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CASE REPORT

Glaucoma in Pregnancy: Know What Next!!

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Abstract
Glaucoma is a complex disease which when encountered in pregnancy poses a challenge to the woman's obstetrician and her ophthalmologist. The dilemma arises while opting the line of management, either medical or surgical which requires balancing the clinical disease of the mother with the potential threat of therapy to the growing child. Such was our case an elderly primigravida 10 weeks of gestation who had an acute episode of angle closure glaucoma with diminishing vision, who was managed both medically (anti-glaucoma drugs) and surgically (trabeculectomy). She recovered with a normal IOP, improved vision and anomaly scan of the fetus showing a structurally normal fetus. Thus, the fear of uncertain drug teratogenicity should not discourage doctors from prescribing treatments when their expected benefits to the mother are thought to outweigh the risk to the fetus.

Keywords Glaucoma in pregnancy · Teratogenic · Brimonidine · Trabaculoplasty

Introduction

Glaucoma is the disease which damages the optic nerve. Intra-ocular pressure is known to decrease in pregnancy. The problem arises when the patient has never been diagnosed with glaucoma and first presents in pregnancy. As most of the pregnancies are unplanned, unreported cases of glaucoma have found to worsen during pregnancy. Asymptomatic visual field changes have been reported during pregnancy with total reversal postpartum. Thus, an individualistic approach was chosen depending on underlying factors and severity of the disease. The dilemma exists while opting for the line of management. Anti-glaucoma medications are known to pose side effects on the growing fetus. Surgical management is known to have anesthesia-related complications. Given the paucity of reports on glaucoma management in pregnant patients and the impossibility of conducting clinical trials in this group of patients, there are no guidelines for managing this clinical situation. There is a general level of uncertainty regarding management of a pregnant woman who has glaucoma.

Case

A 36-year-old female primigravida 10.2 weeks of gestation (IUI conception) came to the casualty with complaint of severe headache and 2–3 episodes of vomiting since evening. Patient was vitally stable with pulse-80/min and BP of 120/80. No visual field disturbances were mentioned. Patient was a k/c/o migraine for 20 years controlled on medications.

There is no history of diabetes, HTN, heart disease and abnormal hemoglobinopathies. No significant family history was noted. No significant past history or history of travel, trauma, fever and co-morbidities was given.

Patient was advised Tab. paracetamol, which failed to control the pain, and thus, Inj. PCM and Inj. ondansetron

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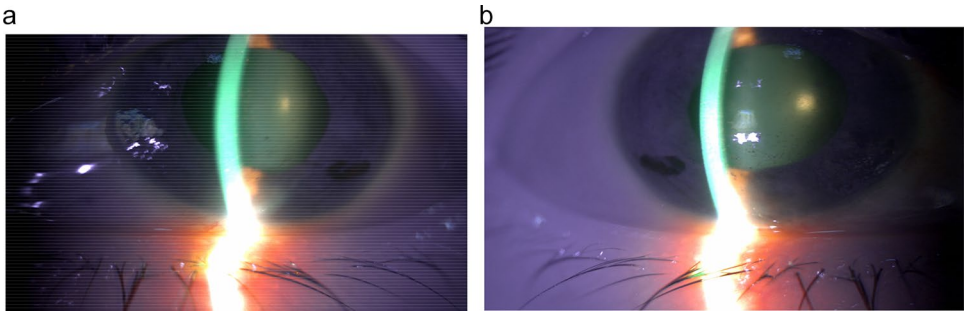

Fig. 1 **a** YAG laser iridotomy. **b** YAG laser iridotomy

were given. The pain relief was too minimal. MRI brain study revealed no significant brain parenchymal or intra-orbital abnormality and no e/o thrombosis/ occlusion of major dural venous sinuses.

Patient further complained blurring of vision with visual acuity of finger counting at 10 feet in left eye and mere 1 foot in the right eye, and hence, an ophthalmology reference was taken for the same. Intra-ocular pressure (IOP) was measured by an applanation tonometer. The IOP was 40 mmHg. USG biomicroscopy of the eyes was S/o, B/L peripheral iris elevation with complete angle closure most likely due to primary angle closure, and thus, the diagnosis of primary angle closure glaucoma was made.

USG Biomicroscopy Slides

With the increasing IOP, patient was taken up *for YAG laser iridotomy* with anti-glaucoma drugs which were planned to be instilled topically to avoid and minimize the systemic absorption [2]. This was supplemented by puncta closure to minimize the absorption. However, as it reduced the IOP only to some extent, she was taken up for *paracentesis with YAG laser iridotomy* (Fig. 1).

- Antibiotics in both eyes
- Steroids in both eyes
- Prednisolone 0.5% eye drops– QID
- Brimonidine eye drops –QID
- Topical cholinergic drugs
- Carbonic anhydrase inhibitors
- Inj. mannitol

However, the IOP continued to increase (38mmHG), and hence, patient was posted for B/L trabeculectomy. Though laser trabeculoplasty was one approach available, it wasn't considered with growing visual field defect and need for immediate control of IOP. To preserve vision and reduce IOP on war footing, trabeculectomy was the only and best option.

Keeping the gravid status of the patient in mind, the importance of the procedure to salvage the eye-sight and the vision was explained to the relatives and the patient herself.

The Surgical Benefits Outweighed the Obstetric Outcome!

Appropriate head positioning was done, supported by two pillows under the mid and lower back. The surgery was ended early. With continuous monitoring of vitals, fetal heart rate was examined before and after the procedure [3].

Left trabeculectomy was done followed by right trabeculectomy 2 days later, considering the more salvageable status of the left eye.

There was an exponential fall in the IOP and patient was discharged on anti-inflammatory eye drops.

A repeat ultrasound for fetal viability was done which was normal.

An early complete level II scan of the patient was also found to be normal.

Patient was discharged with tinted glasses to reduce photophobia with her vision corrected to Rt side 6/18 and Lt side 6/36. She was followed up till term and she delivered a healthy female baby of 2.855 kg with no structural abnormalities.

Discussion

Glaucoma surgery is best avoided during pregnancy; however, IOP can increase and preexisting glaucoma can worsen despite medical and laser treatment. A situation so encountered while managing our patient. Our patient had no history of glaucoma or related familial significance. Due to lack of evidence and study related to management of glaucoma in pregnancy, the primary goal was to protect the mother, her eye sight and the related optic nerve damage. Brauner et al. [1] found raised IOP in nearly one-third of the pregnant women with glaucoma. While one half had stable visual fields (5/28), the others (5/28) had visual field progression. Failed conservative management with progressing visual field defects and shooting

IOP, surgical approach was inevitable. Glaucoma surgery during pregnancy has serious risks. The risk involved in surgical management outweighed the obstetrical outcome. Challenges related to preoperative planning, anesthetic concerns, intraoperative modifications and postoperative management were all kept in mind.

At 1-month follow-up (14 weeks of pregnancy), IOP was within a normal range with diffuse bleb in both the eyes.

A Level II scan of this patient has been performed which showed NO structural abnormalities.

Conclusion

The careful consideration of fetal health in the management of glaucoma during pregnancy is best done as a part of a multidisciplinary team including obstetrics and neonatology. While adopting medical management, steps to minimize systemic absorption should be adopted. Surgical approach should be considered for pregnant patients and may be opted before medical management in some cases to prevent fetal exposures and maternal harm [4].

Author Contributions SP has assisted this case, written this article, searched literature and done final proof reading of this article. SDU has assisted this case and helped in the proof reading of this article.

Declarations

Conflict of interests The author(s) declare that they have no competing interests.
Informed Consent

We author hereby declare that we have taken the informed consent from the patient and also further declare that we have no conflict of interest or financial interest for the article.

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