COMPLETE resection of the intraoral teratoma was

INTRODUCTION
Ex-utero intrapartum treatment (EXIT) is a technique designed to allow partial fetal delivery via caesarean section while a safe fetal airway is established. Upon delivery of the fetal head, neck and one or both upper limbs, a stepwise, sequential attempt to secure an airway and perform subsequent tumour resection. We present the first EXIT procedure done in Malaysia. A 34 year old, gravida 4, para 3, her unborn child diagnosed at 24 weeks of gestation to have a large oropharyngeal mass. Upper airway obstruction was anticipated. Orchestration of multiple specialities was executed to properly plan and perform the EXIT procedure. The fetus was delivered at 33 weeks of gestation and managed to be intubated. The extraoral portion of the multilobular mass originating from the palate was resected. Complete resection of the intraoral teratoma was successfully done at day 22 of life.

SUMMARY
Teratomas arising from the palate or pharynx may cause immediate life-threatening airway obstruction to the newborn. Early diagnosis via antenatal ultrasound enables the treating team to perform an ex utero intrapartum treatment (EXIT) procedure to secure an airway and perform subsequent tumour resection. We present the first EXIT procedure done in Malaysia. A 34 year old, gravida 4, para 3, her unborn child diagnosed at 24 weeks of gestation to have a large oropharyngeal mass. Upper airway obstruction was anticipated. Orchestration of multiple specialities was executed to properly plan and perform the EXIT procedure.

A second operation to remove the remaining intraoral part of the teratoma was successfully done on day 19 of life. Postoperatively he was well until day 26 of life when he started vomiting. The hydrocephalus had worsened causing macrocephaly. The baby was immediately referred to the neurosurgical team in another tertiary hospital. Unfortunately, a week later the child succumbed to pneumonia and septicaemic shock despite all measures taken.

DISCUSSION
The term teratoma, introduced by Virchow in 1863, is derived from the Greek word “teraton” which means monster. Teratomas can be generally classified into 4 types. The commonest type is the dermoids, also known as hair polyps, consists of epidermal and mesodermal elements. The teratoid type consists of poorly differentiated elements of ectoderm, mesoderm and endoderm. True teratomas contain all 3 germ cell layers similar to the teratoid but differentiates into more recognizable tissues or organs. Histologically, an epignathus...
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is defined as a highly differentiated teratoma that has organized into recognizable organs or limbs. However, etymologically, the term “epignathus tumour” applies to teratomas of the oropharyngeal cavity in neonates without any specific site of origin. The incidence of oropharyngeal teratomas varies between one in 35,000 to one in 200,000 live births. Head and neck teratomas only account for less than 5% of all teratomas, with cervical teratomas being more common than oropharyngeal teratomas. In our case, the oropharyngeal teratoma arose from the palate. Histopathological report showed the tissues to be mature derivatives from ectoderm, mesoderm and endoderm but the presence of neuroectodermal elements made it an immature teratoma Grade 1. 90% of childhood teratomas contain derivatives from all 3 embryonic germ cell layers. 75% to 85% of the head and neck teratomas usually show both mature and immature characteristics.

Advances in prenatal diagnosis enabling anticipation of neonatal upper airway obstruction and orchestration of delivery via the EXIT has helped improve the prognosis and survival of many potentially life threatening fetal anomalies. During the EXIT, intensive maternal-fetal monitoring, hemostatic hysterectomy with maximal uterine relaxation to maintain a good feto-placental circulation is needed to provide a controlled environment and sufficient time to secure the neonatal airway. Hirose S et al reported an average operating time on placental support to be 45+-25 minutes. Their longest duration was 2.5 hours. The EXIT however carries its own risks. Before the procedure is done, localization of the placenta based on ultrasound is needed in order to avoid placental involvement in the hysterotomy incision site. Polyhydramnios is common in parturients with fetal anomalies. The excessive liquor can compress the edge of the placenta and subsequently obscure ultrasound assessment.

In general, there is no difference in short-term maternal outcome between the conventional Caesarean section and the EXIT procedure. Our maternal intraoperative blood loss was only 300 ml. The mother had an uneventful postoperative period and was discharged well on day 2 of the EXIT. A retrospective review of 52 patients who had undergone the EXIT showed average maternal blood loss to be 970+-510 ml. In order to avoid haemorrhage from the hysterotomy site, uterine stapling device together with good coordination between surgeon and anaesthesiologist to reduce the concentration of inhalational anaesthetics simultaneous with administration of oxytocin before umbilical cord ligation is necessary. However, Butwick A et al reported massive obstetric haemorrhage during an EXIT despite all the above steps executed.

CONCLUSION
The EXIT is an excellent strategy to establish an airway in a controlled manner, avoiding traumatic intubation or tracheostomy in a newborn child yet causing no additional maternal morbidity. The success of the EXIT however, depends on meticulous preoperative planning, discussion, and close collaboration among the multidisciplinary teams involved.

REFERENCES