoperative in 10 surgeries cataract phacoemulsification the first thing done by a doctor specialist eyes, compared with results obtained doctor specialist eyes that are not get training special this.(Lucas et al., 2019)

Research by Kedar Dighe et al. (2021) presents research originating from from India, South Asia. Incident complications operation cataract with technique phacoemulsification Still less, but anticipation to complications this and also the preparation as well as action prophylaxis can reduce incident complications This. Intra and postoperative complications can reduced with proper training for doctor eye participant training can reduce complications that occur more beginning during the training period. (Dighe et al., 2021)

Study Gudla Vasantha et al (2022) present research originating from from India, South Asia. In the study This 50 patients were found experience complications in surgery cataract phacoemulsification. Dominance patient man reached 54% and women 46%. The ratio man : woman is 1.17:1. Complications intraoperative like rupture posterior capsule with lost vitreous, rupture posterior capsule without lost vitreous, Detachment Descemet's membrane, Failure implantation lens, Iris prolapse, Elongation Capsulorhexis, and Haptic Damage seen. Complications post operation such as corneal edema, leakage wound, glaucoma secondary, defect epithelium, hyphaemia, matter retained cortical and damaged IOL. Intra- and postoperative complications can minimized with teach to resident phacoemulsification with results satisfying aesthetics and risk problem minimal surgery.(Vasantha et al., 2022)

Study Salni et al (2022) present research originating from from Indonesia, Southeast Asia. Research results from 28 samples study obtained 18 cases of women and 10 cases of men with group age most that is age advanced (60-74 years) 11 cases, disease

accompanying most is hypertension 7 cases, pre- operative vision < 6/60 there were 20 cases with IOP < 21 mmHg, namely 26 cases, vision day first post operation < 6/60 there are 17 cases with IOP < 21 mmHg, namely 22 cases, vision Sunday first post operation 6/6-6/18, namely 14 people with IOP < 21 mmHg, namely 26 cases, visual acuity Sunday third post operation 6/6-6/18, namely 18 people with IOP < 21 mmHg, namely 27 cases, complications from operation cataract technique phacoemulsification most without complications namely 26 cases. Intra and postoperative complications were very influenced by operator skills and techniques operations performed.(Salni et al., 2022)

Ruben Espino Icazbalceta's research et al (2019) present research originating from from Mexico, South America. Research with amount operated patient during 7 year period This range around 35,000 in the Anterior Segment department at home illness, with 733 complications reported. This produce incident complications in 2.1% of operations. The most common happen is rupture posterior capsule in 51.1%. Complications This can handled with the same procedure on almost all case and only need operation additional 6.6% (posterior vitrectomy for remove fragment lens from vitreous cavity). Rupture rate reported posterior capsule in literature is around 1-3%, research show same findings even in residents who are during the training period. Intra and postoperative complications are very influenced by operator skills and techniques operations performed.(Icazbalceta et al., 2019)

Research by Neelakshi Bhagat et al (2020) presents research originating from from the United States, North America. In the study This from 755 operations cataracts, 719 of them done with technique phacoemulsification. Disorders posterior capsule occurred in 48 cases, loss of vitreous in 39 cases and fragments dislocated lenticular in 7 cases of the 719 cases carried out with technique phacoemulsification. Subsequent pars plana lensectomy in 5 cases ; 1 case experience retinal detachment and detachment choroid bleeding. Intra and postoperative complications Still not enough experience from doctor resident who did procedures in IOVS, there are possibility that guidance experienced doctor can reduce level possible complications happen If without supervision. Although residents at IOVS do a number of big case surgery during training, research show that doctor surgery new Possible need do several hundred procedures phacoemulsification so that level complications becomes very low.(Bhargat et al., 2020)

Research by Tri Winarti et al (2019) presents research originating from from Indonesia, Southeast Asia. In the study This complications that occur in phacoemulsification and mSICS with resident operator senior eyes no different meaningful. There is difference complications in the form of tear capsule posterior lens and significant aphakia on phacoemulsification based on level operator skills with most frequent incidents postoperative by resident operator senior eyes, while in mSICS No there is difference amount case significant complications based on level operator skills, either by the resident senior eyes and resident junior eyes. Intra and postoperative complications significance in phacoemulsification based on level operator skills with most frequent incidents postoperative by resident operator senior eyes, while in mSICS No there is difference amount case significant complications based on level operator skills, either by the resident senior eyes and resident junior eyes. Operation practice cataracts in the eye animal before practice straight to the eye human and

accompaniment strict on each stages operation by a competent senior doctor do phacoemulsification and mSICS are highly recommended For minimize the occurrence complications, as well as For achievement competence action surgery cataract for resident.(Winarti et al., 2019)

Research by I Nyoman Widiadnyana et al (2017) present research originating from from Indonesia, Southeast Asia. In his research type incision cataract surgery performed on patients cataracts at Bali Mandara Eye Hospital against 78 respondents is type SICS and PHACO incisions, which consist of from SICS incision in 27 people and PHACO in 51 people. The incident syndrome eye dry patient post operation cataracts at Bali Mandara Eye Hospital from 78 respondents is as many as 15 people, based on type the incision can differentiated to be, SICS incisions as many as 10 people and 5 people from type PHACO incision. Intra and postoperative complications happen Because with difference type incision cataract so will result in difference complications post operation cataracts, depending from wide incision and response inflammation that occurs, between type SICS and PHACO incisions are present different technique incision and healing process.(Widiadnyana et al., 2017)

Research by Nadia Khairina Budiman et al (2014) presents research originating from from Indonesia, Southeast Asia. Research results show that sharp vision without 1 day correction post-surgery phacoemulsification in 49.4% of cases below 6/60 gradually improved at the 1–2 month visit. A total of 81.0% of cases own sharp vision with correct best above 6/18. There were 96.2% of cases that did not experience complications intrasurgical. Corneal edema as 1 day complication post-surgery phacoemulsification Enough Lots happen that is as much as 45.6%. In the study This obtained refraction manifest with range -12.00 to +10.00 diopters, 78.5% are in range ± 2.00 . In intra and postoperative complications can happen Because measurement IOL power that is not accurate. With use biometry IOLMaster or ultrasound biometry by expert, error This can minimized. Corneal edema as complications post-operative can also minimized with use proper viscoelastic For protect cell endothelium cornea.(Budiman et al., 2014)

Rajas Premraj Daware Research et al (2021) present research originating from from India, South Asia. Phacoemulsification is one of the action surgery For extraction cataracts and used in a way widespread throughout the world. Although phacoemulsification relatively safe with far reaching complications more low compared to action surgery others, but needed skills For do it with smooth. Some complications intraoperative and postoperative can happen If surgery No done with careful. In our study, the level of complications intraoperative is 9.1% which is comparable with report previously. Difficulty in emulsification nucleus is most common complications. Other complications such as posterior capsular rent, iris prolapse, detachment Descemet's membrane, loss vitreous and nucleus happen with higher frequency low. Handling rapid complications can help reach good visual recovery post operation. On almost all patient, we can reach sharpness vision post operations >6/18 at the end of 90 days. With Thus, complications intraoperative related phacoemulsification need rapid recognition and handling For reach optimal visual results in the period postoperative. In intra and postoperative complications although Lots factors that can contribute to the occurrence complications intraoperative, experience doctor surgery identified as one of the

factor important. In case this, identify that risk complications intraoperative decrease with increasing amount procedures performed by a doctor surgery.(Daware et al., 2021)

Research by Abrar Ali et al. (2021) presents research originating from from India, South Asia. The outbreak posterior capsule is complications the most frequent intraoperative occurs in cases our beginning. Corneal edema on day First post-operative is significant problem and because that, vision on the day First post-operative low in some big case our beginning. After three week, vision to be 6/12 or more good in 83% of cases. Intra and postoperative complications must become attention main experts surgery. Complications correlated with experience doctor surgery. We think that For minimize complications during and after phacoemulsification, we have to start phacoemulsification after laboratory and do operation beginning below supervision. Beginners must follow workshop For operation Phacoemulsification. (Ali et al., 2021)

Research by Sedat Ava et al (2021) presents research originating from from Turkey, West Asia / Southeast Europe. In the study This obtained complications intraoperative during operation phacoemulsification includes : 36 cases rupture posterior capsule, 20 cases capsulorhexis, iris defect during emulsification nucleus or 20 cases iridodialysis, solution operation as classic ECCE 12 cases, zonulosis (zonular dialysis), 2 cases, rupture posterior capsule and descent vitreous on vitreous found in 2 cases. Intra and postoperative complications were very influenced by experts surgery that has not been done experienced and risk complications decrease along with increase experience expert surgery in do procedure this.(Ava et al., 2019)

Study This Of course own its limitations myself. Research This use method studies literature with narrative review approach. The results obtained only narrated and still Not yet Enough For made into as evidence based because No he did analysis statistics on studies literature with approach narrative review. Selection studies literature studied is pure choice from writer Alone so that possible emergence potential bias in research. Selection use narrative approach is taken on objective study This that is For know in a way general characteristics surgery senile cataract with technique phacoemulsification. Author recommend For furthermore done studies literature with approach *systematic review* on the topic This.

CONCLUSION

Based on studies literature that has been done, found that characteristics complications surgery senile cataract with technique phacoemulsification is : Complications surgery senile cataract with technique phacoemulsification in intraoperative most frequently is rupture posterior capsule, aphakia, dislocation fragment nucleus to in cavity vitreous. Complications surgery senile cataract with technique phacoemulsification in postoperative most often are Surgically induced astigmatism, corneal edema, syndrome eye dry, syndrome toxic anterior segment, hypertension ocular, cloudiness posterior capsule, dislocation fragment nucleus to in cavity vitreous.

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