Bleeding after caesarean

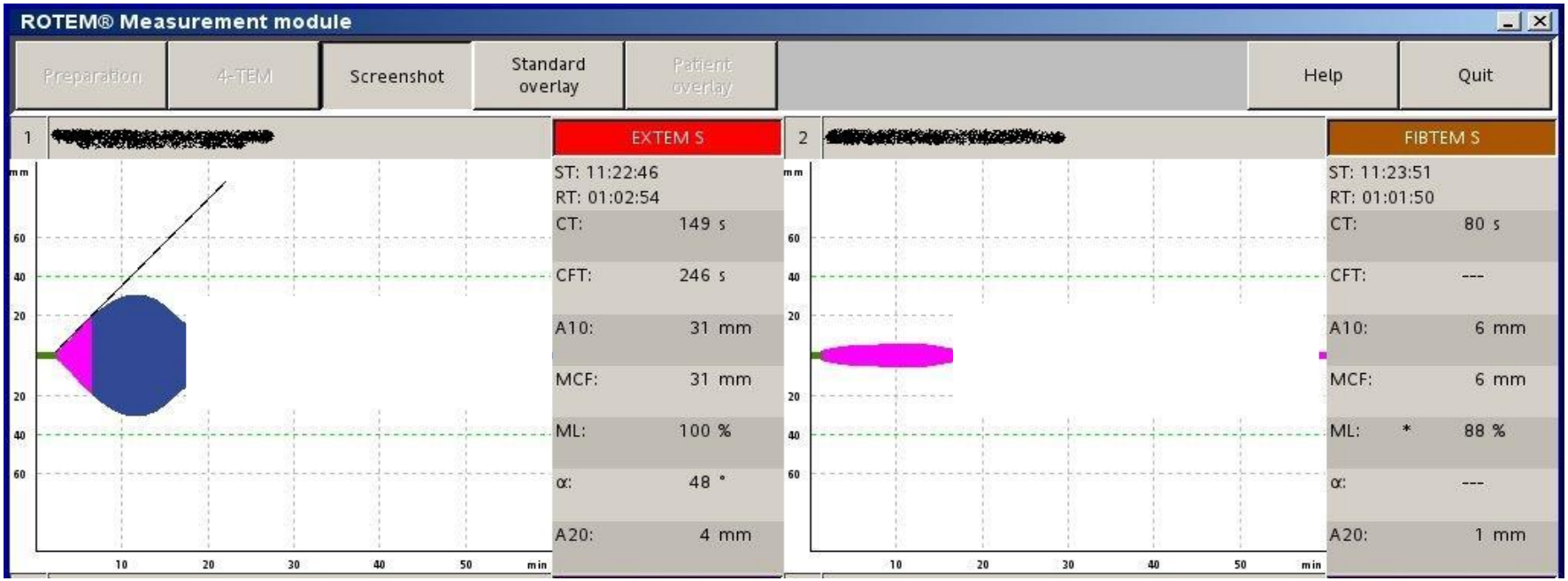
Disclaimer / Pre-amble

- 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 1 (from 2012)

- A woman with major placenta praevia is admitted at 34 weeks with mild PV bleeding.
- 2 days later she is taken to theatre for a caesarean (not an emergency).
- She loses 1.5 -2 litres of blood during the case and has a Bakri balloon inserted
- She receives 2000ml of voluven– (starch solution)
- (! It is 2012 remember)
- She continues to bleed in recovery and a ROTEM is done and you look at it about 20min later.

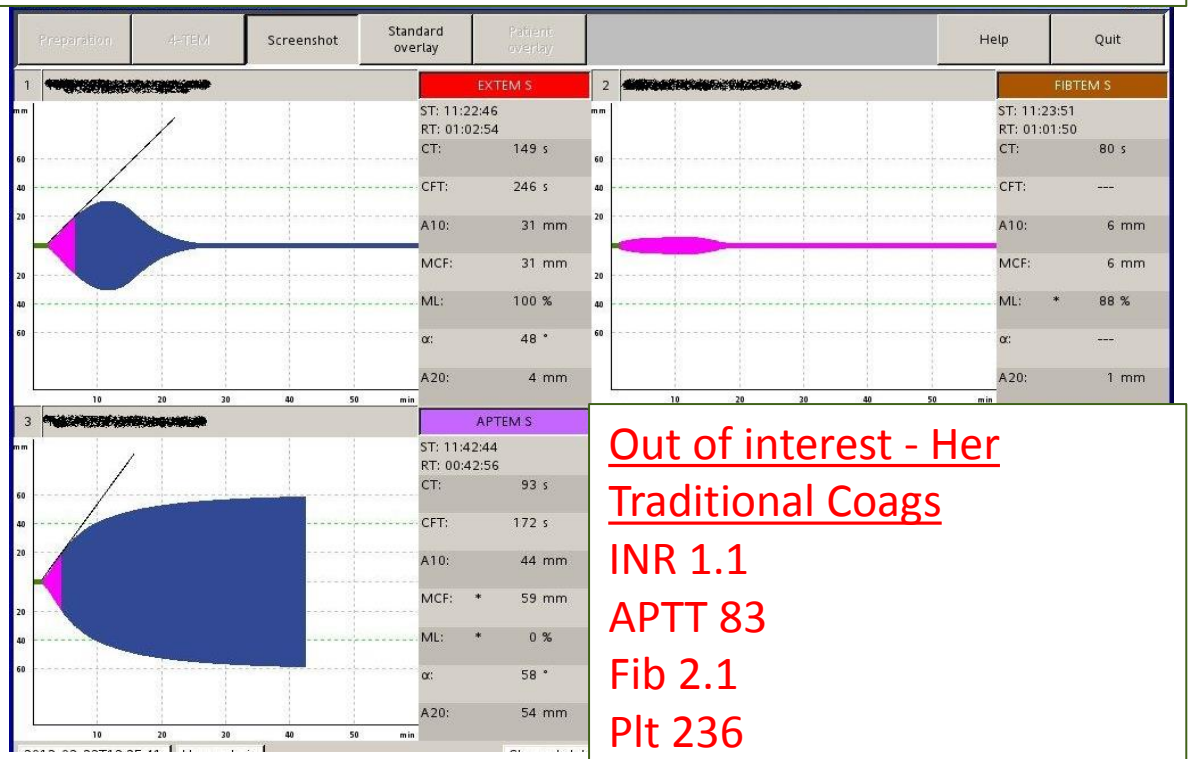
- What treatments / blood products will you give (follow the ROTEM algorithm)



Case 1 (from 2012) - Comments

- Hyperfibrinolysis is the major finding - give TXA 1g
- Fibtem A5 is low – Is this due to the fibrinolysis or a co-existing fibrinogen deficiency
- Extem CT is prolonged – also is this indicative of a need for factors (FFP or PTX) or just a consequence of the fibrinolysis?

- Do an APTEM on the original sample.
- Or give TXA and send a new sample.
- The APTEM CT is 93s – so probably no need for factors
- The Fibtem is probably low so consider fibrinogen.



<u>Out of interest - Her Traditional Coags</u>

INR 1.1

APTT 83

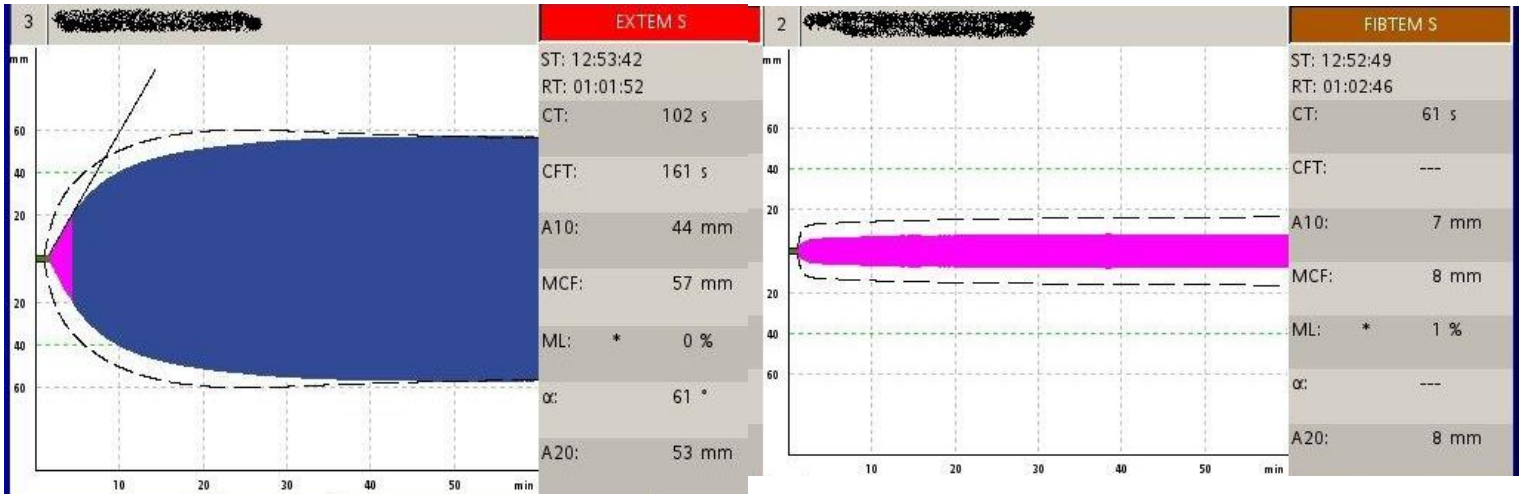
Fib 2.1

Plt 236

You would have no idea anything was wrong.

Case 1 (from 2012)

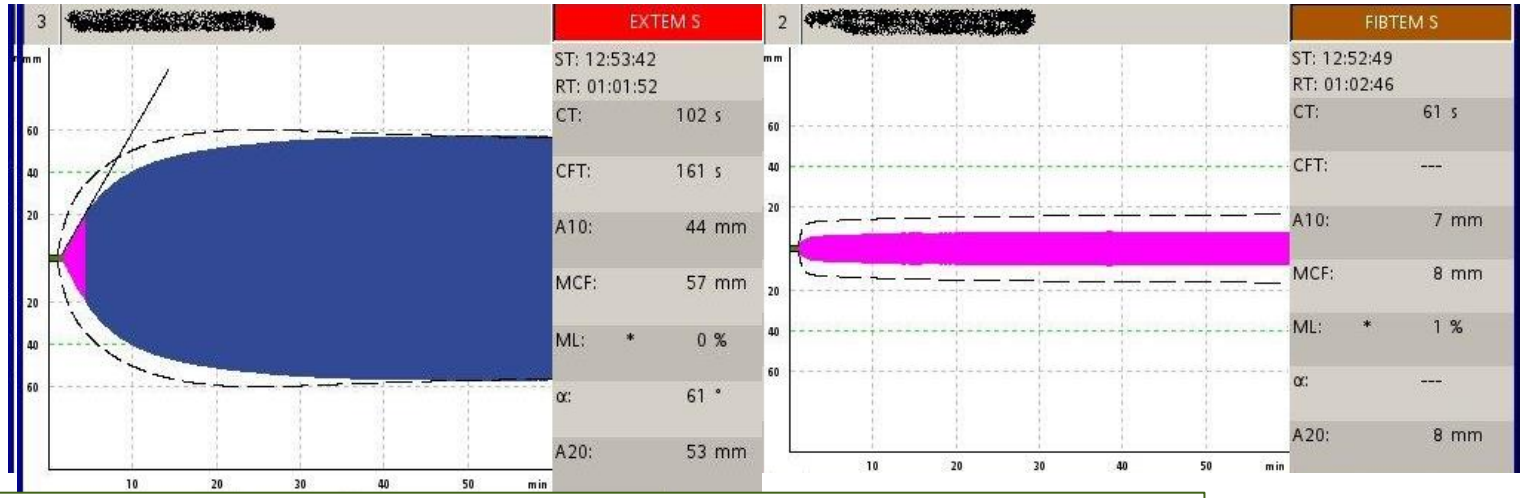
After TXA 1g this was her 2nd ROTEM



- What treatments / blood products will you now give (again follow the KEMH ROTEM algorithm)

Case 1 (from 2012) - Comments

After TXA 1g this was her 2nd ROTEM



- Fibrinogen: The fibtem A5 is probably about 5mm – critically low (we only had A10 in 2012). Assuming she is 70-80kg and you are aiming for a fibtem A5 of 14mm you need to give 20-24 units cryo or 4-5g Fib concentrate.
- Fibrinolysis: TXA already given – not evident
- Platelets: Extem A5 is probably > 35mm – not needed
- Factors: Extem CT 102s – will probably correct with fibrinogen alone
- Why is the Clauss fibrinogen so good but the fibtem so low?

- Colloids but especially starch solutions like Voluven interfere with fibrin polymerisation and this is the likely explanation…

<u>FYI Traditional Coags</u>

INR 1.2

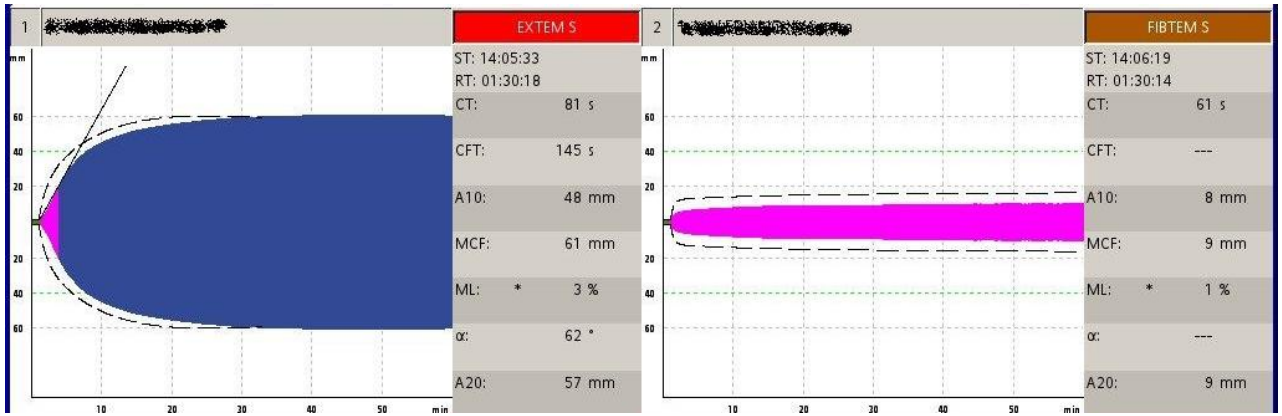
APTT 66.4

Fib 1.8

TCT 32.8

Case 1 (from 2012)

Post Cryo 8units
FFP 1 unit



Comments:

- The Extem CT is now almost normal
- The Fibtem has only improved by 1-2mm. 8u cryo and 1 bag of FFP are too smaller dose to increase the fibtem very much in clinical practice
- The clauss (traditional fibrinogen) and fibtem are still quite different – probably due to the starch (all colloids have this effect to some degree)

<u>Traditional Coags</u>
INR 1.0
APTT 43.4
Fib 2.5
TCT 24.5

Points to Ponder

1. A certain proportion of our bleeding patients will develop hyperfibrinolysis – it is seen much less often now that many patients get given TXA as soon as possible.
2. Maybe we should just give tranexamic acid to <u>all</u> bleeding patients early?
3. The much debated WOMAN trial certainly didn't show any increased incidence of harm?