



Great Western Hospitals  NHS Foundation Trust

Oxford 
Academic Health
Science Network
Maternity

Stroke in Pregnancy – the Swindon Experience

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Great Western Hospital
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Oxford Academic Health Science Network 
MATERNITY

Patient 1

- 34 years old
- Para 0
- IVF pregnancy (male cause)
- BMI 31
- Non-smoker

Patient 1

- Admissions:
 - Viral URTI at 25/40
 - Loin pain at 28/40
 - Upper abdominal pain at 30/40
 - Abdominal pain at 33/40
 - Severe headache at 36/40
 - No imaging carried out
- Caesarean section April 2015
 - Failure to progress
 - EBL 800ml

Patient 1

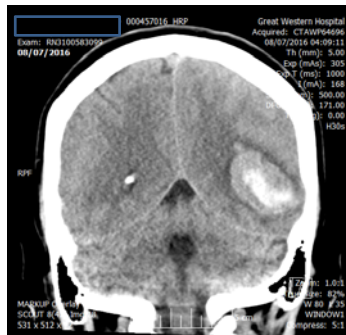
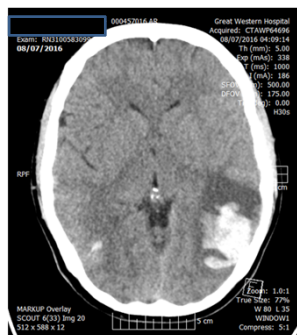
- Presented October 2016
 - Facial droop, slurred speech, right sided weakness
- Left MCA infarct, unknown cause
- Hypercholesterolaemia – 7.6

Patient 2

- 39 years old
- Para 0
- IVF pregnancy
- Non-smoker
- BMI 27.5
- Caesarean section 28th June 2016
 - Cat 4 – previous myomectomy
 - EBL 600ml
- Presented 10 days later – headache and blurred vision

Patient 2

- Bilateral intracerebral haemorrhages and subarachnoid haemorrhage



Patient 3

- 32 years old
- Para 1
 - Previous caesarean section
- Subutex use
- Smoker
- BMI 28.7
- Presented at 8/40 with foot drop

Patient 3

- Multiple local infarcts in the anterior and middle cerebral artery territories
- Remains unexplained

Patient 4

- 25 years old
- Para 0
- Smoker
- Booking BMI 23.9
- Presented 3 days following NVD with numbness in face, chest and left hand
- Developed into dense left hemiparesis

Patient 4

- Multiple acute infarcts in distribution of right MCA

Patient 5

- 30 years old
- Para 0
- Non-smoker
- BMI 46.7
- Gestational diabetes

Patient 5

- Normal vaginal delivery following induction of labour
- 3a tear
- IMOX study
- Presented with headache and confusion 8 days postnatally

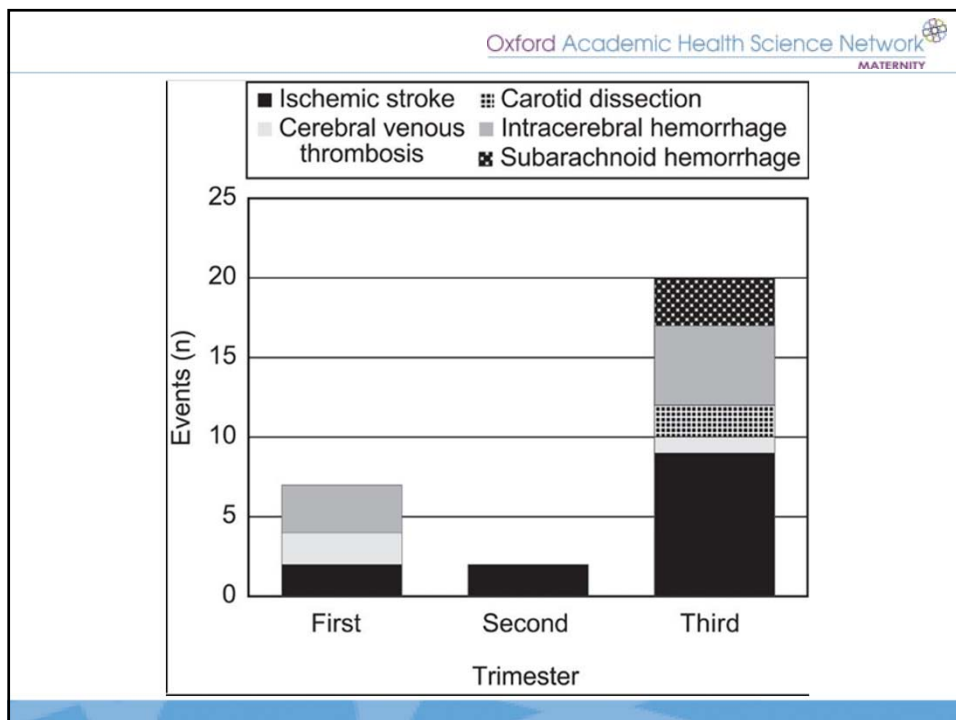
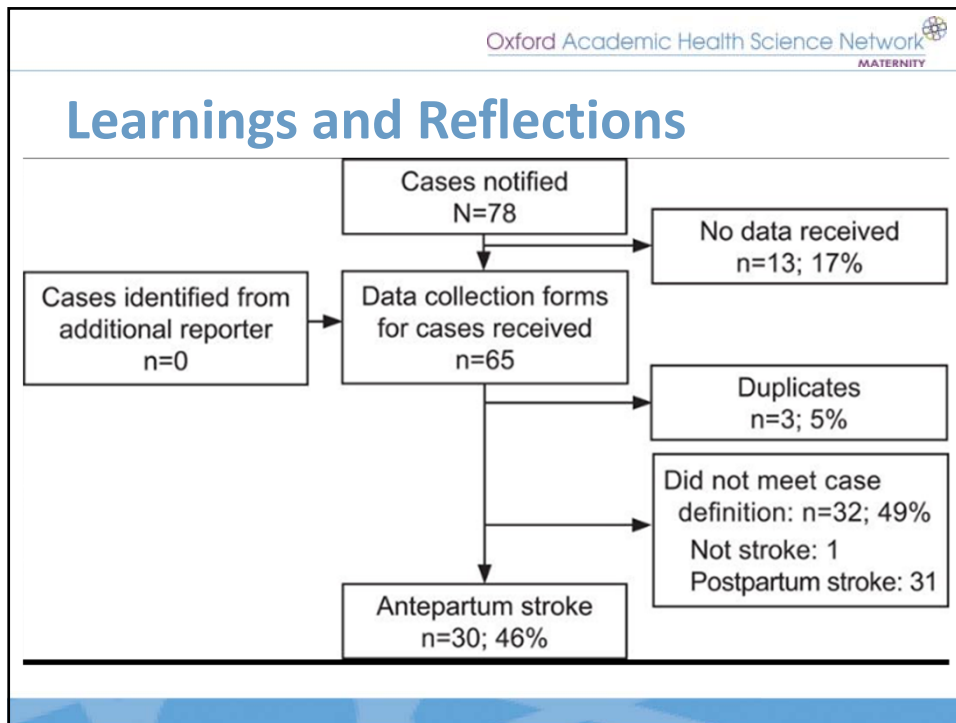
Patient 5

- Left transverse sigmoid sinus thrombosis with secondary left temporal infarct and haemorrhage secondary to peripartum thrombotic tendency



Learnings and Reflections

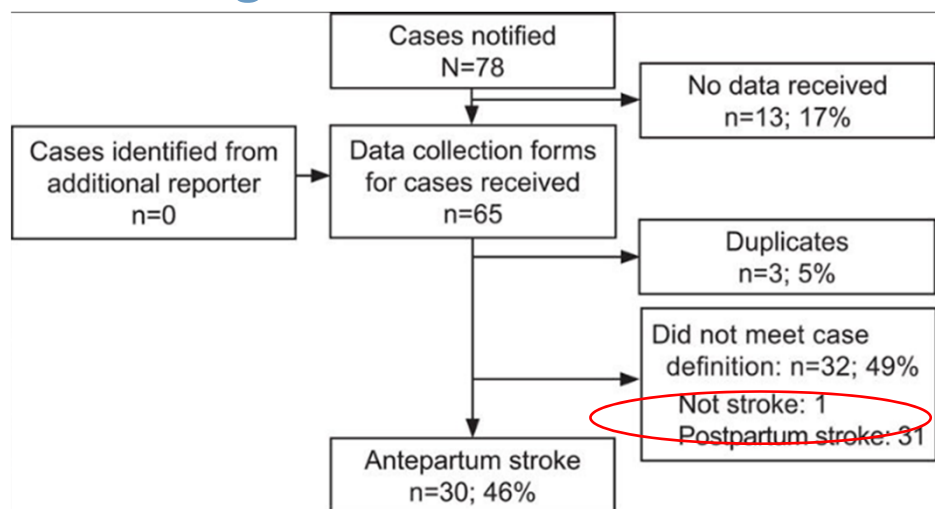
- October 2007 – March 2010
- Incidence of antenatal stroke - 1.5 per 100,000
 - Non-haemorrhagic – 0.9 per 100,000
 - Haemorrhagic - 0.6 per 100,000
- All except one – 1st stroke



Learnings and Reflections

- 6 deaths from antenatal stroke – 20% mortality
 - 3 neonatal deaths
- All from haemorrhagic strokes
- Significant disability at discharge – 45%
- Transfer to rehabilitation services – 30%

Learnings and Reflections



Box 3. Red flag features for potential secondary headache (Adapted from Scottish Intercollegiate Guidelines Network guidance)⁸

- Thunderclap: rapid time to peak headache intensity (seconds to 5 minutes), e.g. with a subarachnoid haemorrhage
- Focal neurological symptoms (e.g. limb weakness, aura <5 minutes or >1 hour) – see Schoenen and Sandor⁷ for further information
- Non-focal neurological symptoms (e.g. cognitive disturbance) – seen in central venous thrombosis
- Change in headache frequency, characteristics or associated symptoms
- Abnormal neurological examination
- Headache that changes with posture – a sign of high or low cerebrospinal fluid pressure
- Headache awakening the patient – associated with migraine and raised intracranial pressure
- Headache precipitated by physical exertion or Valsalva manoeuvre – consider subarachnoid haemorrhage or raised intracranial pressure
- Patients with risk factors for cerebral venous thrombosis
- Jaw claudication or visual disturbance – associated with giant cell arteritis (women over 50 years)
- Fever – consider meningitis
- Neck stiffness – indicative of meningeal irritation
- New onset of headache in a patient with a history of HIV infection
- New-onset headache in a patient with a history of cancer

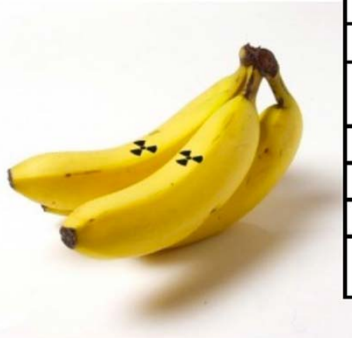
Box 5. Key points: imaging of the head in pregnancy

- The accepted background cumulative dose of ionising radiation during pregnancy is 50 mGy²⁹
- Fetal exposure for a computed tomography scan of the head is estimated at <0.005 mGy
- Magnetic resonance imaging (MRI) should be avoided in the first trimester because of the potential hazards of hyperthermia and acoustic noise, but MRI remains preferable to any studies using ionising radiation³⁰
- Contrast media based on the element iodine should be avoided in pregnancy unless essential. If iodinated contrast media are used the neonatal thyroid function should be checked³¹
- Gadolinium-based contrast agents appear to be safe in pregnancy³¹
- Lactating women who receive iodinated contrast or gadolinium can continue breastfeeding without interruption³¹

Banana Equivalent Dose

Bananas are a natural source of radioactive isotopes.

Eating one banana = 1
BED = 0.1 μ Sv = 0.01
mrem



Number of bananas	Equivalent exposure
100,000,000	Fatal dose (death within 2 weeks)
20,000,000	Typical targeted dose used in radiotherapy (one session)
70,000	Chest CT scan
20,000	Mammogram (single exposure)
200 - 1000	Chest X-ray
700	Living in a stone, brick or concrete building for one year
400	Flight from London to New York
100	Average daily background dose
50	Dental X-ray
1 - 100	Yearly dose from living near a nuclear power station

P7 Nuclear and Particle Physics - Dan Protopopescu

Thoughts for the future

- Encourage cross-communication amongst colleagues to allow effective follow-up
- Serum cholesterol on women booking with obesity?

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Thank you
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Questions
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