

Uterine Inversion

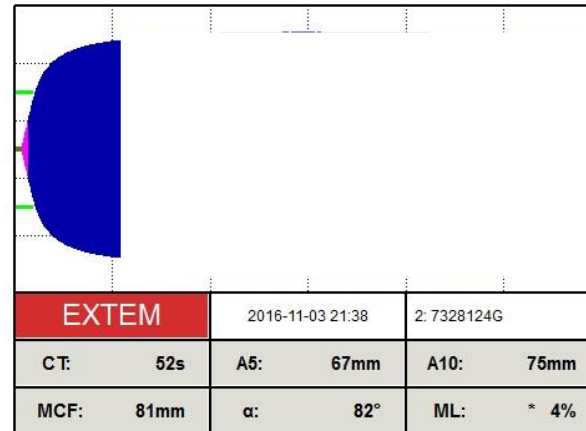
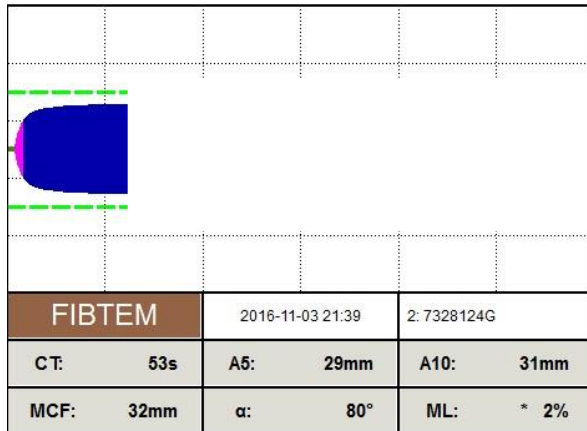
Disclaimer / Pre-amble

- These cases have been de-identified to protect the identity of the patient and the treating teams.
- These are all real cases and real ROTEMs. The individuals involved in these difficult cases have agreed to anonymously share these with us – thank you for your generosity.
- Successful management of the bleeding patient involves much more than just administration of blood products.
- The primary aim of these cases is to teach the use ROTEM guided blood product therapy. We have deliberately not included a lot of detail about some of the other aspects of management which might detract from this focus.

Case One

HISTORY

- 137 Kg patient G2P1
- Vaginal delivery
- Postpartum haemorrhage 30 min post delivery neonate (pre-delivery placenta)
- Uterine inversion noted
- Rapid blood loss ~ 3Litres over about 20 min while trying to replace uterus.
- A Rotem was sent urgently from labour ward at 2139hrs:
- After a runtime of approx 10-11min this what you see.

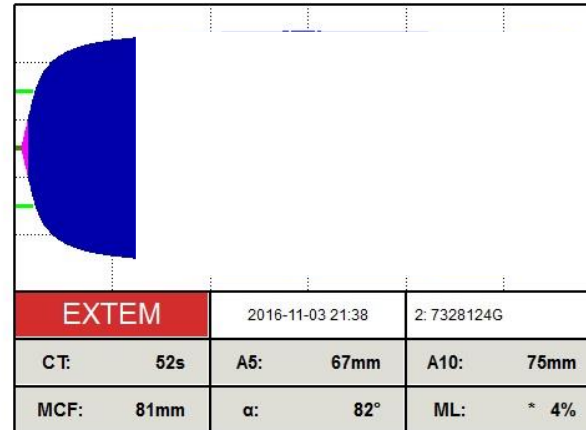
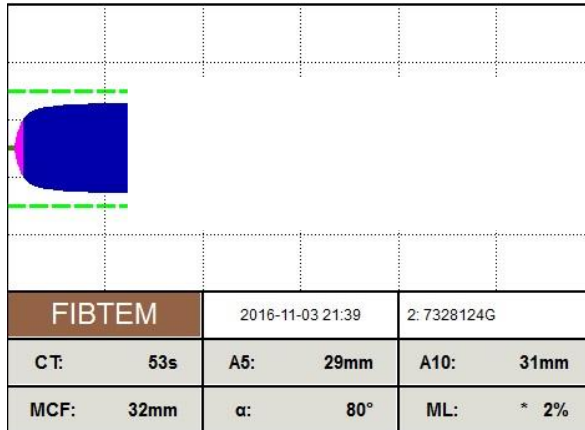


Std Lab Tests

Hb 61
Plt 358
Fib 2.5
INR 1.3

- **What treatment would you give if you use your ROTEM algorithm?**

Case One



Std Lab Tests

Hb 61

Plt 358

Fib 2.5

INR 1.3

Analysis

- **Fibrinolysis** – Fibtem CT < 600s and Extem A5 >35mm so no early indication of hyperfibrinolysis. Consider TXA however as there is probably a role for TXA even in patients without systemic fibrinolysis.

- **Fibrinogen** – Fibtem A5 = 29mm (>10mm), definitely no need for fibrinogen...

- **Platelets** – Extem A5 = 67mm (>35mm), definitely no need for platelets

- **Factors** – Extem CT = 52s, no need for FFP / PTX (to increase thrombin generation)

After only 15-25min we can see that even after 2-3litres of blood loss this woman still has extremely robust haemostatic capacity and the bleeding is almost certainly all due to physical causes (the inverted uterus). There is no need to panic & start thawing blood products (like cryo or FFP) which are not needed and with an Extem A5 of 67mm – very unlikely to be needed in the near future either. The priority should be to replace the inverted uterus.

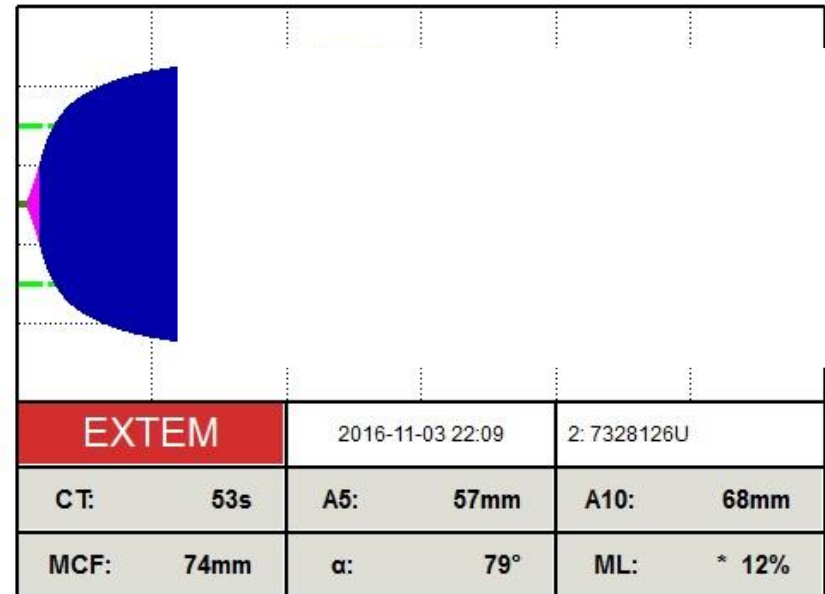
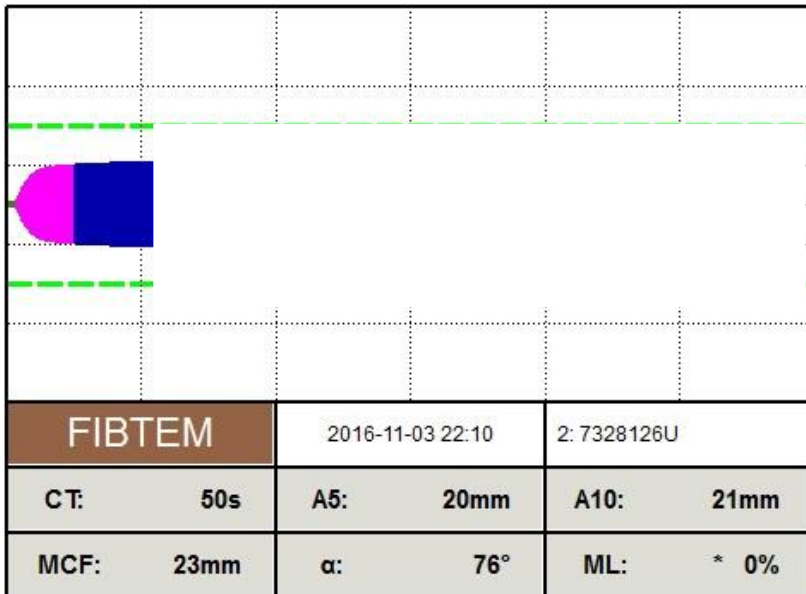
Case One

- Code called and transferred from LW to OT
- Further unsuccessful attempts to reinvert vaginally under GA
- Laparotomy performed and successful reinversion, Bakri inserted, uterotonics given.
- >4L total blood loss
- She is given TXA 1g, 4 units of red cells, 2litres of Hartmanns solution.
- Another ROTEM is sent at 2210hrs:
- After a runtime of approx 10-11min this what you see.

Std Lab Tests

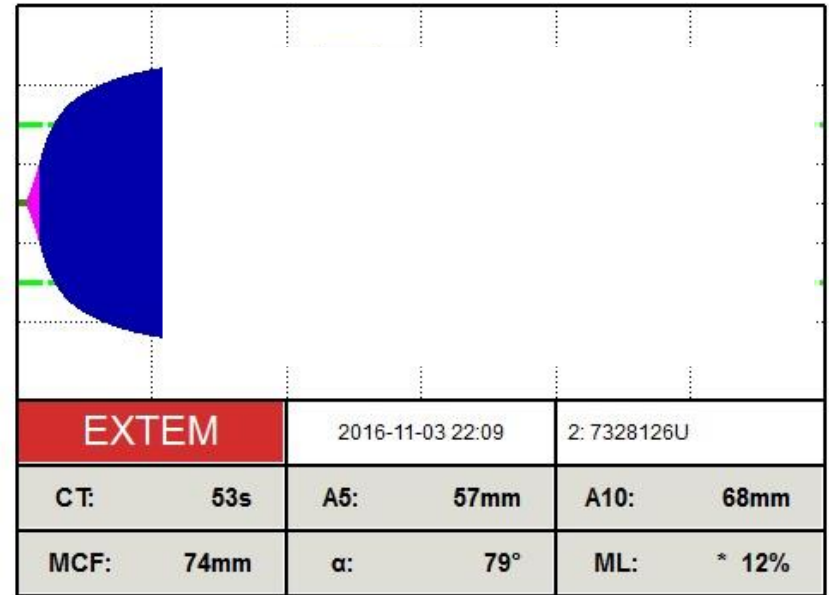
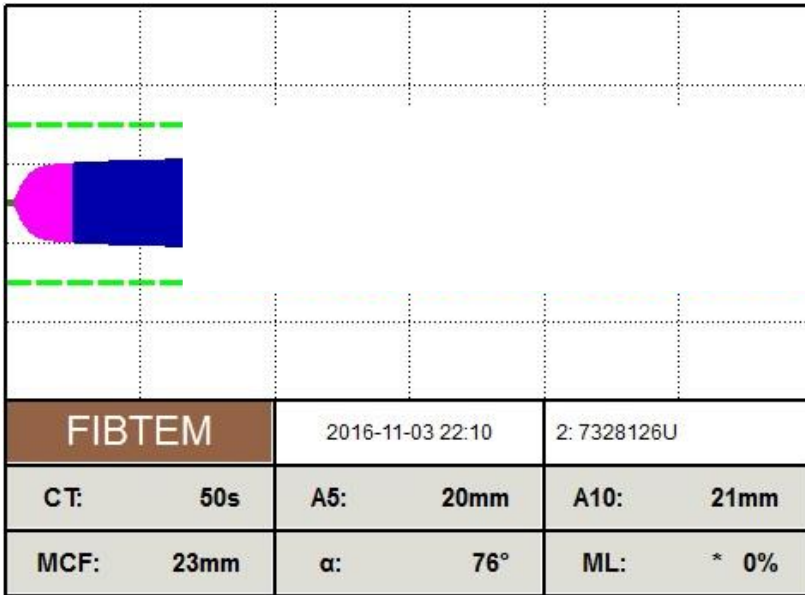
Hb 94

Plt 417



- **What treatment would you give if you use your ROTEM algorithm?**

Case One



Analysis

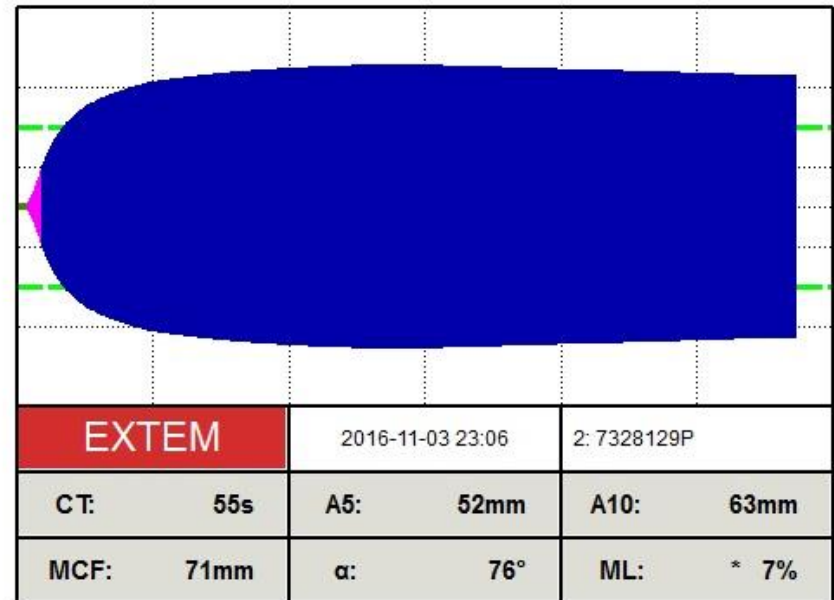
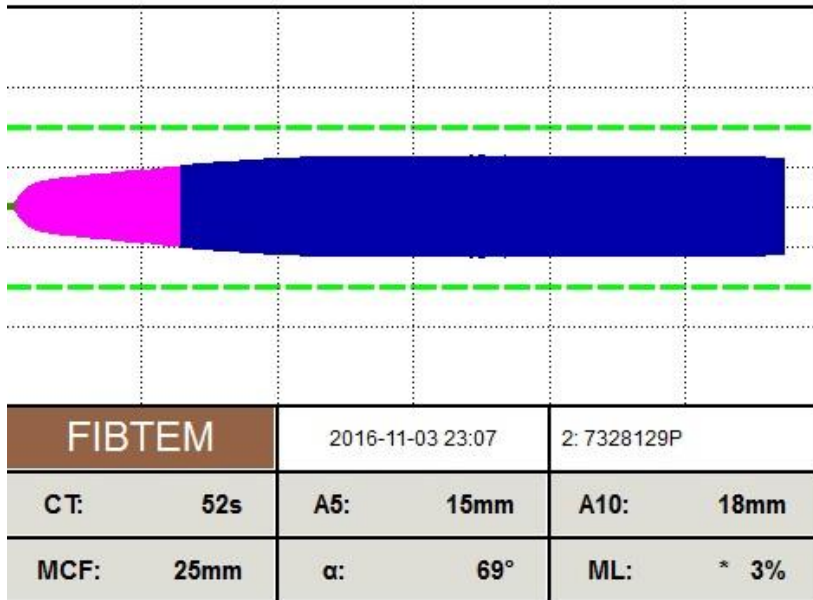
- **Fibrinolysis** – TXA has been given. At 11min no lysis visible on the trace
 - **Fibrinogen** – Fibtem A5 = 20mm (>10mm), so it has fallen but still definitely no need for fibrinogen.
 - **Platelets** – Extem A5 = 57mm (>35mm), this has also fallen but still definitely no need for platelets
 - **Factors** – Extem CT = 53s, no need for FFP / PTX (to increase thrombin generation)
- After only 15-25min we can see that even after >4 litres of blood loss this woman still has extremely robust haemostatic capacity

Std Lab Tests

Hb 94
Plt 417

Case One

- Bleeding has now ceased
- Prior to transfer to ICU a final ROTEM is performed
- Now >4L estimated blood loss
- She has received a further 2 units red cells (6 in total)



- **What treatment would you give if you use your ROTEM algorithm?**
I'm not going to interpret this one for you – you're on your own!

Case One

- Transferred to ICU due to poor gas exchange.
- Extubated following day.
- All good, iron infusion post op.

SUMMARY of blood products

- 6 units of Red Cells
- 1g TXA
- 3 Litres Hartmann's solution
- 500ml 4% albumex
- No cryo, no FFP

Discussion Points

One:

Being able to measure haemostatic function rapidly allows you to safely avoid blood products in patients who don't need them. Haemostatic reserve is usually very robust in the third trimester and most women are well designed to maintain this even with a relatively large blood loss.

If you have (or did have) a fixed ratio / massive transfusion protocol in your hospital what blood products do you think this patient would have received??