Replacing Blood and Performing Surgery with the NASG in Place

Farouk Jega, MD
Program Manager, CC-PPH Project
Pathfinder International, Nigeria
Introduction

• The Non-Pneumatic Anti-Shock Garment (NASG) is NOT definitive treatment for PPH.

• The NASG helps the clinician to stabilize the patient in shock, while awaiting definitive treatment or transfer.

• In most instances, further treatment (intravenous fluid infusions, blood transfusion, uterotonics, surgery) is required.
Blood Transfusion with the NASG

• Immediate priority is to expand blood volume with crystalloids.

• Appropriate IV infusions are also not always available at public health facilities.

• Blood transfusion a must in severe PPH; most women die from delay/not receiving blood transfusion at all following PPH.

• Unfortunately, availability of safe blood for transfusion still an issue in most intervention health facilities.
Uterotonics for Treatment of Atonic PPH

- Oxytocin, ergometrine, misoprostol
- All relatively cheap
- Not always available
- Issues with storage (temperature, light), resulting in instability
- Some resistance with use of misoprostol as an abortifacient drug
- Procurement logistics also an issue
Blood and Blood Products in PPH

• Essential for the management of PPH.

• Unfortunately not always available even in so-called Comprehensive Essential Obstetric Care (CEOC) facilities.

• The National Blood Transfusion Service takes the lead in securing safe blood in public health facilities in the country; grossly under-funded.

• Problems with power supply for storage, apathy of potential blood donors, and screening.

• Most blood banks operate a replacement policy; source usually paid donors and patients’ relatives.
Our Solution: Solar Blood Banks and ‘Emergency Blood’

- 5-10 pints of blood secured and saved for obstetric emergencies (collaboration between maternity unit and blood bank)

- Challenges still with replenishing used up blood

- Solar blood bank set up with Cloverleaf funding

- Community being mobilized to donate blood voluntarily as part of community component of the project
Surgery with the NASG

• Different types of surgery possible with the NASG:
  – Vaginal route
    • Manual removal of placenta
    • Evacuation of retained products of conception
    • Repair of lacerations
  – Abdominal
    • Caesarean section
    • Laparotomy
    • Uterine devascularization procedures
    • Hysterectomy
Uterine Compression Sutures

• Conservative surgical intervention for atonic PPH

• Easier than emergency hysterectomy and devascularization procedures

• Different types described: Hayman; Cho multiple square sutures; B-Lynch sutures

• Same principle: the suture aims to exert continuous vertical compression on the uterine vascular system
B-Lynch Sutures

- Also called brace sutures

- First applied for a patient with massive hemorrhage who refused consent for hysterectomy (November 1989)

- Slight modification of the other compression sutures with many advantages
Anterior and Posterior Suture Placement

- Fallopian tube
- Suture passing over posterior uterine surface
- Suture passing over anterior uterine surface
- Round ligament
- 70mm round-bodied hand needle
- Posterior bite of suture
- Cesarean section/hysterotomy

a(i)

Same level as the upper anterior entry point

Same level as the upper anterior entry point

4 cm

Round ligament

Closure of Cesarean section/hysterotomy incision

© Copyright B-Lynch '05

Pathfinder International
Anterior and Posterior Suture Placement

Repeat the same procedure posteriorly as before with assistant maintaining compression.

More details including video available at [www.glowm.com](http://www.glowm.com)
Postoperative Follow-up

- No major complications nor mortality reported
- MRI showed no intraperitoneal or intrauterine sequelae
- Most have had successful future pregnancies and deliveries
**B-Lynch Suture: Clinical Points**

- Basic surgical competence required
- Bimanual compression first to test potential efficacy
- Simple and cost-effective
- Future fertility preserved
- Potential for prophylactic application at Caesarean section
- Relatively new procedure so not all providers comfortable with technique
- Hard to get the opportunity to train surgeons
Conclusion

- The B-Lynch procedure has been recommended by the 2000-2002 Triennial Confidential Enquiry into Maternal Deaths and the RCOG in the UK and the Cochrane Database of Systematic Reviews.

- To date, no serious complications have been reported.

- Procedure is simple, safe and effective in arresting hemorrhage due to uterine atony.

- Particularly useful in our setting where women want to keep their uteri to maintain fertility and menstruation for religious and cultural reasons.
Conclusion, cont’d

• The NASG is not the definitive treatment for the NASG. We have found that blood replacement and performing surgery are the most difficult elements of the Clinical and Community Action Model to put in place.