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Massive Obstetric Haemorrhage

A complex placenta percreta

Helen Wilkinson

Senior Biomedical Scientist in Transfusion

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ROYAL HALLAMSHIRE HOSPITAL

- Haematology patients
- Antenatal/obs/gynae patient
  - Antenatal samples
  - cffDNA
  - FMH testing
  - Neonatal testing
- Neurology patients

NORTHERN GENERAL HOSPITAL

- Major trauma centre
- Cardiac patient
- Renal transplants

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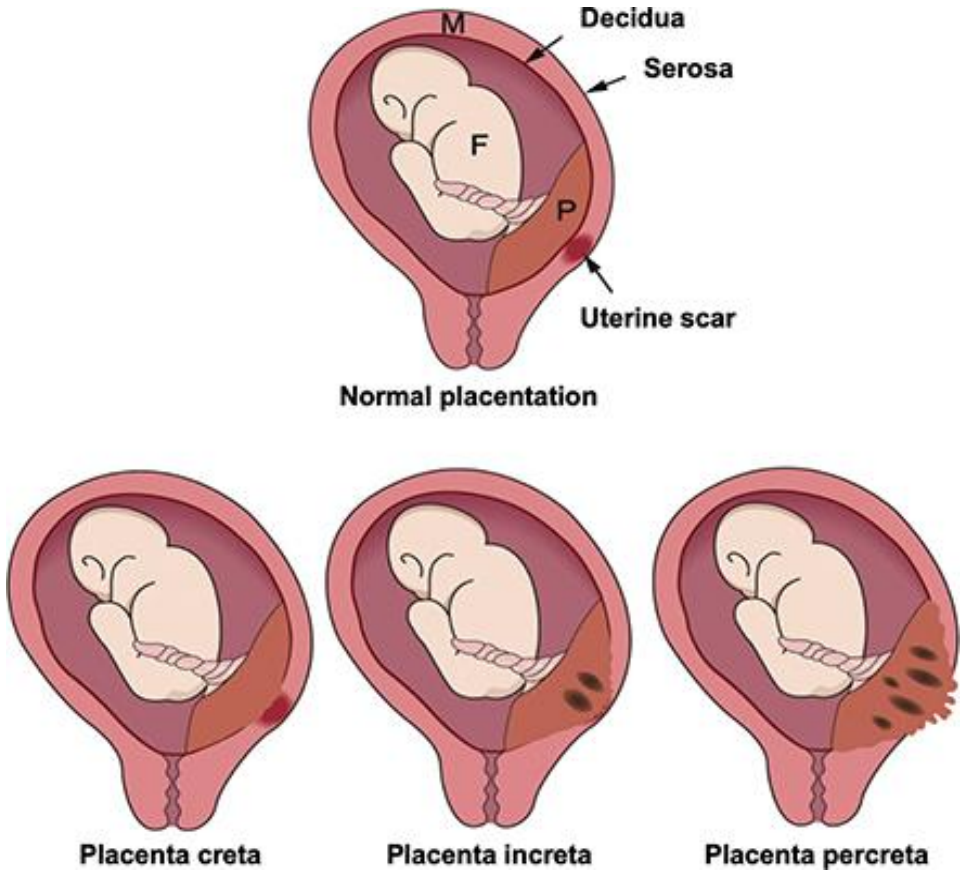
STH AND JESSOP WING

- Dedicated maternity unit with neonatal intensive and special care wards
- 7,000 babies born each year
- Blood bank is at the Royal Hallamshire Hospital - Connected to Jessops via a corridor = 5 min walk
- Emergency O RhD neg blood for adults and neonates at JW
- Approximately 1 MOH a month

PLACENTA PERCRETA

- Placenta grows through the wall of the uterus – often through old scar tissue (c/section)
- 3 different grades
- Acreta, increta and percreta
- Placenta unable to detach from uterus cleanly
- Can cause major haemorrhage
- Percreta patients often have a hysterectomy performed at the same time to minimise blood loss



PATIENT HISTORY

- 34 y/o, 2 previous c/sections
- @ 20 weeks pregnant
  - Transferred to Jessops wing
  - Placenta previa major and placenta percreta that had invaded the bladder
- @ 29 weeks pregnant
  - Large varicose vein and varascies around the uterus and birth canal
- @ 30 weeks pregnant
  - Placenta had invaded the pelvis and iliac arteries
  - Patient was suffering from heart failure

THE PLAN

- Expected massive blood loss
- Caeserian section with a hysterectomy
- 2 cell salvage machines were prepared
- Thromboelastography (TEG) machine ready
- Pre op Hb 117g/L, plts 328 10^9/L all clotting within normal range
- Patient was group O RhD positive
- Negative antibody screen
- 6 units of RBC prepared the night before
- No pre-thawed plasma

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LOCAL MOH PROTOCOL

- 4 Red cells
  - Group specific and electronic issue in most cases
- 3 bags FFP

ON SITE

- 30 x O RhD pos RBC
- 2 x A pos Irr platelets
- 2 x O pos Irr platelets
- 4 AD - FFP
- 3 AD - Cryo
- Octaplas
- Fibrinogen concentrates and tranexamic acid (pharmacy)

- Issued when requested

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- 08:30 a healthy baby girl was delivered
- 11:42 we received our 1st request for a MOH pack (6 RBC, 3 FFP)
- Over the next **6 hrs** frequent and rapid blood and blood products were required
- All products requested by phone and documented
- Collected by Jessop staff

TIME	PRODUCTS	GROUP	RESULTS
11:25			Hb = 107 g/L
11:42	6 RBC	O +	Plt = 285 x 10^9/l
	3 FFP	O +	Fib = 5.3 g/L
11:52	1 PLT	O +	
12:07	1 PLT	O +	
12:10			Hb = 30 g/L
12:12	6 RBC	O+	
12:17	1 PLT	O+	
12:21	3 FFP	O+	
12:43	6 RBC	O+	
12:50			Hb = 107 g/L
12:56	1 PLT	O-	Plt = 94 x 10^9/l
13:04	3 FFP	O+	Fib = 0.9 g/L
	2 CRYO	O+	
13:31	1 PLT	A+	
13:57	1 PLT	A+	
	2 CRYO	O+	
	6 RBC	O+	
14:00			Hb = 67 g/L
14:11	3 FFP	A-	Plt = 110 x 10^9/l
14:18	6 RBC	O+	
14:50	6 RBC	O+	
	3 FFP	A-	
	1 PLT	O+	
15:09			Hb = 95 g/L
15:13	6 RBC	O+	Plt = 61 x 10^9/l
15:23	6 RBC	O+	
	1 PLT	O+	
	5 OCTAPLAS	O	
15:35	2 CRYO	A+	
15:51	1 PLT	O+	
	6 RBC	O+	
15:53	6 RBC	O+	
15:59	6 RBC	O+	
16:09	6 RBC	O+	
16:14	5 OCTAPLAS	O	
16:15			Fib = 1.3 g/L
16:15	3 CRYO	A+	
	2 PLTS	A+/O+	
16:25			Hb = 86 g/L
16:36	2 PLTS	O+	Plt = 58 x 10^9/l
16:47	6 RBC	O+	
16:49			Hb = 122 g/L
17:01	6 RBC		Plt = 103 x 10^9/l

PRODUCTS USED

- In total;
  - 5 litres of cell salvage
  - 80 units of RBC
  - 13 units plts
  - 5 doses FFP
  - 3 doses Cryo
  - 1 litre Octaplas
- Group specific O RhD pos blood used throughout
- Group specific O RhD pos plts used (A RhD pos used whilst waiting for re-stock)
- Fibrinogen concentrates were used but had to switch to cryoprecipitate when these ran out
- Octaplas used whilst waiting for re-stock of FFP
- Tranexamic acid was used
- 2 cell salvage machines
- TEG and blood gas readings meant products were ordered only when needed

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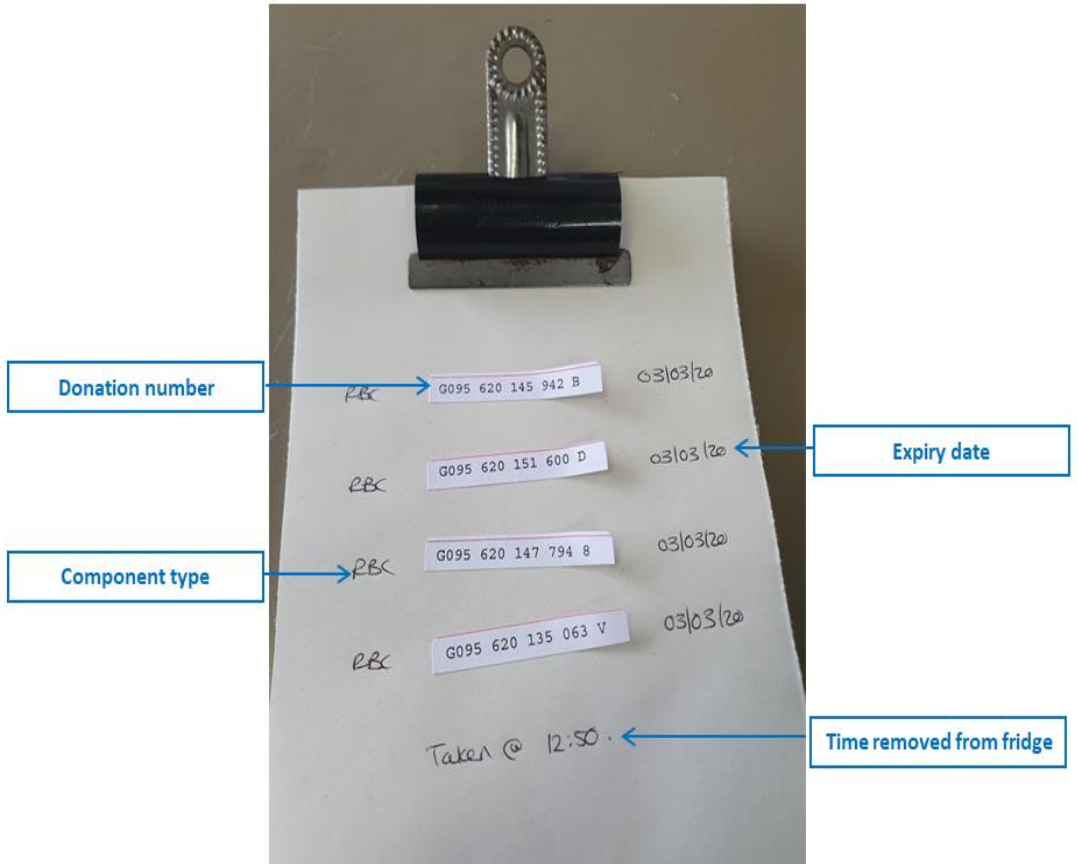
LAB STAFF DUTIES

- Staff naturally divided into red cell, platelet and frozen products
- Extra staff drafted in to continue routine work
- Crude sign out sheet as JW staff didn't have time to sign out all the components
- MLA staff helped sign out products retrospectively
- Manually re-order products and order taxi's to collect (NHSBT in Sheffield at the time)



- Frequent phone calls
- Issuing products
- All staff working flat out and also keeping calm and composed

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POST ANALYSIS

The Positives

Communication

- Theatre to lab staff – clear, concise, and included clinical details so lab staff understood the situation
- Lab staff to theatre - Accurate times for product availability (FFP/cryo)
- Confidence to the theatre staff
- NHSBT – communication important!

Team work

- Efficient
- No panic
- No confusion
- Clear communication throughout
- Prioritised the work accordingly
- Extra staff helped with the routine work

Traceability/Wastage

- 100% traceability
- 4 RBC wasted as out of temperature
- 3 cryo and 5 Octaplas wasted as no longer required

What could we improve?

Prior Warning

- Although the patient had a scan at JW at 20 weeks, she wasn't due for surgery there
- As her health deteriorated and the situation became more urgent she was transferred to Sheffield
- Blood bank had <24hrs notice
- Could have prepared pre-thawed plasma
- Could have had additional platelets on standby
- Additional fibrinogen concentrates?

Stock management

- Vendor Managed Inventory (VMI)
  - VMI checks our stock levels every 30 mins
  - If emergency level triggered
  - Lab gets a phone call
  - Stock is replaced
- We triggered the emergency levels on multiple times very quickly
- Couldn't wait for NHSBT to phone
- Ordering blood before VMI was triggered
- Had to manually order via OBOS and send a taxi driver to collect

- No emergency trigger for plasma products!
- Had to switch to group A plasma as no time to re-order
- NHSBT at this time was in Sheffield **– 3 miles away**

Taxis

- Regularly use local taxis to drop off samples, collect non urgent blood products.
- 20-30 units of RBC, FFP and platelets = multiple heavy boxes and an angry taxi driver!
- Quickly had to switch to NHSBT drivers

Documentation

- Traceability was excellent
- Improved the way of retrospectively signing out blood products
- Can print out a document and write the times taken at the side

Afterwards

- We did receive thanks from the obstetric team
- Traumatic experience for lab staff
- Staff needed to process what had happened

Just because we don’t see the patient doesn’t make it any less upsetting.

Biomedical Scientist

Empowerment and Discussion Group

NHS Blood and Transplant

Thank you for joining us today!

Please remember to complete the feedback form, link in the chat.

We look forward to seeing you at our next meeting:

27th Oct 2021, 14:00

MS Teams