

Woman with Premature Ovarian  
Insufficiency after stem cell transplant  
and total body irradiation (TBI) seeking  
fertility treatment

Mr Guy Morris

Clinical Research Fellow, Reproductive Medicine Unit University College  
London Hospitals

# Case history

- 28yr old presented to IVF clinic
- Childhood Acute Lymphoblastic Leukaemia aged 8, treated with chemotherapy
- Relapsed aged 11. Treatment requiring conditioning chemotherapy (Busulfan and cyclophosphamide) and Total Body Irradiation, then proceeded to Stem Cell Transplant. Matched sibling donor.
- Delayed puberty
- Received oestrogen from aged 14 for induction of puberty – currently on combined oral contraceptive pill (COCP) for HRT but is seeking fertility

# Can she get pregnant?

Fertility work-up:

- Blood tests – FSH, LH, E2 (on Pill and off Pill), Anti-Mullerian Hormone (AMH = 0.1)

	On Pill	Off Pill
FSH (IU/L)	0.1	76.2
LH (IU/L)	0.1	45.6
E2 (pmol/L)	<44	<44

- USS – small uterus and thin endometrium. Small ovaries, no follicles.
- Spontaneous pregnancy in Premature Ovarian Insufficiency (POI):
  - <5%
  - 6 – 14%
  - 15 – 20%
  - >20%

# What fertility assistance does she require?

- None?
- Ovulation induction with fertility drugs?
- IVF – own eggs?
- IVF – donor eggs?

# Should she get pregnant?

- Maternal risks?
- Fetal/Obstetric risks?
- She is cured therefore has no extra risk?
- TBI:
  - Cardiac – echo pre-treatment normal.
  - Respiratory function (?bleomycin may effect lungs) restrictive lung disease related to TBI?
  - Renal – Urea and electrolytes normal.
  - Thyroid – on thyroxine and stable.
- Rubella immune? (may not have been vaccinated)

# Treatment

- First cycle of IVF with donor egg – 15 weeks (2<sup>nd</sup> trimester) miscarriage
- Second cycle – seen in maternal medicine clinic regularly:

Aspirin 75mg from 12 weeks to 36 weeks

Cervical length measurements +/- cervical stitch

Growth scans from 24 weeks (every 2-4 weeks)

Regular cardiology review and echocardiograms – every trimester

GTT at 27 weeks

Spontaneous rupture of membranes at 33/40. Treated with Magnesium Sulphate (MgSO<sub>4</sub>) and Steroids. Delivered vaginally next day – uneventful NICU stay and well at discharge