Management of a pregnant patient with Placenta Percreta

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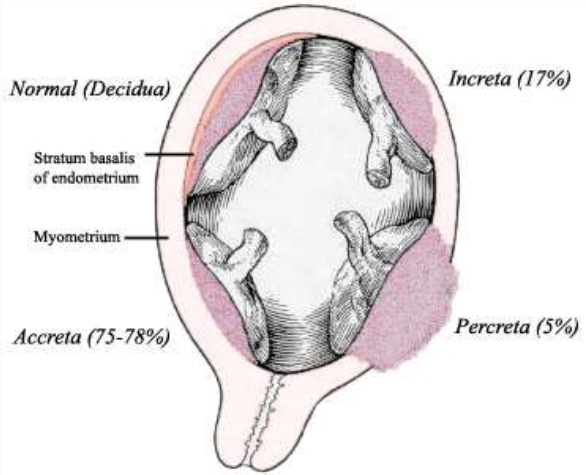
Why is this in a TRAUMA symposium???

- ?Trauma surgeons are the new age O & G's
- ?Trauma surgeons can operate on anything anyway
- ?Trauma surgeons really love babies and want to do more C sections
- ? Trauma surgeons should form part of a multidisciplinary team to assist with potential massive haemorrhage from an obstetric abnormality that can lead to maternal morbidity and mortality

What is Placenta Percreta?

- All or parts of the placenta attaches abnormally to the uterine wall
- 3 types of **morbidly adherent placentas (MAP)**
  - **Accreta:** Attached to the myometrium (75-78%)
  - **Increta:** Invades the myometrium (17%)
  - **Percreta:** Invades through uterine serosa and even attaching to other organs (most severe from, 5-7%)



Background of MAP

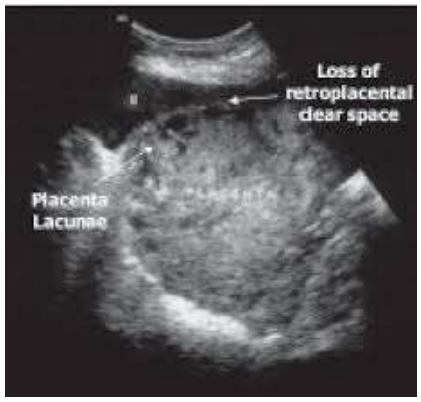
Rates of MAP increasing: 1 per 272-533 pregnancies affected

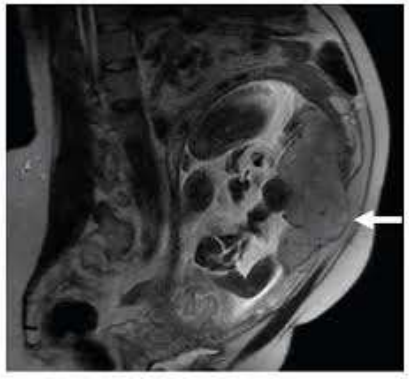
Leading cause of PPH and maternal mortality worldwide

50 fold increase in incidence of placenta percreta in the last 50 yrs.

Risk factors

- Prior C-section or uterine surgery including D & C
- Advanced maternal age
- Previous scar tissue, uterine irradiation, uterine abnormalities
- Multiparity
- Placenta praevia and prior C-section





Diagnosis

- **Ultrasound** findings in 2nd or 3rd trimester
  - Not easy, interobserver variability
- **MRI**
  - Good sensitivity and specificity

Demographics of high risk patients

- 60% of women with MAP will have significant morbidity
- 90% of women with Placenta Percreta will require blood transfusion
- Median transfusion requirement of 7 units packed cells
- Morbidity and mortality devastating when blood transfusion not an option
  - Lack of resources (SA limited resources)
  - Patient refusal i.e. Jehovah witnesses. (Risk of mortality 130 times greater than the normal population)

Management

- **Pre-operative optimisation**
  - Treat underlying anaemia
  - Iron, folate, Vit B12, Erythropoietin
- **Definitive management**
  - Caesarean section +- hysterectomy
- **Conservative options**
  - Leave placenta in situ with curettage of placenta +- methotrexate
  - Delayed hysteroscopic resection
  - Interval hysterectomy
- **Complications of leaving the placenta in situ**
  - 61% complication rate
  - Post operative sepsis
  - 58% risk of hysterectomy up until 9 months
  - Haemorrhage

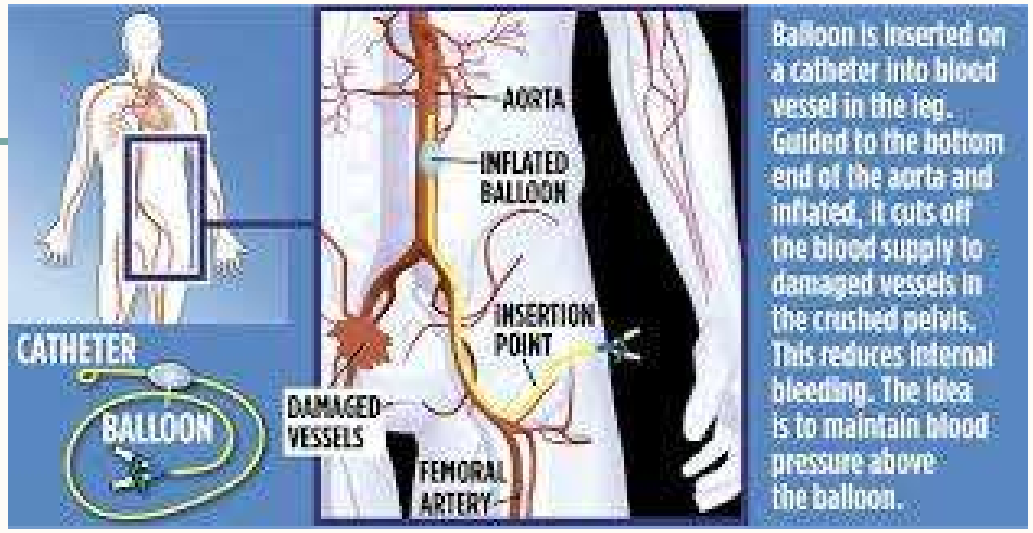
Traditional haemorrhage control techniques

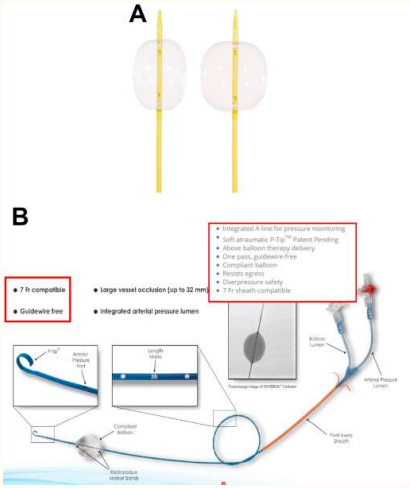
- Intrauterine balloon catheterisation and inflation
- Pelvic vessel embolization
- Internal iliac artery ligation (reduces blood loss only in 50% of cases)
- Prophylactic internal iliac balloon occlusion (mixed results, no difference in blood loss even in combination with uterine artery embolization)
- Bilateral uterine artery ligation
- **PROBLEM:** persistent proximal collateral circulation to the uterus (Gravid uterus, abnormal placentation)
- Aortic cross-clamping when internal iliac artery occlusion insufficient

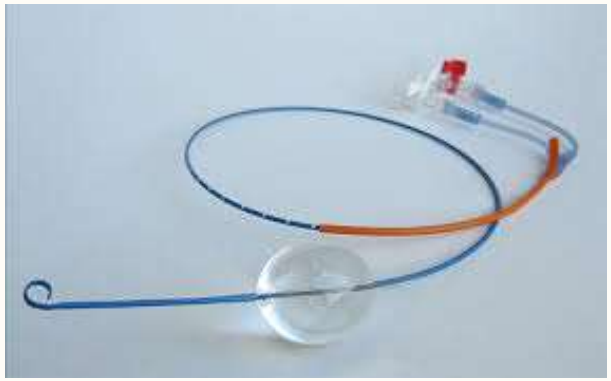
Novel haemorrhage control: REBOA

- **REBOA**: **R**esuscitative **E**ndovascular **B**alloon **O**cclusion of the **A**orta
- Placement of an endovascular balloon in the aorta to control distal haemorrhage, decreasing blood loss and to augment cardiac afterload= ***improving myocardial and cerebral perfusion***
- Can be used as an **alternative** to aortic cross clamping
- Most of the REBOA published data from trauma literature

REBOA catheters







Potential complications

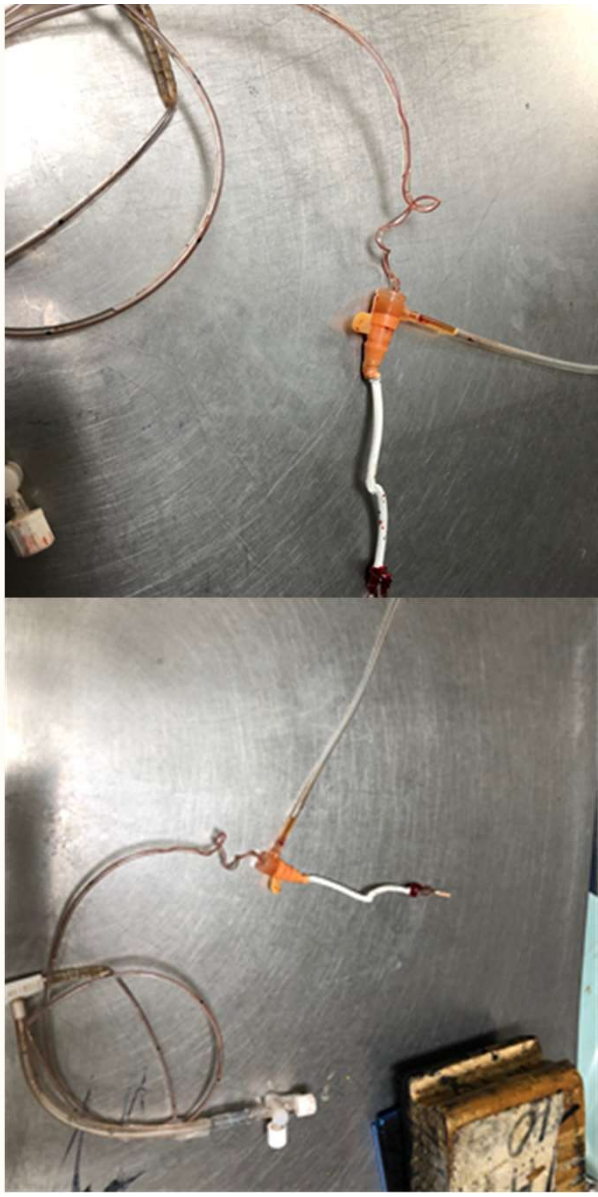
- Introducer sheath size and comorbidity-risk factors (<1%)
- **Systemic** (NB Zone 1)
  - Renal failure
  - Spinal cord ischaemia
  - Intracranial haemorrhage
- **Local**
  - Pseudoaneurysm
  - Distal embolization, +-amputation
  - Introducer insertion failure
  - Balloon migration
  - Retroperitoneal haematoma
  - Balloon rupture

Benefits of REBOA

- Significantly **reduces obstetric blood loss** compared to combined internal iliac and uterine artery occlusion
- Option of **partial occlusion** with REBOA vs full occlusion with traditional aortic cross clamping
- Prophylactic use during MAP procedures-**improved maternal outcomes** and decreased hysterectomy rates
- **Less time needed** for placement and requires only **unilateral** placement compared to uterine or internal iliac artery occlusion techniques
- New catheters requires no fluoroscopy-less **foetal radiation**
- Catheter can be inflated, deflated and **repositioned** as needed
- REBOA catheters usually placed by surgeons/emergency medicine physicians, **more readily available** than interventional radiologists in emergency cases

Case 1: Placenta percreta, 16/2/18

- Known Placenta Percreta patient, on table in O.R. for 4 hours- no haemostasis. MDT team present including 2 O&G consultants, an O&G registrar, a urology consultant, a colorectal consultant and an interventional radiologist. Bilateral internal iliac artery balloon catheters already placed pre operatively, patient still exsanguinating and in extremis
- Trauma Surgeon called to help as last resort
- Rescue REBOA in Zone 1: haemostasis achieved, 30 minutes full REBOA, 30 minutes partial REBOA.
- Unable to remove balloon through size 7 sheath, removed later with sheath by vascular surgeons: diminished pulses: required arteriotomy, thrombectomy, good outcome
- **<u>HIGHLIGHTS:</u> SEVERE PLACENTA PERCRETA MAY NEED ZONE 1 CONTROL, AND REMOVING BALLOONS THROUGH SIZE 7 MAY BE DIFFICULT**



Current practise at CHBAH

- Identification of a patient with potential MAP by O & G via U/S and foetal medicine
- MRI delineation of MAP
- Multidisciplinary team meeting with O&G case presentation, trauma surgery, urology, colorectal surgery, paediatrics and anaesthetics
- Planning of procedure as elective case

On the day of surgery

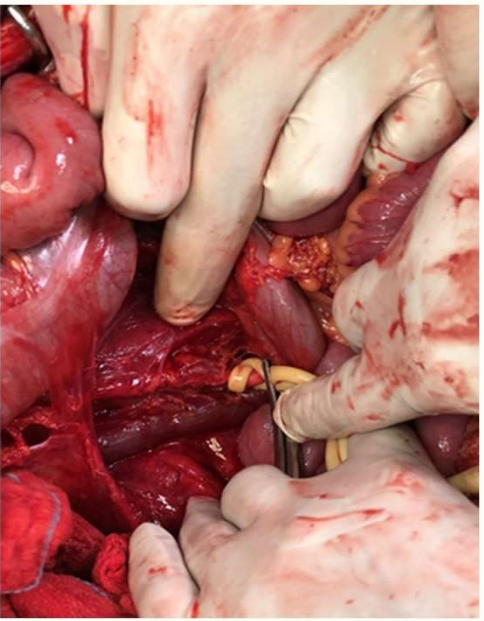
- Blood products available in theatre
- ICU bed booked
- Cell saver ready
- Ureteric stenting by urology
- Femoral artery access by trauma surgeons, ready for REBOA placement
- General anaesthetic
- Caesarean section and delivery of baby
- Inflation of REBOA if/as needed/aortic cross clamping
- Hysterectomy, removal of placental tissue invading surrounding structures/leaving placenta in situ
- Removal of REBOA
- Further resuscitation in ICU
- Removal of sheath the following day if patient is coagulopathic and cannot be removed immediately

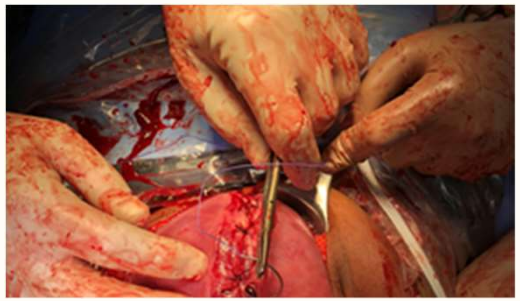
Case 2:EXTENSIVE PLACENTA PERCRETA: 26/3/18 Planned REBOA

- 42 year old
- G4P2 at 33/40
- Prev C/S x 2; 1 TOP
- Zone 1 then Zone 3 with stylet in place
- On re-introducing to zone 1: ruptured
- Zone 3 Foley's around aorta
- Iliac artery damage by sheath
- Good outcome

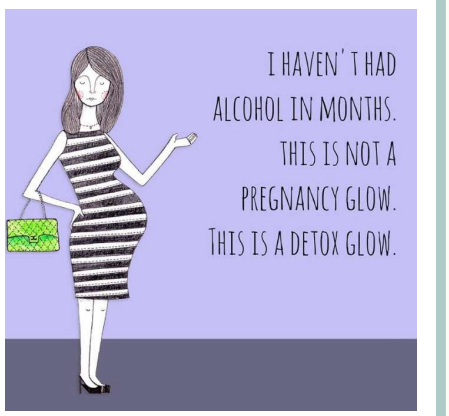
HIGHLIGHTS: REINTRODUCTION OF STYLET CAN CAUSE PROBLEMS

Case 3: Planned PLACENTA PERCRETA: CHBAH: 18/5/18





- Tiny 15 year old P0, G1
- Standard CVP line in CFA, ready for sheath insertion
- Foley's catheter around infrarenal aorta after hysterotomy and delivery
- Complete Zone 3 clamping while ongoing bleeding from uterus
- **<u>HIGHLIGHTS:</u> AORTIC LOOP ASSITED IN BLEEDING CONTROL. REBOA READY IF NEEDED**
  - **20 000 DELIVERIES/YEAR AT CHBAH: 40 PP/YEAR**


I HAVEN'T HAD
ALCOHOL IN MONTHS.
THIS IS NOT A
PREGNANCY GLOW.
THIS IS A DETOX GLOW.


9 times out of 10
children get their
awesomeness from
their mother
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Thank you