

Two maternal deaths from possible surgically-acquired herpes: Implications for puerperal sepsis management

I describe the only two recorded cases of maternal death from peripartum-acquired disseminated herpes from the MBRRACE-UK reports 2013-19 (~5.3M maternities). Viral phylogenetic analysis suggested that the cases were linked.

Case A

29y P1+0: Uncomplicated pregnancy with spontaneous labour at term
Obstructed labour, OP position, delivered by LSCS. Healthy infant
Sustained left broad ligament injury from extended uterine incision
Day 3 – took own discharge despite residual abdominal pain
Day 8 – Readmitted with presumed sepsis, iv Co-Amoxyclav STAT. [ALT 40]
Day 9 – Laparotomy / abscess drainage & broad ligament haemostasis
Day 14 – No response to antibiotics. Laparotomy. [**ALT 802 Bilirubin 5**]
Day 16 – Laparotomy L salpingo-oophorectomy, continuing deterioration
Day 17 – Transferred to Regional Centre – iv Aciclovir commenced. Laparotomy
Day 20 – Coma / Death

Links: The women were delivered within six weeks of each other by the same surgeon in geographically separate hospitals within the same Trust.
Post-Mortem showed both died from multi-organ failure and disseminated herpes simplex virus type 1 (HSV1) with herpetic hepatitis.
Neither had shown any external sign nor covert symptom of orolabial or anogenital herpes: Both were HSV antibody negative at delivery.

Discussion: Primary HSV-1 develops rapidly (<1 week) after exposure in the altered immunological milieu of late pregnancy and the puerperium. Some 80-85% of women have antibodies to HSV1, HSV2 or both, leaving only one sixth of the antenatal population at risk of rapidly disseminated HSV infection in pregnancy and the puerperium.
Viral analysis appears to preclude any possibility of community transmission as the women were of white British ethnicity, lived 25 miles apart in an area of very low (<1%) ethnic diversity and had no social or occupational contacts in common. Sexual acquisition is unlikely for the same reason. This leaves **the most biologically plausible mode of acquisition as being accidental direct intra-abdominal inoculation**, hypothetically via an herpetic whitlow, which is unprovable. Given that the women had postpartum care by separate teams, and as current guideline regimes for puerperal sepsis automatically assume a bacterial cause, neither fatality could have been prevented without an *a priori* suspicion of herpes being raised, or rapidly actioned because of non-response to antibiotics and sudden anicteric hepatitis.

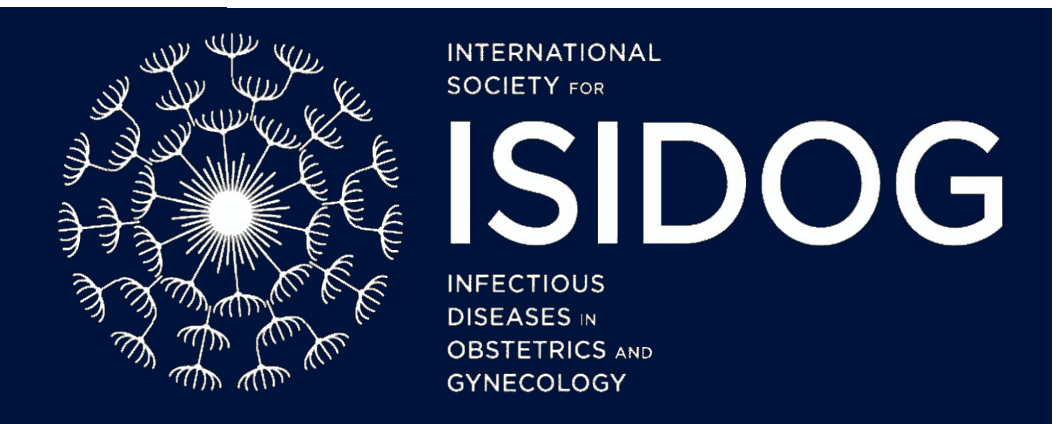
Conclusion: As most maternal fatalities due to covert disseminated herpes are diagnosed too late before, or just after death, routinely taking HSV blood PCR and adding pre-emptive intravenous Aciclovir treatment to standard antibiotic puerperal sepsis regimes could save lives and would do no harm.



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I am deeply indebted to the BBC team of James Melley (Producer) & Michael Buchanan (Reporter), for their meticulous and determined investigation, without which the link between these cases would not have come to light. They handled a highly charged subject with great sensitivity and complete lack of stigma.

I am also most grateful to the mothers of the women for their assistance, cooperation and informed consent to publish these cases to raise clinical awareness. They have already forgone anonymity in the media reportage: <https://www.bbc.com/news/health-59338721>

Case B

32y P0+1: Obstetric cholestasis at 32 weeks [ALT 542] and premature labour at 34 weeks
BP151/104. Obstructed labour, OP position, delivered by LSCS [ALT 113]. Healthy infant
Sustained left broad ligament injury from extended uterine incision. iv Vancomycin
Day 2 – Oedema & sepsis developing, iv Cefuroxime & Metronidazole. [ALT 62]
Day 4 – Continued deterioration, admitted to ITU, multi-organ failure diagnosed, iv Gentamycin
Day 6 – Further deterioration. anicteric hepatitis [**ALT >500 Bilirubin 10**]
Day 7 – CPAP commenced. Iv Meropenem & Clarithromycin
Day 8 – ECMO / Laparotomy to decompress abdomen / Death

Viral Phylogenetic Analysis: HSV1 is a DNA virus with a genome so highly consistently conserved that it can be used to track movements of populations across continents. There are some 51 individual genotypes divided into six clades of which only one is common to the population of Europe & USA.
Phylogenetic analysis showed that the HSV1 strains were "most probably" identical, coming from a phylogenetic group of African origin which was only rarely found in the UK.

