



## MODE OF DELIVERY IN THE SECOND PREGNANCY OF MOTHER WITH HIGH MYOPIA AND HISTORY OF SECTIO CESAREAN: A CASE REPORT

Dian Lestari Hidayah<sup>1</sup> , Farida Fitriana<sup>1</sup> ,  
Andriyanti<sup>1</sup> , Ivon Diah Wittiarika<sup>1</sup> , Ratna Dwi Jayanti<sup>1</sup> 

Midwifery Study Program, Faculty of Medicine, Airlangga University Surabaya

Email : [farida.fitriana-13@fk.unair.ac.id](mailto:farida.fitriana-13@fk.unair.ac.id)

### Abstract

**Background:** Pregnant women with a history of cesarean section have problems choosing the delivery method for their next pregnancy. Sometimes there are still other risk factors, one of which is high myopia, which adds to the problem of choosing an effective delivery method with the advantages and disadvantages of each. Continuity of care in midwifery is very important in providing patients insight, knowledge, and support to make decisions about appropriate and safe delivery methods. **Aims:** to discuss the mode of delivery among women with high myopia and history of section cesarean. **Case report:** A 29-year-old woman G2P1A0 with high myopia (minus 8) and cesarean scar three years ago for indications of high myopia (minus 10). In this second pregnancy, the mother underwent another SC because of high myopia minus 8, and the mother has not had a retinal laser until the present. Patients receive referrals from a primary health center for antenatal care and preparation for delivery at referral health facilities with high-risk pregnancies. Mothers are faced with two choices: TOLAC (*Trial Of Labor After Cesarean Delivery*) and ERCD (*Elective Repeat Cesarean Delivery*). The mother was consulted by an eye specialist at the referral hospital. The condition of the eye's retina is good from the results of an eye specialist examination. However, it is still necessary to do a retinal laser process as prophylaxis if the mother wants to have a vaginal delivery. In the end, cesarean delivery is the mother's choice. **Conclusion:** Pregnancies with high myopia and cesarean scars need to receive full support from midwives and families to carry out comprehensive COC care to improve the health of mothers and children by assisting mothers in selecting delivery methods that are effective and safe for both mother and baby.

Keywords: Mode of Delivery, High Myopia, History of Cesarean Section, Continuity of Care

### INTRODUCTION

Pregnancy can affect several eye structures, including the eyelids, tears, cornea, lens, eyeball pressure, immunity, and visual fields (Samra, 2013). During pregnancy, the eye undergoes several hormone-induced physiological hemodynamic changes. Pregnancy also affects the increase in circulating blood volume and the physiology of the tear film, which causes dry eyes, decreased corneal sensitivity due to thickening due to edema, and increased curvature of the lens causes refractive changes (Gotovac et al., 2013; Mackensen et al., 2014), decreased pressure eyeball due to increased aqueous humor outflow (Gotovac et al., 2013), and visual field changes due to physiological enlargement of the pituitary



during pregnancy (Yenerel et al., 2015). This phenomenon is often observed during the third trimester of pregnancy and disappears after delivery (Ophthalmology-Obstetrics Consensus of the Polish Society of Ophthalmology, 2014).

Myopia can be caused by the eyeball being longer than average (axial myopia) or by the lens and cornea being too convex (refractive myopia). Both conditions cause the image's focal point to fall in front of the retina. Myopia is corrected with negative spherical (minus) lenses or contact lenses, which shift the focus point from in front of the retina to fall on the retina. Based on the amount of correction required, myopia can be classified into mild myopia (<3.00 diopters), moderate myopia (3.00 to 6.00 diopters), and high myopia (>6.00 diopters). Other classifications are mild myopia (<2.00 diopters), moderate myopia (2.00 - 6.00 diopters), and high myopia (>6.00 diopters) (Sitorus et al., 2017; Iskandar et al., 2020).

Myopia is a contributing factor to retinal detachment, in addition to other factors including age, trauma, history of myopia, history of diabetes, and a history of several immunological disorders (Sitorus et al., 2017; Iskandar et al., 2020). Myopia is known to cause rhegmatogenous retinal detachment during the second stage of labour. The rationale is that fluctuations in intraocular and orbital pressure (induced by the Valsalva maneuver i.e., a technique of exhaling forcefully, but the nose and mouth are closed) will cause displacement or even partial detachment of the vitreous body, which will facilitate detachment of the rhegmatogenous retina in these cases. With pre-existing retinal degeneration (Juenemann et al., 2012). Due to the fear of post-delivery retinal detachment, abdominal deliveries were performed in patients with high myopia (Mohammadi et al., 2017).

Retinal detachment is a condition where the sensory retina layer is separated from the retinal pigment epithelium (RPE); This is a sight-threatening emergency. Separating the sensory retinal layer from the retinal pigment epithelium will shift the focus of the light, so visual acuity decreases and disrupts the metabolism of photoreceptor cells due to the interruption of the supply of nutrients from the choroid layer. If this persists for a long time, this metabolic disorder can cause structural damage to the retinal sensory layer so that the restoration of visual function is not optimal even though the results of retinal surgery are good



anatomically (Sitorus et al., 2017; Iskandar et al., 2020). Retinal detachment, according to pathophysiology, can be divided into rhegmatogenous retinal detachment (RRD), tractional retinal detachment (TRD), and exudative retinal detachment (Sitorus et al., 2017; Iskandar et al., 2020).

Rhegmatogenous retinal detachment (RRD) is the most common. The process of detachment of the retinal layer is preceded by a complex process with predisposing factors in the form of defects in the entire thickness of the retina (holes or tears), and vitreous liquefaction (Chiu, 2015; Sitorus et al., 2017). Retinal defects can be caused by peripheral degeneration in the form of thinning of the retina in the peripheral area accompanied by atrophic holes, lattice-like and retinal breaks, as well as retinal tears due to retinal vitreous tissue (vitreoretinal traction). This defect allows the liquefied vitreous to gain access to the subretinal space, resulting in separation of the sensory retinal layer from the retinal pigment epithelium. The risk of RRD also includes high myopia which is defined as more than 6.00 diopters and a history of retinal detachment (Chiu, 2015; Sitorus et al., 2017).

Peripheral degenerative retinal lesions associated with an increased risk of retinal detachment should be treated with laser photocoagulation at least one month before delivery (Moneta-Wielgos et al., 2012). Millazzo et al. recommended prophylactic laser photocoagulation prior to spontaneous vaginal delivery in patients with degenerative retinal lesions and holes predisposing to retinal detachment (Moneta-Wielgos et al., 2018; Sapuła-Grabowska M et al., 2019).

There are two delivery methods for mothers with cesarean scars and high myopia, namely TOLAC (Trial of Labor After Cesarean Delivery) and ERCD (Elective Repeat Cesarean Delivery). Both delivery methods have their advantages and disadvantages. From a risk-benefit ratio perspective, considering the risks of short-term and long-term maternal complications, TOLAC is more favorable in most cases. The risk of fetal, perinatal, and neonatal death in TOLAC is low. Nonetheless, this risk is significantly higher than that associated with ERCD. The risk of mask ventilation, intubation for meconium-stained amniotic fluid, and neonatal sepsis all increase the risk in TOLAC, but the risk of transient respiratory distress is increased in ERCD (Studsgaard et al., 2013).

To reduce this risk, except in certain situations, ERCD should not be performed before 39 weeks. TOLAC is possible for women with prior cesarean delivery before 37 weeks, with two previous cesareans, uterine malformations, low vertical or unrecognized incisions, myomectomy, and postpartum fever, less than six months interval between last cesarean delivery and conception of the next pregnancy, if obstetric conditions permit. ERCD is recommended for women with uterine scars and a history of 3 or more cesarean deliveries (Studsgaard et al., 2013).

TOLAC is an acceptable individualized option for women without major risk factors (Studsgaard et al., 2013). TOLAC is only recommended for women with previous vaginal delivery before or after cesarean delivery, good Bishop's score or spontaneous delivery, and for preterm birth. In women with a history of previous cesarean delivery, the risk of maternal complications is rare after attempted delivery after cesarean delivery (TOLAC). However, the risk of uterine rupture is higher in the TOLAC method than in the ERCD method (Sentilhes et al., 2013). Studsgaard et al. (2013) state that uterine rupture is associated with no previous vaginal delivery. TOLAC is also associated with an increased risk of neonatal depression and the need for neonatal care in the neonatal intensive care unit (Studsgaard et al., 2013).

According to Studsgaard et al. (2013), significant risk factors for emergency cesarean section are no previous vaginal delivery, emergency cesarean index during labor, maternal age 35 years, body mass index before pregnancy 30, and birth weight 4000-4499 g. For women with an estimated fetal weight of more than 4500 g, especially in the absence of a previous vaginal delivery, and those with supermorbidity obesity (BMI >50), ERCD should be planned from the start.

In high-risk pregnancies and deliveries (high myopia and cesarean scars), mothers need to receive support for adjusting to activities and new roles. Continuity of care in midwifery is a series of continuous service activities starting from pregnancy, childbirth, postpartum, newborns, and family planning, provided independently, collaboratively, and through referral (Homer et al., 2014 in Ningsih, 2017). The continuity of care performed by midwives is generally oriented to improve continuity of care within a period. Continuity of care aims to reduce maternal morbidity because women who receive continuity of care services in a



women's center include providing insight, knowledge, and support to patients so they can make decisions about the appropriate method of delivery while still paying attention to the psychological side and expectations at the time of delivery (Sandall, 2016). Based on this background, the authors raise a case entitled "Method of delivery in the second pregnancy of women with high myopia and history of cesarean section: A case report" from the results of assistance to Mrs. MS clients as a case report to analyze pregnancy risk high on the client.

### CASE REPORT

A 29-year-old woman with the initial Mrs. MS, a secundigravida, who graduated from SMK, works as a beautician at a private beauty clinic. The mother started experiencing myopia when she was 14 years old. In daily life, mothers have the habit of frequently using gadgets for an average of more than 12 hours per day, starting to be accompanied at the 23rd week of pregnancy, with high myopia (minus 8) and cesarean scars caused by high myopia in past pregnancy/delivery, as long as the pregnancy is not any complications.

Mother is a non-smoker and in good physical condition. Her first pregnancy was in 2018. The distance between the previous caesarean section and the current one is 3.5 years. The first caesarean was conducted due to high myopia (minus 10). Mothers and husbands already know about the risks of getting pregnant again with high myopia (minus 8) and a history of caesarean section. Mothers and husbands also know the danger signs of pregnancy by reading and understanding the Maternal Child Health handbook (Buku KIA). The mother and husband have agreed to plan for the mother to give birth at the hospital where she gave birth to her first child, plan for potential donors if needed, use BPJS health insurance, the vehicle to be used when the mother goes to give birth at the hospital and plan the type of family planning. Mothers and husbands also understand information about early initiation of breastfeeding (IMD), plans for exclusive breastfeeding, and plans for breastfeeding babies up to 2 years. At 38 weeks, six days of gestation, the baby girl was born by elective cesarean section, with a birth weight of 3100 g and an APGAR score of 8/9/10 at 1, 5, and 10 minutes, respectively, IMD was performed, good

sucking reflex, Physical examination of the baby showed no congenital abnormalities. The baby has received essential neonatal care.

## **DISCUSSION**

Myopia is a contributing factor to retinal detachment, in addition to other factors including age, trauma, history of myopia, history of diabetes, and a history of several immunological disorders (Sitorus et al., 2017; Iskandar et al., 2020). In the first pregnancy, the mother gave birth by caesarean section with consideration of high myopia (minus 10). According to the theory, high myopia, peripheral retinal degeneration, a history of retinal detachment surgery, diabetic retinopathy, or glaucoma are indications of termination of pregnancy per abdominal in the mother's first delivery (Papamichael et al., 2012; Chiu et al., 2015).

Decisions about how to plan delivery should be discussed by the patient and the health worker treating the patient from the first time the patient comes in contact with the health worker, taking into account the individual risk factors for the advantages, disadvantages, and risks for each TOLAC method and the risk of uterine rupture. TOLAC is the preferred choice for women who do not have multiple risk factors. The availability of obstetricians and anesthesiologists in health facilities should be discussed with patients. If the woman continues to opt for re-cesarean delivery after being given sufficient information and time to think about it, her choice must be respected.

Mrs. MS experienced high myopia minus eight again in this second pregnancy, accompanied by a cesarean section three years ago. In this case, the planning method of delivery was by the theory, namely from the start, the mother met the midwife when checking at PMB in the first trimester, the mother was advised to have integrated ANC at the Health Center and from the Health Center received a referral for continued ANC at the Hospital, the mother was consulted by an eye specialist for checking the condition of the mother's high myopia and retina after the results of an eye consultation and the mother decided that she was not ready to have a retinal laser, the mother returned to discussing with the obstetrician treating the method of delivery, so it was decided to do another SC in this second pregnancy.



Peripheral degenerative retinal lesions associated with an increased risk of retinal detachment should be treated with laser photocoagulation at least one month before delivery (Moneta-Wielgos et al., 2012). Millazzo et al. recommended prophylactic laser photocoagulation prior to spontaneous vaginal delivery in patients with degenerative retinal lesions and holes predisposing to retinal detachment (Moneta-Wielgos et al., 2018; Sapuła-Grabowska M et al., 2019). The mother has never had a retinal laser since her last pregnancy. The mother was advised of a retinal laser by an eye specialist. However, she was unwilling to undergo it because the mother did not dare to undergo a retinal laser during this pregnancy. Taking into account the patient's high myopia minus 8, and the mother has never had a retinal laser done, the Valsalva maneuver during normal delivery is feared to increase the possibility of retinal detachment (Chiu et al., 2015), as well as maternal morbidity due to TOLAC failure in women with a history of previous cesarean delivery was quite high (Sentilhes et al., 2013), so the mother did not choose TOLAC delivery in this second delivery.

TOLAC is only recommended for women with previous vaginal delivery before or after cesarean delivery, good Bishop's score or spontaneous delivery, and for preterm birth. By the theory, Mrs. MS cannot be considered for giving birth by TOLAC in this second pregnancy because, from an obstetric perspective, the mother can be considered for giving birth by TOLAC if there are no other risk factors. However, the mother has never given birth vaginally before or after cesarean and delivery. This is also not preterm labour.

TOLAC is an acceptable individualized option for women without major risk factors (Studsgaard et al., 2013). By the theory, in this second pregnancy with a cesarean scar three years ago, the mother has other risk factors, namely high myopia minus eight and never had a retinal laser, so TOLAC is not the best choice delivery method for Mrs. MS's second delivery.

At the time of post-section caesarean, the mother had no complaints about her high myopia, according to a study found that none of the patients presented with new degenerative retinal lesions, retinal tears or rhegmatogenous detachment in both prenatal and postnatal mothers (Sapuła-Grabowska et al., 2019).

## CONCLUSION

Pregnant women with high myopia and cesarean scars often face the dilemma of choosing a delivery method, both TOLAC and ERCD, because each has advantages, disadvantages, and risks. As health workers, we need to assist mothers with continuity of care (COC) so that mothers have insight and understanding in choosing the best delivery method.

## ACKNOWLEDGMENT

Head of Primary Health Care (Puskesmas) Banyu Urip and all dedicated midwives.

The authors declare there is no conflict of interest in this article

## REFERENCES

- Chiu H, Steele D, McAlister C, Lam WC. Delivery recommendations for pregnant females with risk factors for rhegmatogenous retinal detachment. 2015; 50(1):11-8.
- Gotovac M, Kastelan S, Lukenda A. Eye and pregnancy. *Coll Antropol*. 2013;37(1):189-93.
- Iskandar F, Surya R, Sungkar A, Anggriany FD. Kontroversi Persalinan Spontan pada Miopia Tinggi. *CDK-291/ vol. 47 no. 10 th. 2020*.
- Juenemann AM, Nowomiejska K, Oleszczuk A, et al. Mode of delivery and eye diseases. *Ginekol Pol*. 2012;83:613–17.
- Mackensen F, Paulus WE, Max R, Ness T. Ocular changes during pregnancy. *Dtsch Arzteblatt Int*. 2014; 111(33–34):567–75.
- Mohammadi SF, Letafat-Nejad M, Ashrafi E, Delshad-Aghdam H. A survey of ophthalmologists and gynecologists regarding termination of pregnancy and choice of delivery mode in the presence of eye diseases. *J Curr Ophthalmol*. 2017;29:126-32.
- Moneta-Wielgos J, Brydak-Godowska J, Golebiewska J, Lipa M, Rekas M. The assessment of retina in pregnant women with myopia. *Neuroendocrinol Lett*. 2018;39(4):321-4. DOI 10.1258/shorts.2012.010107.
- Ningsih, D.A. (2017). Continuity Of Care Kebidanan. *Oksitosin: Jurnal Ilmiah Kebidanan*, 2017, 4.2: 67-77
- Ophthalmology-Obstetrics Consensus of Polish Society of Ophthalmology. 2014;10:06.





- Papamichael E, Aylward GW, Regan L. Obstetric opinions regarding the method of delivery in women that have had surgery for retinal detachment. *J R Soc Med Sh Rep.* 2012;2:24.
- Sandall J, Soltani H, Gates S, Shennan A, Devane D. Midwife-led continuity models versus other models of care for childbearing women. *Cochrane Database Syst Rev.* 2016 Apr 28;4(4):CD004667. doi: 10.1002/14651858.CD004667.pub5. PMID: 27121907; PMCID: PMC8663203.
- Sapuła-Grabowska M, Ciszewska J, Brydak-Godowska J, et al. Delivery in Myopic Women: A Comparison of Mode of Delivery in Years 1990, 2000, and 2010. *Med Sci Monit.* 2019; 25: 7715–7719.
- Sentilhes L, Vayssière C, Beucher G, Deneux-Tharoux C, Deruelle P, Diemunsch P, Gallot D, Haumonté JB, Heimann S, Kayem G, Lopez E, Parant O, Schmitz T, Sellier Y, Rozenberg P, d'Ercole C. Delivery for women with a previous cesarean: guidelines for clinical practice from the French College of Gynecologists and Obstetricians (CNGOF). *Eur J Obstet Gynecol Reprod Biol.* 2013 Sep;170(1):25-32. doi: 10.1016/j.ejogrb.2013.05.015. Epub 2013 Jun 28. PMID: 23810846.
- Studsgaard A, Skorstengaard M, Glavind J, Hvidman L, Uldbjerg N. Trial of labor compared to repeat cesarean section in women with no other risk factors than a prior cesarean delivery. *Acta Obstetrica et Gynecologica.* 2013 Nov;92(11):1256-63. <https://doi.org/10.1111/aogs.12240>.
- Sitorus RS, Sitompul R, Widyawati S, Bani AP. *Buku ajar oftalmologi.* Jakarta: Balai Penerbit FKUI; 2017.
- Yenerel NM, Küçümen RB. Pregnancy and the eye. *TJO.* 2015;45(5):213-9.