

# 44th Annual Meeting of International Society for Pediatric Neurosurgery, Kobe, Japan, Oct 23-27, 2016

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## PLATFORM PRESENTATIONS

Monday, 24 October 2016  
09:00 – 09:32

### Platform presentations 1: Fetal Diagnosis and Management

#### PF-001

**Special topic: Fetal diagnosis and management**

**Zika virus fetal encephalitis outbreak: what is the role of the pediatric neurosurgeon in the response strategy?**

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**OBJECTIVE:**Zika virus (ZV) fetal encephalitis is an emergent disease provoking an outbreak in Brazil. It is considered a global emergency by the World Health Organization. Aim of this study is discuss the role of the pediatric neurosurgeon in the response strategy of this new threatening neurological disease.

**MATERIAL-METHODS:**Report of epidemiological, clinical and radiological features of ZV encephalitis outbreak in Brazil. Report of illustrative cases imposing differential diagnosis with pediatric neurosurgical diseases. Establishment of the place of the neurosurgeon in the outbreak task force.

**RESULTS:**From October 2015 to March 2016, 6776 suspected cases of Zika virus associated encephalitis (zvae) were notified, 944 confirmed and the others under investigation, with 208 perinatal deaths. Clinical presentation is linked to severe microcephaly. Computer tomography (CT) show brain atrophy and spread calcifications. Association of Zika infection and microcephaly was confirmed by polymerase chain reaction in 130 cases. Our pediatric neurosurgery unit received two cases mimicking neurosurgical diseases. Case 1: a 28 years old pregnant woman at the 26th week was referred due to fetal ultrasound suggesting hydrocephalus. Magnetic resonance showed ventricular enlargement as result of brain atrophy. At birth, HC was 31cm, morphology and CT presented the features of zvae. Case 2: A 22 days old male newborn was referred due to suspicion of craniostenosis. The anterior fontanel was closed. HC was 30cm. Clinical aspect and CT

scan were compatible with zvae. Both mothers reported symptoms of ZV fever in the first months of pregnancy. Assessment and follow up by the neurorehabilitation team demonstrated severe neurological disability with upper motor neuron syndrome.

**CONCLUSIONS:**Zvae is a threatening and rapidly spreading outbreak with high potential for mortality and morbidity. The pediatric neurosurgeon must take part in the management task force helping to establish differential diagnosis and to rapidly separate true cases from those related to neurosurgical diseases.

**Keywords:** Zika virus, encephalitis, microcephaly, hidrocephalus.

#### PF-002

**Special topic: Fetal diagnosis and management**

**First 50 fetal in-utero microsurgical myelomeningocele repairs: critical comparison of neurosurgical and maternal outcomes to the MOMS trial**

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**OBJECTIVE:**The Management of Myelomeningocele Study (MOMS) trial results showed improved hydrocephalus and motor outcomes in prenatal repair group compared to the postnatal group. We report our initial 50 case series of fetal in-utero myelomeningocele (MMC) repair experience and outcomes at the Saint Louis Fetal Care Institute. The learning curve was also observed and assessed.

**MATERIAL-METHODS:**We strictly followed the maternal/fetal inclusion and exclusion criteria used by the MOMS trial. A multidisciplinary fetal MMC repair team performed 50 repairs between May 2011 and March 2016. We prospectively followed maternal, fetal and neonatal data. The data was compiled to evaluate the learning curve to meet the MOMS results held as standard of care.

**RESULTS:**All MMC defects underwent successful in-utero repair. Average GA at time of MMC repair was 24+3/7 weeks. Average GA at time of delivery was 34+4/7 weeks, with 50% of pregnancies reaching 37 weeks. Operative time of microsurgical MMC repair after hysterotomy averaged 43 minutes. Two perinatal mortalities (2/50(4%)) were due to complications of prematurity. CSF diversion rate of all surviving children via VP shunt or ETV was 20/48(41.6%), MOMS trial was 40%. ETV success rate was 8/17(47%) with an average follow up 20 months. When statistically compared to MOMS trial, maternal outcomes were either equivalent or improved for all categories except pulmonary edema, chorioamnionitis and preterm labor. Fetal outcomes were also improved or equivalent. Surgical skin to skin time significantly increased from the first 10 cases to the next 37 cases (p<.001) which then led to significantly increase in days between repair and delivery (p<0.05) and increase in infant birth weight (p<0.05). Ten cases appear to be the threshold for our center to consistency in equivalent results.