Delayed treatment of orbital meningioma in a pregnant Chinese woman: A case report
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Background
To report a case of orbital meningioma in a 16-week pregnant Chinese woman.

Case report
A 37-year-old pregnant Chinese female myope, GK, was presented to our Optometry Clinic for routine eye examination. She complained of mild blurry vision at the temporal field of her left eye. She was likewise suffering from mild headache for the past 10 days. Her ocular and general health history was unremarkable.

The best-corrected visual acuity was 20/20+ and 20/20- on her right and left eye, respectively. Dilated fundus examination and biomicroscopy findings were likewise unremarkable (Fig.1). Left RAPD was barely detectable during pupil reflexes examination. Humphrey Central 30-2 visual field analysis revealed remarkable field loss in the inferior temporal region of her left eye (Fig.2).

The patient was referred to a neurologist, and an MRI scan was performed. A benign 1.8 cm meningioma arising from the planum sphenoidale was diagnosed. The lesion was indenting on the left optic nerve and the optic chiasm (Fig. 3). Surgical intervention for her meningioma was to be performed after the delivery. However, two months later, the lesion progressed from 1.8cm to 2.3cm (Fig. 4). With the advice of the neurosurgeon and obstetrician, surgery was performed on week 26 of her pregnancy. Visual field (Fig.5), internal ocular health (Fig.6) and other visual functions were normal after the surgery. The patient will be monitored by the neurologist for the next 10 years.

Discussion
Classification and prevalence of the Meningioma
Meningioma develops from meninges cells in the central nervous system. Only one person in every 50,000 is diagnosed with symptomatic meningioma annually. They constitute 30% of all primary brain tumors diagnoses in adults in the United States. Incidence rates are reportedly similar across racial groups, and the incidence in women is approximately twice than that in men.

The World Health Organization (WHO) classifies meningiomas into 11 different categories according to their cell type. Benign meningiomas grow slowly and produce symptoms only if they become large enough to compress nearby brain tissue. They also account for more than 90% of all meningiomas. Malignant meningiomas are fast-growing aggressive tumors and are the rarest. They account for only about 2% of all meningiomas.

Several types of brain tumors are associated with pregnancy. Meningioma, by far, is the most common.

Clinical presentation of the Meningioma
Clinical presentations include headache, vomiting, abnormal fundoscopic examination, visual impairment, focal seizures, and lateralizing neurological deficits. Magnetic resonance imaging (MRI) is the most common medical procedure to confirm diagnosis. Signs and symptoms may flare during pregnancy due to water retention and engorgement of vessels. Furthermore, the presence of sex hormone receptors on tumor cells may lead to the explosive growth of the tumor.

Management of the Meningioma on a pregnant patient
Management of intracranial meningioma on a pregnant woman depends on the patient’s systemic condition, the size and location of the tumor, as well as the duration of gestation. Most anesthetists and surgeons are reluctant to operate on a pregnant woman because of the risk of inducing premature birth or miscarriage. Additionally, the tumor size may sometimes regress, and symptoms may improve after delivery. Nevertheless, increased growth of meningioma is also seen during pregnancy and the luteal phase of the menstrual cycle.

During delivery, vaginal delivery and labor should be avoided when any sign of increased intracranial pressure or a mass lesion is present. Caesarean section may be considered to avoid prolonged labor. If the patient’s condition worsens, urgent surgical intervention will be made despite the pregnancy. However, surgical treatment may sometimes not show a positive impact on the visual outcome in patients who suffer from advanced optic nerve atrophy. During surgery, attention should also be paid to intraoperative blood loss, hypotension, hypovolemia, and hypoxia in order to avoid their potentially hazardous effects on fetal perfusion.

Conclusion
The above case has been complicated by the pregnancy of the patient. However, with the early detection and treatment of meningioma, the prognosis of this potentially sight- and life-threatening condition is usually promising. Both practitioners and patients should therefore be alert in identifying the cause of subtle vision changes that can easily be overlooked during a routine eye examination.

References