STANDARD TREATMENT WORKFLOW (STW)

IMAGE GUIDED MANAGEMENT OF VAGINAL BLEEDING

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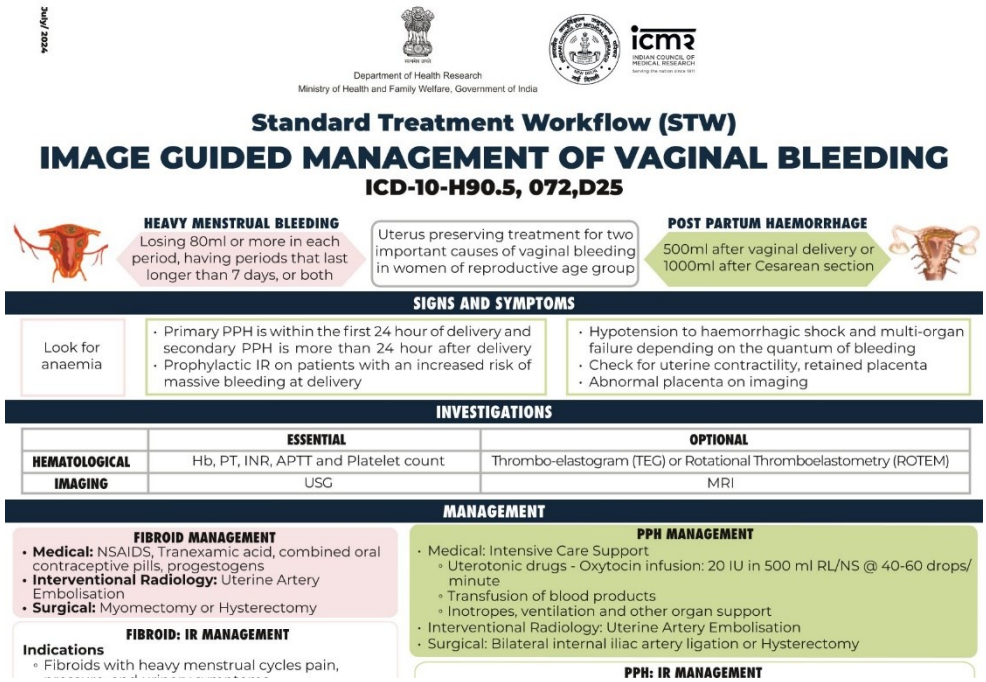

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Standard Treatment Workflow (STW)

IMAGE GUIDED MANAGEMENT OF VAGINAL BLEEDING

ICD-10-H90.5, 072,D25

HEAVY MENSTRUAL BLEEDING
Losing 80ml or more in each period, having periods that last longer than 7 days, or both

Uterus preserving treatment for two important causes of vaginal bleeding in women of reproductive age group

POST PARTUM HAEMORRHAGE
500ml after vaginal delivery or 1000ml after Cesarean section

SIGNS AND SYMPTOMS

Look for anaemia

- Primary PPH is within the first 24 hour of delivery and secondary PPH is more than 24 hour after delivery
- Prophylactic IR on patients with an increased risk of massive bleeding at delivery

- Hypotension to haemorrhagic shock and multi-organ failure depending on the quantum of bleeding
- Check for uterine contractility, retained placenta
- Abnormal placenta on imaging

INVESTIGATIONS

	ESSENTIAL	OPTIONAL
HEMATOLOGICAL	Hb, PT, INR, APTT and Platelet count	Thrombo-elastogram (TEG) or Rotational Thromboelastometry (ROTEM)
IMAGING	USG	MRI

MANAGEMENT

FIBROID MANAGEMENT

- **Medical:** NSAIDS, Tranexamic acid, combined oral contraceptive pills, progestogens
- **Interventional Radiology:** Uterine Artery Embolisation
- **Surgical:** Myomectomy or Hysterectomy

FIBROID: IR MANAGEMENT

Indications
- Fibroids with heavy menstrual cycles pain, pressure, and urinary symptoms

Contraindication:
- Suspected infection
- Approximate days of required hospitalisation: 1-3 days

PROCEDURAL DETAILS

- Under conscious sedation or anaesthesia
- Arterial access (femoral/radial)
- Selective internal iliac arterial angiograms and cannulation of hypertrophied (uterine) arteries
- Embolisaton with appropriate agent – PVA particles
- Check angiogram

- **Expected outcomes:** At 12 months, menorrhagia control in 90%–92% of patients and improvement in bulk symptoms in 88%–96%
- Associated adverse events/complications
  - Fibroid expulsion 5%
  - Ovarian failure with amenorrhoea 7.5% of patients, overwhelming majority in women > 45 years of age
  - Uterine sepsis requiring hysterectomy 0.1%
- After care
  - Pain management: NSAIDS and if required intravenous narcotics (Morphine sulfate 30 mg SC /IM/IV), hypogastric nerve block
- **Follow up:** after 3 months; clinical, Hb, USG

- Other image guided minimally invasive treatment for fibroid include HIFU and ablation
- Other gynaecological conditions like adenomyosis also can be managed similarly by UAE

PPH MANAGEMENT

- Medical: Intensive Care Support
  - Uterotonic drugs - Oxytocin infusion: 20 IU in 500 ml RL/NS @ 40-60 drops/ minute
  - Transfusion of blood products
  - Inotropes, ventilation and other organ support
- Interventional Radiology: Uterine Artery Embolisation
- Surgical: Bilateral internal iliac artery ligation or Hysterectomy

PPH: IR MANAGEMENT

Indications
- Uterine atony despite medical treatment
- Vaginal or cervical tear after failed surgical repair
- Persistent hemorrhage after arterial ligation or hysterectomy
- Placenta accreta – including prophylactic treatment

Contraindication:
- Nil; but risk of acute kidney injury to be considered
- Approximate days of required hospitalisation: 2 to 7 days

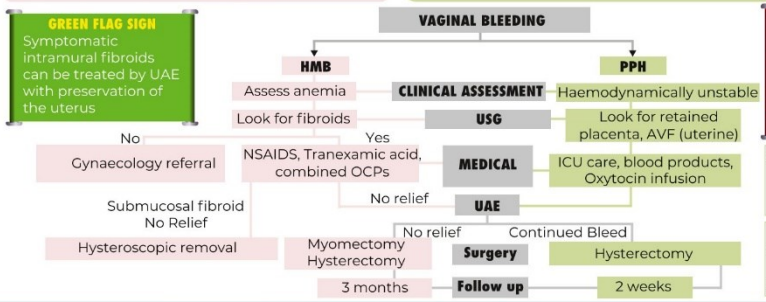
Procedural details
- Under conscious sedation or anaesthesia
- Arterial access (femoral/radial)
- Selective internal iliac arterial angiograms and cannulation of hypertrophied (uterine) arteries
- Embolisaton with appropriate agents – PVA particles, gel foam, histoacryl etc.
- Check angiogram

For patients with placenta accreta
- Prophylactic balloon catheter placement of internal iliac arteries before delivery/caesarean section

- Expected outcomes: successful haemostasis > 95%
- Associated adverse events/complications: ovarian failure, uterine sepsis, uterine infarctions (rare; less than 2%)
- After care
  - **Medical:** ICU care till bleeding arrests and organ failures are reversed
  - **Investigation:** USG
  - **Criteria and timing for safe discharge:** 3 days after the procedure if uneventful
- Follow up: after two weeks; Clinical, Hb, USG

- Other obstetric conditions like post-abortive haemorrhage secondary to uterine artery pseudoaneurysm, complications of molar regnancy, uterine arteriovenous malformation (AVM) can also be treated similarly

GREEN FLAG SIGN
Symptomatic intramural fibroids can be treated by UAE with preservation of the uterus



RED FLAG SIGN
- PR > 120/min
- Systolic BP < 100 Mm Hg
- Tachypnoea >20 breaths per minute
- SpO2 < 95%
- Deterioration of sensorium

Refer to uterine fibroids and polyps ICD-10-D25 & N84
Refer to Postpartum hemorrhage ICD-72

Timely referral to a higher centre must be considered where facilities for ICU, surgical and IR are available

CONCLUSION

- Uterine artery embolization is a minimally invasive image guided procedure which has an important role in management of select cases of obstetric and gynecological conditions
- It is a uterus preserving procedure
- It has evolving role in case of uterine malignancies

ABBREVIATIONS

APTT: Activated Partial Thromboplastin Time
AVF: Arteriovenous Fistula (uterine)
CECT: Contrast Enhanced Computed Tomography
Hb: Haemoglobin
HIFU: High Frequency Focussed Ultrasound
HMB: Heavy Menstrual Bleeding
ICU: Intensive Care Unit
INR: International Normalized Ratio
IR: Interventional Radiology
MRI: Magnetic Resonance Imaging
NSAIDs: Non-steroidal anti-inflammatory Drugs
OCPs: Oral Contraceptive Pills
PPH: Postpartum Haemorrhage
PT: Prothrombin Time
PVA: Poly Vinyl Alcohol
UAE: Uterine Arterial Embolization
USG: Ultrasonography
VB: Vaginal Bleeding

REFERENCES

1. Heavy periods, overview. NHS, UK. https://www.nhs.uk/conditions/heavy-periods/.
2. Bulman JC, Ascher SM, Spies JB. Current concepts in uterine fibroid embolization. Radiographics. 2012 Oct;32(6):1735-50. doi: 10.1148/rg.326125514. PMID: 23065167.
3. Newsome J, Martin JG, Bercu Z, Shah J, Shekhani H, Peters C. Postpartum Hemorrhage. Tech Vasc Interv Radiol. 2017 Dec;20(4):266-273. doi: 10.1053/j.tvir.2017.10.007. Epub 2017 Oct 10. PMID: 29224660.
4. Mahankali, Subramanyam S.. Interventional Radiology: A Disruptive Innovation Which is Transforming Management of Post-Partum Haemorrhage. Journal of Obstetric Anaesthesia and Critical Care 7(2):p 65-68, Jul-Dec 2017. | DOI: 10.4103/joacc.JOACC_47_17
5. Reiko Woodhams, The role of interventional radiology in primary postpartum hemorrhage, Hypertension Research in Pregnancy, 2016, Volume 4, Issue 2, Pages 53-64, Released on J-STAGE May 11, 2017, Advance online publication February 23, 2017, Online ISSN 2187-9931, Print ISSN 2187-5987, https://doi.org/10.14390/jsshp.HRP2015-016, https://www.jstage.jst.go.jp/article/jsshp/4/2/4_HRP2015-016/_article/-char/en
6. Sone M, Nakajima Y, Woodhams R, Shioyama Y, Tsurusaki M, Hiraki T, Yoshimatsu M, Hyodoh H, Kubo T, Takeda S, Minakami H. Interventional radiology for critical hemorrhage in obstetrics: Japanese Society of Interventional Radiology (JSIR) procedural guidelines. Jpn J Radiol. 2015 Apr;33(4):233-40. doi: 10.1007/s11604-015-0399-0. Epub 2015 Feb 19. PMID: 25694338.
7. Kim TH, Lee HH, Kim JM, Ryu AL, Chung SH, Seok Lee W. Uterine artery embolization for primary postpartum hemorrhage. Iran J Reprod Med. 2013 Jun;11(6):511-8. PMID: 24639786; PMCID: PMC3941316.

KEEP A HIGH THRESHOLD FOR INVASIVE PROCEDURES