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MRCOG PART 2 COURSE 2023
ANTENATAL MODULE

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MRCOG Syllabus and Knowledge Requirements for Core Curriculum 2019

MRCOG Syllabus & Knowledge Requirements

Hypertensive disorder in pregnancy

Diabetes in pregnancy

Infection and sepsis in Pregnancy

Venous thromboembolism

Antenatal steroids

PPROM and PROM

Preterm deliveries and cervical cerclage

Drugs, alcohol and domestic violence in pregnancy

Placental disorders and APH (PP, PAS, Vasa previa and placental disorders

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MRCOG Syllabus & Knowledge Requirements

Rhesusand isoimmunization

Induction of labour

Vaginal birth after caesarean section (VBAC)

Female genital mutilation (FGM)

Obesity in pregnancy

Reduce fetal movement

Fetal growth restrictions (FGR)

Malpresentations

Normal antenatal care

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Reading List for Antenatal module - GTG

- Antenatalcorticosteroids to reduce neonatal morbidity and mortality–GTGNo.74–July2022
- AntepartumHemorrhage – GTG No. 63 – November 2011
- Cervical Cerclage – GTG No. 75 – June 2022
- Blood Transfusion in Obstetrics – GTG No. 47 May 2015
- Care of Women with Obesity in Pregnancy – GTG No. 72 – November 2018
- Care of Women Presenting with Suspected PPROM from 24+0 Weeks of Gestation - GTG No. 73 – June 2019
- External Cephalic Version and Reducing the Incidence of Term Breech Presentation – GTG No. 20a – March 2017
- Female Genital Mutilation and its Management – GTG No. 53 – July 2015
- Late Intrauterine Fetal Death and Stillbirth – GTG No. 55 – October 2010
- Management of Breech Presentation – GTG No. 20b – March 2017
- Management of Monochorionic Twin Pregnancy – GTG No. 51 – November 2016
- Placenta Praevia and Placenta Accreta: Diagnosis and Management - GTG No. 27a – September 2018
- Birth After Previous Caesarean Section – GTG No. 45 – October 2015
- Reduced Fetal Movements – GTG No. 57 – February 2011
- Reducing the Risk of Venous Thromboembolism during Pregnancy and the Puerperium – GTG No 37a – April 2015
- The Investigation and Management of the Small-for-Gestational-Age Fetus – GTG No. 31 – February 2013
- Thromboembolic Disease in Pregnancy and the Puerperium- Acute Management – GTG No 37b – April 2015
- Vasa Praevia: Diagnosis and Management – GTG No. 27b – September 2018

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Antenatal module – NICE & SIP

- Antenatal care foruncomplicatedpregnancies – NICENG201 – August 2021
- Antenatal and postnatal mental health- clinical management andservice guidance–NICECG192 – Updated February 2020
- Hypertension in pregnancy- diagnosis and management – NICE NG133 – June 2019
- Preterm labour and birth – NICE NG25 – Updated June 2022
- Twin and triplet pregnancy – NICE NG137 – September 2019

- Air Travel and Pregnancy – RCOG Scientific Impact Paper No. 1 – May 2013
- Antenatal and Postnatal Analgesia – RCOG Scientific Impact Paper No. 59 – December 2018
- Chemical Exposures During Pregnancy- Dealing with Potential, but Unproven, Risks to Child Health – RCOG Scientific Impact Paper No. 37 – May 2013
- Management of Women with Mental Health Issues during Pregnancy and the Postnatal Period – RCOG Good Practice No. 14 – June 2011
- Perinatal Management of Pregnant Women at the Threshold of Infant Viability (The Obstetric Perspective) – RCOG Scientific Impact Paper No. 41 – February 2014
- Registration of Stillbirth and Certification for Pregnancy Loss before 24 weeks of gestation – RCOG Good Practice No. 4 – January 2005

Antenatal module – TOG Articles

- Constipationinpregnancy– TOG 2015;17:111–5
- Domestic violence – a neglected epidemicinobstetricsand gynaecologytraining–TOG 2017;19:199–203
- Domestic violence- a clinical guide for women's healthcare providers – TOG 2012;14:197–202
- Exercise in pregnancy – TOG 2015;17:281–7
- Extreme prematurity and perinatal management - TOG 2018 20:109-117
- Perinatal mental health – how to ask and how to help – TOG 2017;19:147–53
- Spontaneous preterm birth prevention in multiple pregnancy – TOG 2018 20:57-63
- Surgical causes of acute abdominal pain in pregnancy - TOG 2019 21:27-35
- Maternal, fetal, and neonatal outcomes associated with long-term use of corticosteroids during pregnancy – TOG 2019;21:117-125
- Smoking in pregnancy: pathophysiology of harm and current evidence for monitoring and cessation – TOG 2019;21:169-175
- Imaging in pregnancy- TOG 2019;21:255-262

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Antenatal module – TOG Articles

- Antenatal managementofsingleton pregnanciesconceived using assistedreproductive technology – TOG 2020;22:34-44
- Multifetal pregnancy reduction and selective termination– TOG 2020;22:284-292
- Care in pregnancies subsequent to stillbirth or perinatal death – TOG 2021;23:48-59
- Very advanced maternal age – TOG 2021;23:38-47
- Antenatal venous thromboembolism – TOG 2021;23:206-212
- The role of antenatal corticosteroids in improving neonatal outcomes – TOG 2021;23:246-257
- Pregnancy in underweight women: implications, management and outcomes – TOG 2022;24:50-57
- Opioid misuse in pregnancy – TOG 2022;24:101-108
- Advanced abdominal pregnancy: challenges, update and review of current management – TOG 2022:24 195-204
- Obstetric and perinatal outcomes in women with endometriosis – TOG 2022:24 242-250

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Contents

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Hypertensive Disorders in Pregnancy

Hypertension in Pregnancy – NICE

Aspirin 75 mg to 150 mg once daily from 12 weeks till delivery

High risk (any 1)

- Hypertensive disease during a previous pregnancy
- Chronic kidney disease
- Autoimmune disease such as systemic lupus erythematosus or antiphospholipid syndrome
- Type 1 or type 2 diabetes
- Chronic hypertension

Moderate risk (any 2)

- Nulliparity
- Age 40 years or older
- Pregnancy interval of more than 10 years
- Body mass index (BMI) of 35 kg/m2 or more at first visit
- Family history of pre-eclampsia
- Multi-fetal pregnancy

Urine protein

- Ifdipstick is1+or more
- Albumin: creatinine ratio (Threshold is 8mg/mmol)
- Protein: reatinine ratio (Threshold is 30mg/mmol)
- Not 24 hour urine protein
- If uncertain of the disease - retest

Chronic Hypertension and Gestation Hypertension

Important definitions:

- **Pre eclampsia**: New onset of HPT beyond 20 weeks with proteinurea or with end organ damage (Renal, liver involvement, neurological complication, hematological, uteroplacental dysfunction)
- **Severe Hypertension** >160/110
- **Severe pre eclampsia**: PET with BP>160/110 (severe hypertension) or with recurring severe headaches, visual scotomata, nausea or vomiting, epigastric pain, oliguria and progressive deterioration of lab resutls.

Chronic HPT and Gestation HPT

- AvoidACE inhibitor,AngiotensinII Receptor blocker, Thiazides or thiazide like diuretics
- Target BP: 135/85
- Labetalol --> Nifedipine --> Methyldopa

ANC follow up:

- Weekly TCA if BP poorly controlled (delivery <37weeks - 160/110)
- 2-4 weeks if BP well controlled
- US fetus for growth, AFI, doppler 28w, 32w and 36w

Postnatal:

- Day 1 & 2 Daily BP
- Once between Day 3 and day 5
- Target less 140/90
- Review antihypertensive treatment 2 weeks after birth
- Stop methyldopa within 2 days after birth
- Chronic HPT review at 6-8 weeks with GP

Management of Gestational HPT and Pre eclampsia

	Gestational HPT		Pre eclampsia	
Management	Hypertension 140-159/90-109	Severe hypertension >/= 160/90	Hypertension 140-159/90-109	Severe hypertension >/= 160/90
Admission to hospital	Do not routinely admit to hospital	Admit, but if BP falls below 160/110 then manage as for hypertension	Admit if clinical concerns suggested by the PREP-S (34w) or fullPIERS	Admit, but if BP falls below 160/110 then manage as for hypertension
Antihypertensive treatment	If BP remained above 140/90 offer treatment	Offer treatment to all women	If BP remained above 140/90 offer treatment	Offer treatment to all women
Target BP	Aim for BP 135/85 or less			
BP measurement	1 or 2 times a week	Every 15 to 30 minutes until BP less than 160/110	At least every 48 hours and more frequently if admitted	Every 15 to 30 minutes until BP less than 160/110, then QID

Dipstick proteinuria testing	Once or twice a week (with BP measurement)	Daily while admitted	Only repeat if clinically indicated if new symptoms or uncertainty of dx	
Blood tests	Measure FBC, LFT and RP at presentation and then weekly	Measure FBC, LFT and RP at presentation and then weekly	FBC, LFT and RP 2 times a week	FBC, LFT and RP 3 times a week
PlGF	Carry out PLGF-based testing on 1 occasion	Carry out PLGF-based testing on 1 occasion	-	-
Fetal assessment	FHR every TCA US fetus, if normal every 2-4 weeks CTG only if indicated		FHR every TCA US fetus, if normal every 2 weeks CTG only if indicated	

Triage PLGF Test (testing once between 20 till 36+6) new 2023

-Toprognosticate disease(toseewhoisatriskofdeveloping disease)

Result	Classification	Interpretation
Placental growth factor (PLGF) less than 12 pg/ml	Test positive – highly abnormal	Highly abnormal and suggestive of patients with severe placental dysfunction and at increased risk of preterm birth
PLGF between 12 pg/ml and 99 pg/ml	Test positive – abnormal	Abnormal and suggestive of patients with placental dysfunction and at increased risk of preterm birth
PLGF 100 pg/ml or more	Test negative – normal	Normal and suggestive of patients without placental dysfunction and unlikely to progress to birth within 14 days of the test

NICE Guidelines: PLGF-based testing to help diagnose suspected preterm pre-eclampsia

sFlt-1/PLGF ratio (Roche)

-Topredictpre-eclampsiainthe short term

Short-term prediction of pre-eclampsia	Week 24 to week 36 plus 6 days	Rule out pre-eclampsia for 1 week	38 or less
Short-term prediction of pre-eclampsia	Week 24 to week 36 plus 6 days	Rule in pre-eclampsia within 4 weeks	Over 38

So far I have not notice any past year questions on this.

Timing of delivery

ChronicandGestational HPT

- Do not offer planned early birth before 37 weeks to women with gestational hypertension whose blood pressure is lower than 160/ 110 mmHg (unless there is other medical indications)
  Pre eclampsia
- Before 34 weeks: deliver if indicated
- 34-36 weeks: Consider option of planned birth
- 37 weeks onwards: Initiate birth within 24-48 hours (MDT)
  Indication for birth:

- Unable to control BP on 3 different types of antihypertensive
- SPO2 < 90%
- Progressive worsening of RP, LFT or Plt
- Neurological symptoms
- Abruptio
- IUD/abnormal CTG and reverse EDF

Post natal plan

Parameter	Chronic HPT	Gestational HPT	mPreed eiccalatmiopnssi2 weeks	mPreed eiccalatmiopnsia w
BP monitoring	• Day 1 & 2 Daily BP • Once between Day 3 and day 5 • Target less 140/90	• Similar to Chronic HPT	• 4 times a day in patient • Once between Day 3 and day 5 Then EOD if BP • abnormal day 3-5	• 4 times a day in patient • EOD up to 2 weeks until off medication
Antihypertesive	• Enalapril with RP and potassium monitoring. Black African and Caribbean offer CCB (Nifedipine or Amlodipine)			
Review	Review antihypertensive treatment 2 weeks after birth			
TCA GP	Chronic HPT review at 6-8 weeks with GP	• TCA GP 2 weeks if on medications • TCA all at 6-8 weeks to GP	• TCAGP2weeksifonmedications • TCA all at 6-8 weeks to GP	
Other information	Stop methyldopa within 2 days after birth	Continue meds if indicated, reduce if BP <130/80		

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Trauma and Pregnancy

(TOG August 2021)

Important points in the TOG

- Trauma accounts for 10% of annual worldwide deaths, and 6–8% of all pregnancies will experience some form of trauma. Pregnancy is an independent predictor for mortality.

- Trauma has maternal complications (for example, haemorrhage, abruption and disseminated intravascular coagulation) and fetal complications (such as preterm birth,hypoxic brain injury and death).

- Clinicians should initiate aggressive fluid resuscitation and strongly consider the possibility of concealed blood loss. Emphasis should be placed on warmed blood products and tranexamic acid.

- Stabilisation of the mother must occur before fetal monitoring can take place. If evacuation of the uterus would stabilise the mother (for example in a case of maternal cardiac arrest after 20 weeks of gestation), then this should be the priority

Question

Table 2. Fetal radiation dose ranges in computed tomography studies

Type of imaging	Fetal radiation dose (mGy)
Head and neck CT	0.001–0.01
Chest CT	0.01–0.66
Abdominal CT	1.3–35
Pelvic CT	10–50

Abbreviations: CT = computed tomography

Imaging

In major trauma in the UK, early imaging is the gold-standard investigation, recommended by the National Institute for Health and Care Excellence (NICE). It usually takes the form of whole-body computed tomography (CT). This has been shown to improve survival outcomes in the trauma patient compared with no CT or focused CT.[42] In the pregnant patient, concerns for the fetus can lead to delays in diagnosis and treatment, resulting in morbidity and mortality to both mother and fetus.[43] The Royal College of Radiologists (RCR) addresses this by stating that the life of the mother takes precedent over the fetus.[44] A single trauma CT is not thought to have detrimental effects on the fetus in utero, so – if indicated – a trauma CT should not be delayed.[4] Fetal radiation exposure of <50 mGy has not been associated with fetal anomalies, growth restriction or miscarriage, and diagnostic imaging in trauma will likely expose the fetus to less than this this amount.[45,46] For reference, Table 2 outlines the expected fetal radiation dose ranges in various CT studies.[45]

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Question

Fetal monitoring

Stabilisation of the mother must occur before fetal monitoring can take place. If evacuation of the uterus would stabilise the mother (for example in a case of maternal cardiac arrest after 20 weeks of gestation), then this should be the priority, not monitoring the fetus.[52] An obstetric assessment should occur only once the mother is stable. Viability can be assessed using ultrasound scanning or fetal heart auscultation, and a cardiotocograph (CTG) can be performed after 26 weeks of gestation. In the context of trauma, abnormal antenatal CTGs may be the first sign of an abruption, especially if the mother is intubated.

A normal antenatal CTG is reassuring, but there is uncertainty about the duration of monitoring. One small case study noted no abruptions when uterine activity was less than one contraction every 10 minutes and the CTG had been normal for 4 hours. Subsequently, as a guide, it is recommended that CTG monitoring can be discontinued after 4 hours if uterine activity is less than one contraction in 10 minutes, there is no vaginal bleeding and no abdominal pain.[16]

A: Airway and cervical spine control

The airway is assessed for actual or impending airway compromise. A Glasgow Coma Scale (GCS) score of 8 or less requires the insertion of a definitive airway. In major trauma, cervical spine injury is assumed until proven otherwise and protection of the spine and spinal cord is paramount.

A definitive airway is considerably harder to achieve in pregnant women owing to tissue oedema.[30] Combined with any facial trauma or burns injury, this can lead to a higher rate of failed tracheal intubation. Mortality of failed intubation in a pregnant patient can be as high as 1%, usually secondary to aspiration of gastric contents.[30] Front-of-neck access is a technique explored on the 'Managing Medical and Obstetric Emergencies and Trauma (mMOET)' course, but an increase in neck adiposity and oedema in pregnant patients adds complexity to this procedure.[31] It is recommended that an experienced practitioner secures a definitive airway early, following the joint Obstetric Anaesthetists' Association and Difficult Airway Society's guidelines for difficult and failed intubation in obstetrics.[31]

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Prevention of Early-onset Group B Streptococcal Disease (Green-top Guideline No. 36)

Question

What is the incidence of EOGBS in the UK without implementing the screening program? A. 0.1/1000 B. 0.5/1000 C. 0.7/1000 D. 1/1000

2. Introduction and background epidemiology

The Lancefield group B beta-haemolytic streptococcus infection (*Streptococcus agalactiae*) is recognised as the most frequent cause of severe early-onset (less than 7 days of age) infection in newborn infants.[1] The GBS carriage rate varies among racial groups, with the highest rates in people of black African ancestry and the lowest in people of South Asian ancestry.

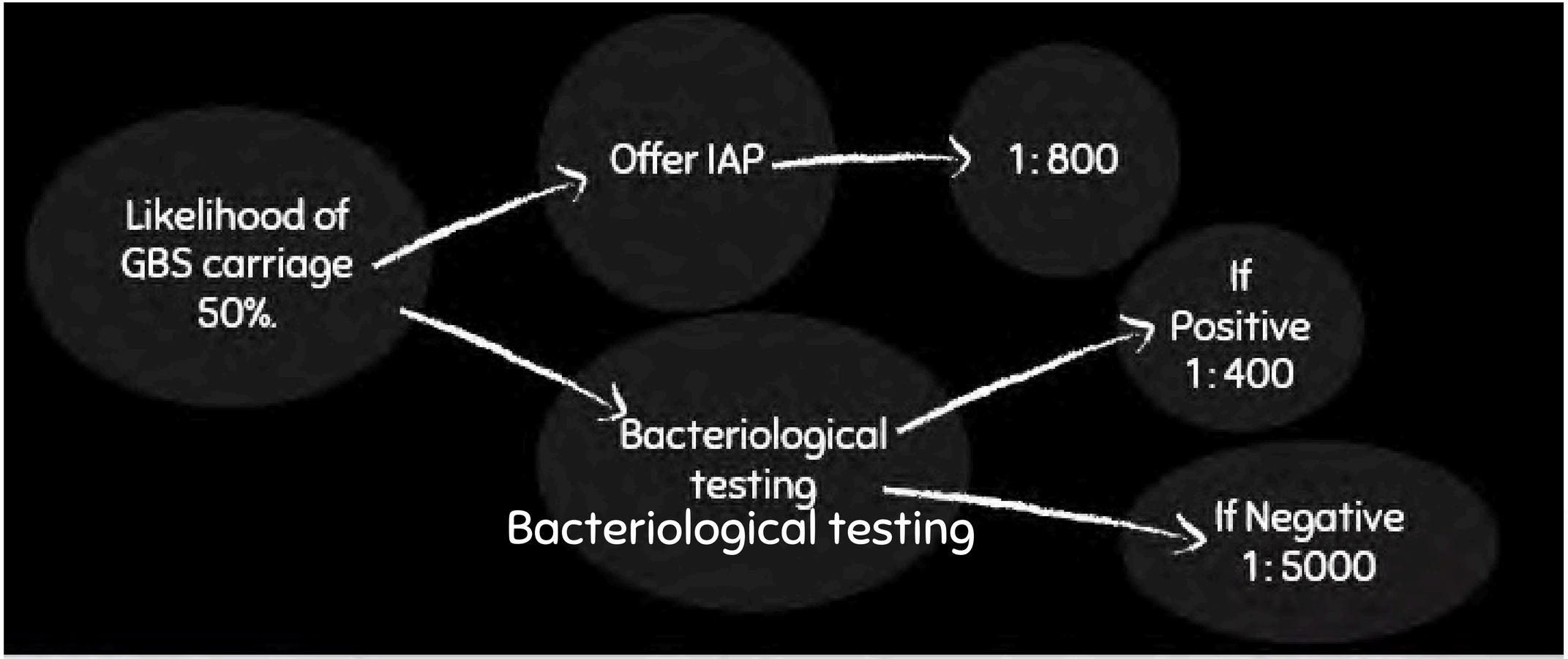
GBS is present in the bowel flora of 20–40% of adults (this is called 'colonisation'). People who are colonised are called 'carriers'. This includes pregnant women (there is no evidence that its carriage rate is specifically affected by pregnancy).

There remains controversy about the best strategy to prevent EOGBS disease. Surveys in 2015 demonstrated that there was a large variation in UK practice.[2] The incidence of EOGBS disease in the UK and Ireland in 2015 was 0.57/1000 births (517 cases), a significant increase in incidence since previous surveillance undertaken in 2000 (0.48/1000).[3] Of the cases, 22% had been born prematurely and overall, 35% had one or more of the following risk factors: a previous baby affected by GBS disease; GBS bacteriuria; a vaginal swab positive for GBS; or a maternal temperature of 38°C or greater in labour. Of the cases with discharge status, 7.4% were reported as having disability. A significant decline in case fatality rate was shown between the two surveillance periods: 10.6% to 5.2%, respectively.

When to Screen?

- **Bacteriological testing :**
  - **35-37 weeks of gestation**
  - **3-5 weeks prior to the anticipated delivery date**

What If GBS Was Detected In Previous Pregnancy?



What If Previous Baby Is Affected By GBS?

Maternal Request

Intrapartum Antibiotics Prophylacsis (IAP)

IAP for GBS Benzylpenicillin

- Recommended 3g intravenous benzylpenicillin be given ASAP after the onset of labour and 1.5g 4 hourly.
- Once commenced, it should be given until delivery.
- To optimize the efficacy of IAP, the first dose should be given at least 4 hours prior to delivery.

	IAP
IAP of choice	Benzylpenicillin (penicillin G), treatment should be given regularly until delivery • 3g IV ASAP at onset of labour then 1.5g 4 hourly until delivery • 1st dose should be at least 4 hours prior to delivery • Benzylpenicillin levels in cord blood exceed minimum inhibitory concentration for GBS as early as 1 hour after maternal administration • Giving at least for 2 hours before delivery reduces neonatal colonisation • Cochrane review found no difference between amoxicillin and benzylpenicillin → narrower spectrum antibiotic is preferred
Not severe allergy to penicillin (no anaphylaxis, angioedema, respiratory distress, urticaria)	Cephalosporin • Cefuroxime 1.5g loading dose followed by 750mg every 8 hours
Severe allergy to penicillin	Vancomycin • Vancomycin 1g every 12 hours • Clindamycin can no longer be recommended as the current resistance rate in UK is 16%

Urine GBS

- Women with GBS bacteriuriaidentified during pregnancy, should be offered IAP.
- Women with GBS urinary tract infection (growth >105 cfu/ml) during pregnancy should receive appropriate treatment at the time of diagnosis as well as IAP.
- Antenatal treatment is not recommended for GBS cultured from a vaginal or rectal swab.

Question

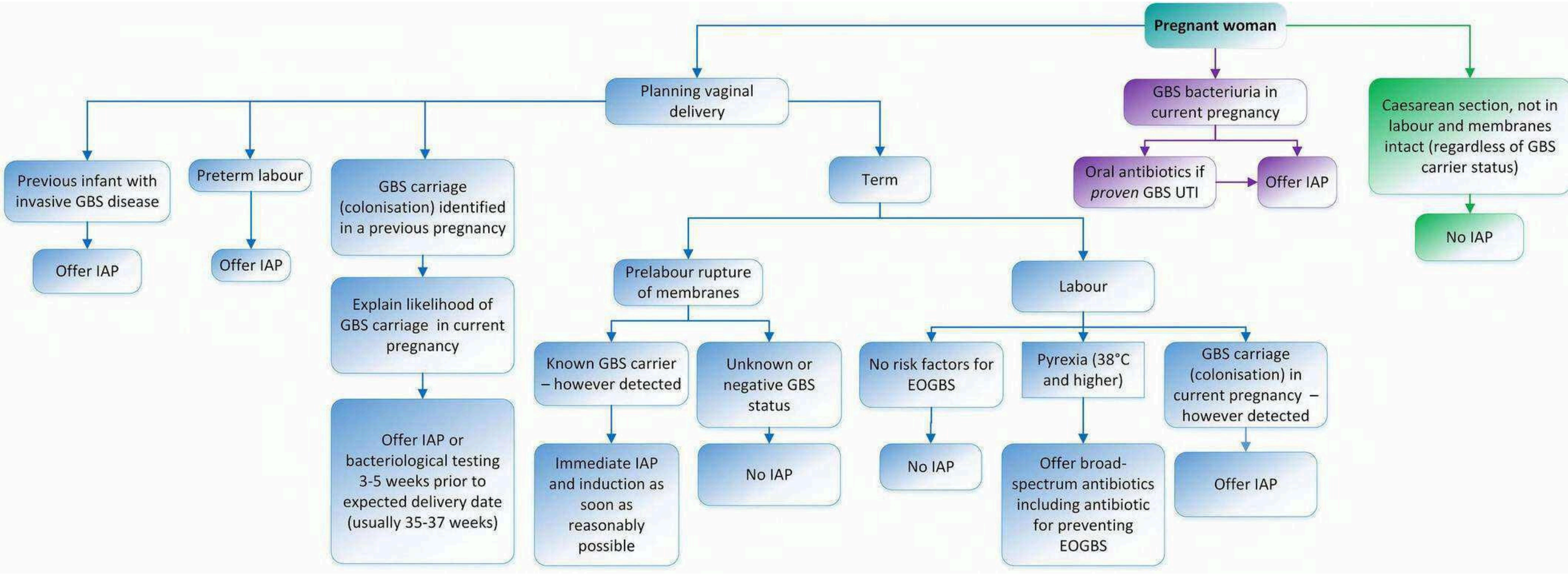
GBSpositive in urine culture at 12 weeks. What is the plan of management?

A. IAP

B. Treat now and IAP

C. Repeat urine culture

D. LVS at 36 weeks.


Pregnant woman
Planning vaginal delivery
GBS bacteriuria in current pregnancy
Caesarean section, not in labour and membranes intact (regardless of GBS carrier status)
Previous infant with invasive GBS disease
Preterm labour
GBS carriage (colonisation) identified in a previous pregnancy
Term
Oral antibiotics if *proven* GBS UTI
Offer IAP
No IAP
Offer IAP
Offer IAP
Explain likelihood of GBS carriage in current pregnancy
Prelabour rupture of membranes
Labour
Offer IAP or bacteriological testing 3-5 weeks prior to expected delivery date (usually 35-37 weeks)
Known GBS carrier – however detected
Unknown or negative GBS status
No risk factors for EOGBS
Pyrexia (38°C and higher)
GBS carriage (colonisation) in current pregnancy – however detected
Immediate IAP and induction as soon as reasonably possible
No IAP
No IAP
Offer broad-spectrum antibiotics including antibiotic for preventing EOGBS
Offer IAP

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Chickenpox in Pregnancy Green-top Guideline No. 13 January 2015

Spontaneous miscarriage does not appear to be increased if chickenpox occurs in the first trimester.[25]

Evidence level 2–

FVS is characterised by one or more of the following: skin scarring in a dermatomal distribution; eye defects (microphthalmia, chorioretinitis or cataracts); hypoplasia of the limbs; and neurological abnormalities (microcephaly, cortical atrophy, mental retardation or dysfunction of bowel and bladder sphincters).[25,55] It does not occur at the time of initial fetal infection but results from a subsequent herpes zoster reactivation in utero and only occurs in a minority of infected fetuses.

Evidence level 2+

FVS has been reported to complicate maternal chickenpox occurring as early as 3 weeks[55] and as late as 28 weeks[56] of gestation. Pooled data from nine cohort studies detected 13 cases of FVS following 1423 cases of maternal chickenpox occurring before 20 weeks of gestation: an incidence of 0.91%.[28] The risk appears to be lower in the first trimester (0.55%).[28] These cohort studies identified one case of FVS occurring among approximately 180 women who developed chickenpox between 20 and 28 weeks of gestation.[28] In addition, this review identified seven case reports of FVS following maternal infection from 20–28 weeks and one where maternal infection occurred at 28 weeks.[28,56] These case reports provide no denominators, so an incidence rate for FVS following late second trimester infection cannot be quoted, but they make the point that FVS is not confined to cases of maternal infection before 20 weeks. The observational evidence presented in section 4.3 suggests that post-exposure prophylaxis in susceptible pregnant women reduces the risk of developing FVS.

Evidence level 2–

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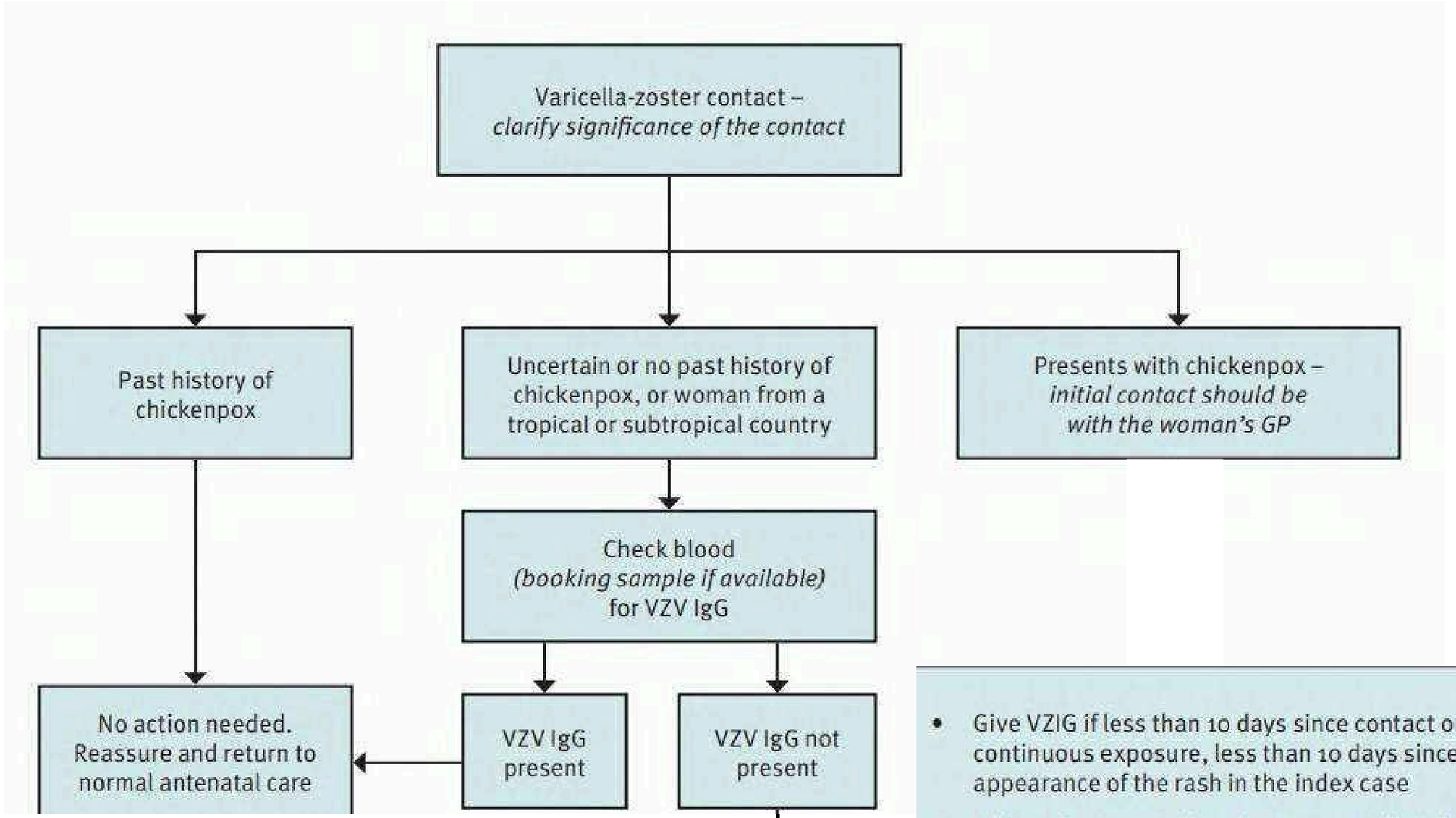
Disease	Incubation	Complication	Fetal Risk	Referral	Treatment
Incidence 3:1000 DNA virus	• Incubation 10-21days • Chicken pox is infectious for 2 days before the appearance of the rash and for the duration of the illness. • Treat as potentially infectious if expose day 8 till 21days and 28 days if received IVIG.	• Pneumonia 10% • Hepatitis • Encephalitis • Ensure no lesion during epidural insertion • No increase in miscarriage in the first trimester • Transmission to fetus: - Less than 1% (~1%) less than 28 weeks - Less than 0.5% in first trimester	• Looks like a chicken (small head, stupid, small limbs with bad skin) • < 28 weeks ~1% and in 1st trimester <0.5% • Defects: Skin scaring Eye defects (Microophtalomia, choriorenitis and cataracts) Neurological (Microcephaly, cortical atrophy, bowel/bladder dysfunction	• MFM 16-20 weeks • 5 weeks post infection **Herpes Simplex is 435**	• Tab Acyclovir 800mg x 5 times/day for 7 days **(857)** • <20 weeks (consider) • >20 weeks (offer) • Severe infection admission to hospital with IV acyclovir • Delay delivery 7 days if active lesion, if delivered within 7 days, baby gets IVIG for prevention and acyclovir is lesions


Varicella-zoster contact –
clarify significance of the contact
Past history of chickenpox
Uncertain or no past history of chickenpox, or woman from a tropical or subtropical country
Presents with chickenpox – initial contact should be with the woman's GP
Check blood (booking sample if available) for VZV IgG
No action needed. Reassure and return to normal antenatal care
VZV IgG present
VZV IgG not present
• Give VZIG if less than 10 days since contact or, for continuous exposure, less than 10 days since the appearance of the rash in the index case
• Advise the woman that she is potentially infectious from 8–28 days after contact
• Discuss postpartum varicella immunisation

- Avoid contact with potentially susceptible individuals (e.g. neonates and other pregnant women)
- Symptomatic treatment and hygiene should be advised
- If the woman presents < 24 hours of the appearance of the rash and she is ≥ 20^{+0} weeks of gestation, prescribe aciclovir
- If the woman presents < 24 hours of the appearance of the rash and she is < 20^{+0} weeks of gestation, consider aciclovir
- Avoid delivery of the baby until at least 7 days since the rash appeared

Severe Infection

- Women who develop severe infection and women at high risk of complicated chickenpox should be referred to hospital
- Intravenous aciclovir should be given

Infection less than 28 weeks of gestation

- Inform women that infection at < 28^{+0} weeks is associated with a small (~1%) risk of FVS
- Refer to a fetal medicine specialist at 16–20 weeks or 5 weeks after infection
- Amniocentesis to detect varicella DNA may be considered

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RCOG / RCM / PHE / HPS clinical guidelines Zika Virus Infection and Pregnancy Information for Healthcare Professionals Updated 27/02/19

Zika Virus Infection and Pregnancy

- Illness 2-7 days with mild symptoms (rash; itching/pruritus; fever; headache; arthralgia/arthritis; myalgia; conjunctivitis; lower back pain; retro-orbital pain)
- Affected countries: Brazil, South America, Central America, and the Caribbean
- Primary vector: Aedes aegypti mosquitoes

- Consider Zika if having symptoms:
  - within 2 weeks of leaving an area with Zika.
  - within 2 weeks of sexual.
  contact with a male sexual partner who has recently travelled.

Couples considering pregnancy:

It is recommended that women should avoid becoming pregnant while travelling in a country or area with risk for of Zika virus transmission.

If a couple is considering pregnancy, consistent use of effective contraception is advised to prevent pregnancy and barrier methods (e.g. condom use) are advised during vaginal, anal and oral sex to reduce the risk of conception and the developing fetus being exposed to Zika virus. These measures should be followed while travelling and for:

- three months after return from an area with risk for Zika virus transmission, or last possible Zika virus exposure, if both partners travelled
- three months after return from an area with risk for of Zika virus transmission, or last possible Zika virus exposure, if just the male partner travelled
- two months after return from an area with risk for Zika virus transmission, or last possible Zika virus exposure if only the female partner travelled

Cranial abnormalities	Extra-cranial abnormalities
Microcephaly	Fetal growth restriction
Cerebral and/or ocular calcifications	Oligohydramnios
Ventriculomegaly	Talipes
Periventricular cysts	
Callosal abnormalities	
Microphthalmia	
Cerebellar atrophy (transverse diameter <5th percentile)	
Vermian agenesis	
Blake's cyst	
Mega cisterna magna (>95th percentile)	
Choroid plexus cyst	
Brain atrophy leading to micrencephaly (abnormally small brain)	
Cortical and white matter abnormalities (e.g. agyria)	

- If having possible exposure and the fetal head less than 2SD of below mean gestational age --> refer MFM --> For Amniocentesis --> RT-PCR (Perform after 20 weeks - from fetal urine) +/- Fetal brain MRI

Question A patient is planning for conception but her partner had recently travelled from Brazil 2 days back, what is your advise?

A. Avoid pregnancy 2 months
B. Avoid pregnancy 3 months
C. Avoid pregnancy 4 months
D. Avoid pregnancy 6 months

The past year ask if you are planning for IVF, but have a recent history of travel from Brazil 2 days ago. The answer should then be 2 months.

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Syphilis in pregnancy: Identifying and managing a historic problem on the rise TOG may 2020

Question

Whichperiodof syphilis is more infectious?

a.Primary disease
b.Late latent disease
c.Early latent disease
d.When gummatous lesions developes

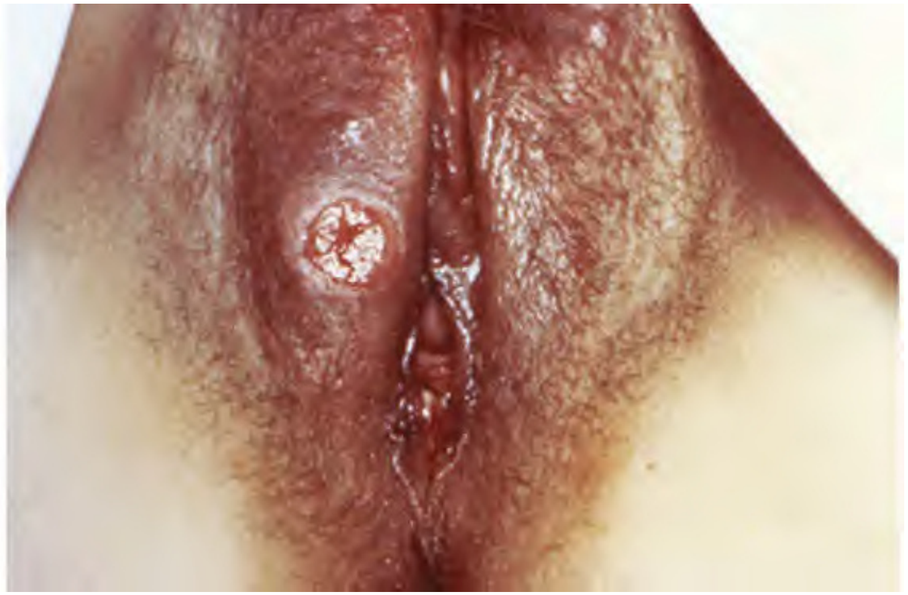
Important points to Remember

- STI (1/3 of individuals exposed will become infected) caused by Treponema pallidum is the most common congenital infection world wide.

Stage of the disease:

~~Primary syphilis~~

- 3 weeks post exposure
- Papule --> becomes a chancre (painless, indurated, non purulent lesion)
- Heal spontaneously 3-8 weeks
- 25% will go on to develope secondary syphilis without treatment



Secondary syphilis

Systemic manifestations of syphilis often emerge 4–10 weeks after the development of the primary chancre, including the following:

- General malaise/flu-like symptoms, such as loss of appetite and lymphadenopathy
- A generalized mucocutaneous rash, which typically affects the mucous membranes and can also occur on palms/soles
- Development of perianal condylomata lata– discoloured, warty, highly infectious lesions (these can also be extra-genital)
- Other signs such as meningitis, eye disease (e.g. uveitis and optic neuropathy), hepatitis, glomerulonephritis and splenomegaly
- Resolves within 1-3 months before entering latent phase.
- 25% develop recurrence of secondary disease.
- If untreated, 30% will progress to tertiary syphilis.

In pregnancy

- Crosses placenta as early as 14 weeks
- Transmission ~ 100% in primary syphilis.
  40% in early latent syphilis
  10% late latent syphilis
- Fetal loss common caused by infection of the placenta or compromised blood flow to the fetus.
- 1/3 will develope signs of congenital syphilis

Fetal infection: (Hepatic and placental dysfunction)

- IUGR/FGR
- Hepatomegaly
- Thrombocytoenia, anemia
- Ascites

Ultrasound features:

- - Ascites
- - Hepatosplenomegaly
- - Intrahepatic calcification
- - Placentomegaly
- - Distorded long bones
- - Hydrops

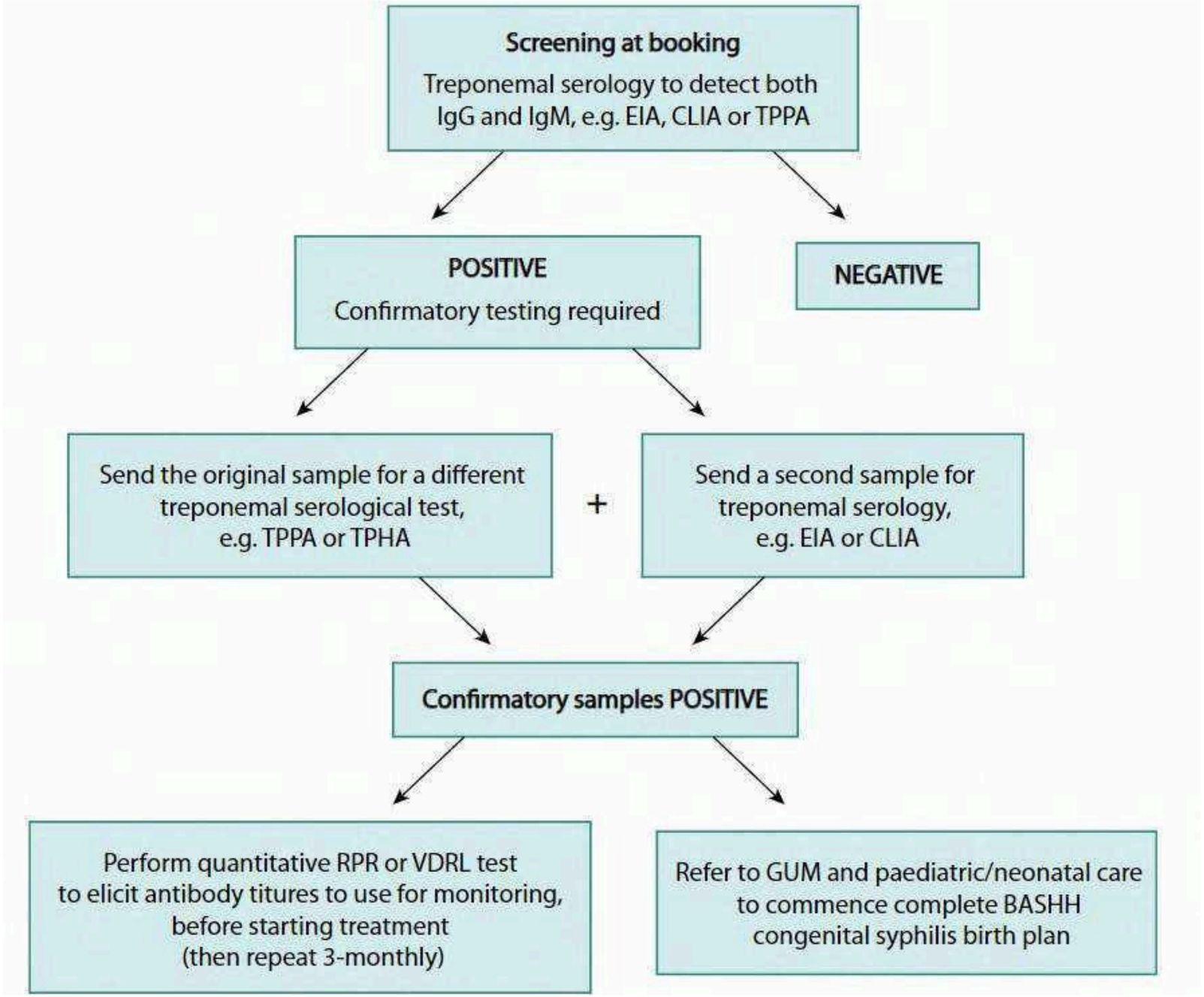
Table 1. Antibiotics used to treat syphilis in each stage of pregnancy, by stage of disease[31]

Trimester	Early disease (Primary/ secondary or latent <2 years)	Late disease (Latent/ unknown duration)
First/second	Benzathine penicillin 2.4 MU IM; single dose	Benzathine peniciilin 2.4 MU IM; weekly for 3 weeks/doses
Third	Benzathine penicillin 2.4 MU IM; weekly for 2 weeks/doses	This regimen is used in all stages of pregnancy

IM = intramuscularly; MU = million units

Jarisch–Herxheimer reaction

- Complicates up to 45% of syphilis treatments in pregnancy.
- Occurs within 24 hours of treatement
- Associated with large numbers of T. pallidum being killed, which in turn releases excessive cytokines, initiating an acute inflammatory reaction
- 50% in Primary, 90% in secondary and 25% in latent disease.
- Risk of uterine contractions
- Supportive treatment and fluids



OFFER REPEAT SCREENING – 3-monthly

Consider this if woman declined at booking or if any of the following risk factors for high risk of exposure apply:

- New or multiple sexual partner(s)
- Commercial sex worker
- Sexual contact with MSM
- Sexual partner is from a country with high prevalence, e.g. Africa, Southeast Asia or South America

Question

Pregnant lady with vulvar nodule and maculopapular rash in the hand, lymphadenopathy and baby had mild ascites during the anomaly scan. What is the recommended treatment?

a. Metronidazole

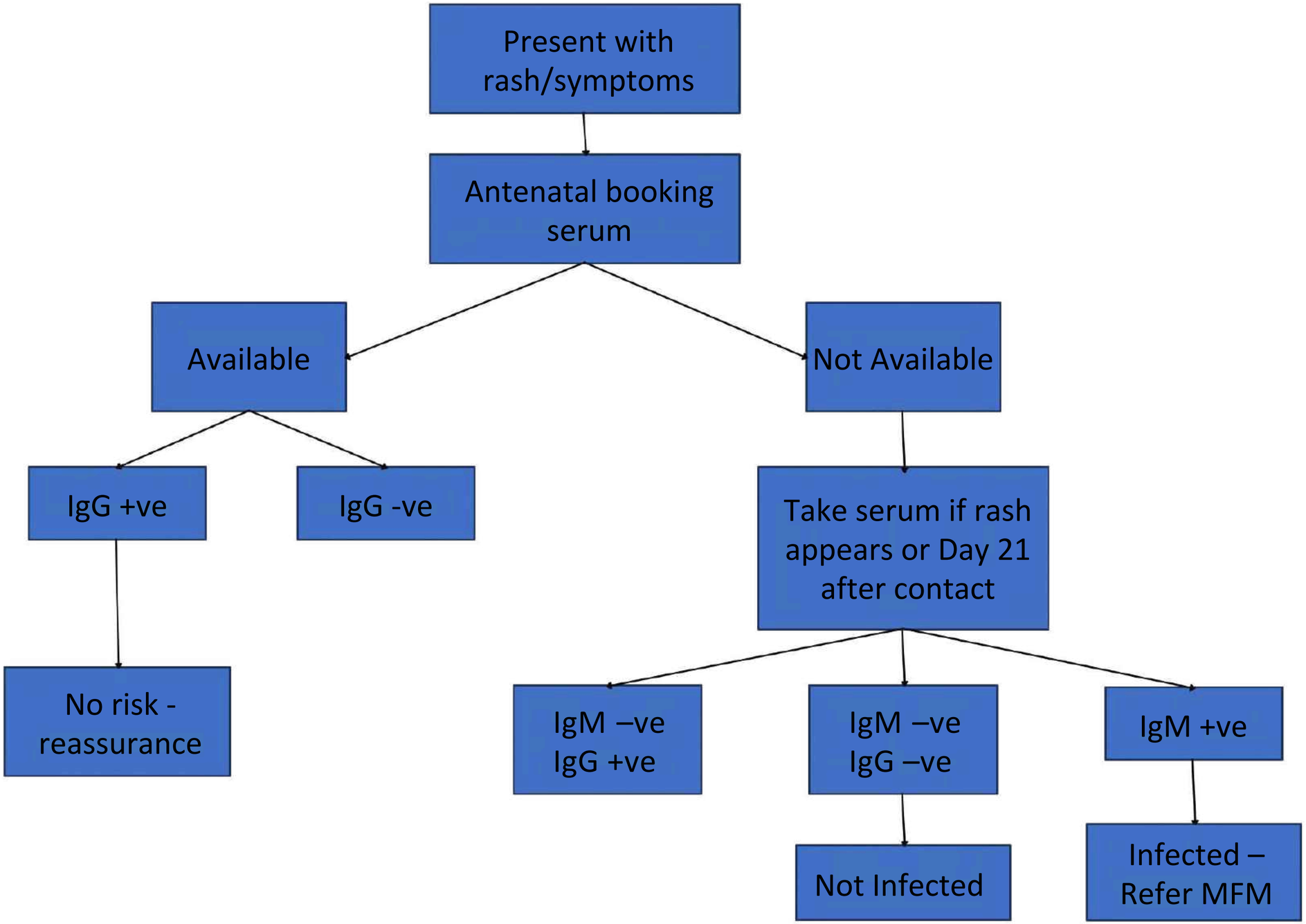
b. Doxycycline

c. Amoxicillin

d. Benzathine penicillin

Parvovirus

Disease	Incubation	Maternal sx	Fetus	Diagnosis	Treatment	Other important info:
Parvo virus B19	4-14 days Vertical transmission 30%	Minor febrile illness to erythema infectiosum (fifth disease, slapped cheek syndrome), a generalised rash illness	Infection in the first 20 weeks of pregnancy can lead to intrauterine death Maternal infection after 20 weeks is rarely associated with developmental hydrops or fetal loss (<1%)	Testing for parvovirus B19 specific IgM on the first serum obtained from the day after rash onset	At intrauterine transfusion of the fetus improves the outcome	An increased incidence occurs every 3 to 4 years, largely in schoolchildren


Present with rash/symptoms
Antenatal booking serum
Available
Not Available
IgG +ve
IgG -ve
No risk - reassurance
Take serum if rash appears or Day 21 after contact
IgM –ve IgG +ve
IgM –ve IgG –ve
IgM +ve
Not Infected
Infected – Refer MFM

CMV

Congenital Cytomegalovirus Infection:
Update on Treatment Scientific Impact Paper No. 56 November 2017

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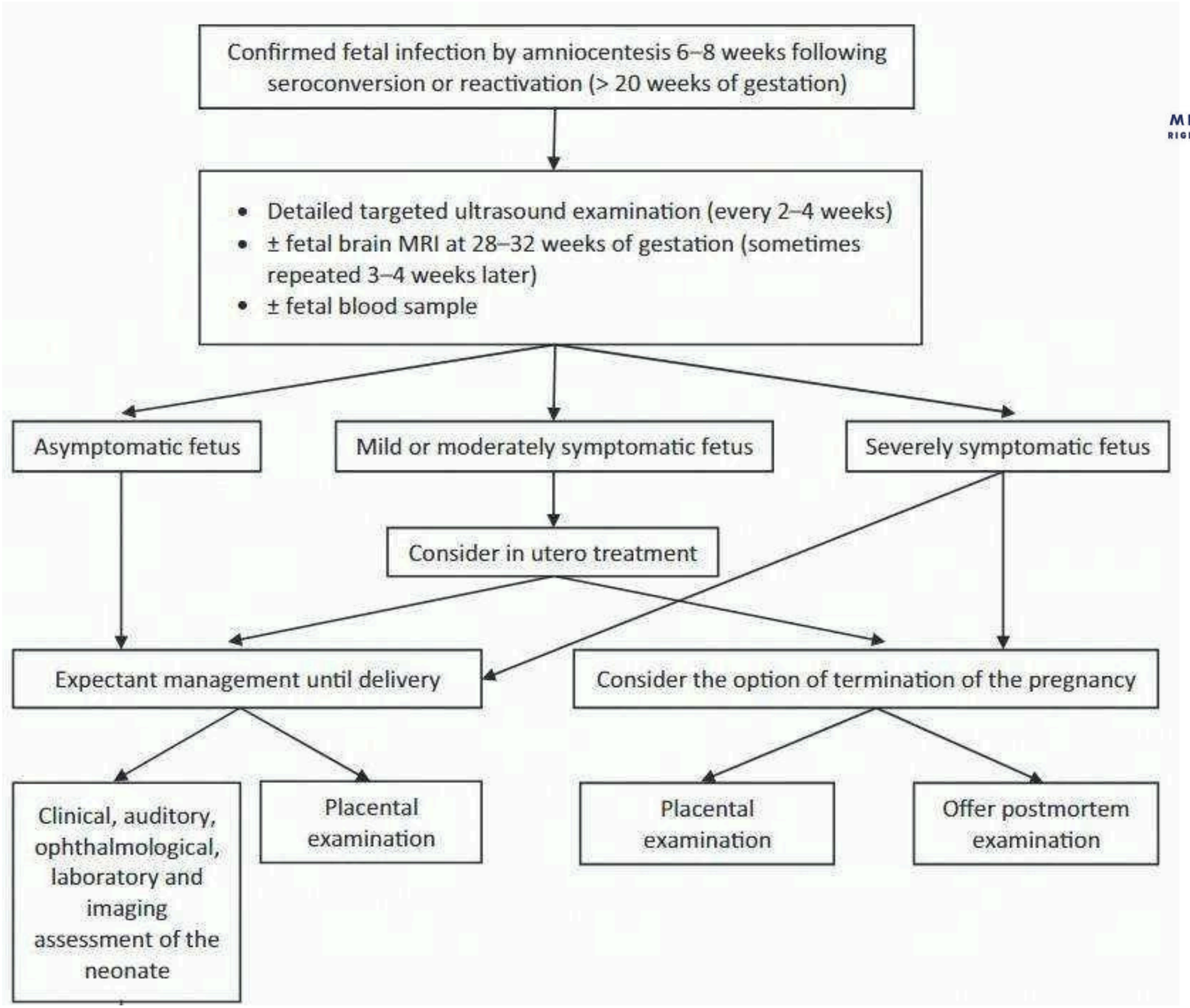
Disease	Transmission	Maternal sx	Ultrasound Feature	Congenital CMV at birth include	Diagnosis	Treatment
• A member of the human herpesvirus family • The most common viral cause of congenital infection • 0.2–2.2% of all live births	• Primary infection (More common to cause transplacental transmission) - First trimester: 30% - Third trimester: 47% • Secondary (Reactivation or new infection) ~1-2%	• Majority: Asymptomatic • Minority do experience symptoms similar to those of infectious mononucleosis(glandular fever), including fever, malaise, myalgia, cervical lymphadenopathy and, less commonly, hepatitis and pneumonia, but few suffer long-term sequelae	Ventriculomegaly, microcephaly, calcifications, intraventricular synechiae, intracranial haemorrhage, periventricular cysts, cerebellar hypoplasia, cortical abnormalities, echogenic bowel, SGA, pericardial effusion, ascites and fetal hydrops.	• Jaundice • Petechial rash • Hepatosplenomegaly • Microcephaly • SGA • Hearing loss	• The diagnosis of primary CMV infection in pregnancy can be made by one of the following findings: • The appearance of CMV-specific IgG in a woman who was previously seronegative • The detection of CMV IgM antibody with low IgG avidity	Valaciclov


Confirmed fetal infection by amniocentesis 6–8 weeks following seroconversion or reactivation (> 20 weeks of gestation)
Detailed targeted ultrasound examination (every 2–4 weeks)
± fetal brain MRI at 28–32 weeks of gestation (sometimes repeated 3–4 weeks later)
± fetal blood sample
Asymptomatic fetus
Mild or moderately symptomatic fetus
Severely symptomatic fetus
Consider in utero treatment
Expectant management until delivery
Consider the option of termination of the pregnancy
Clinical, auditory, ophthalmological, laboratory and imaging assessment of the neonate
Placental examination
Placental examination
Offer postmortem examination
Postnatal treatment of symptomatic infant and long-term follow-up of all infected infants

Toxoplasmosis

Disease	Incubation	Transmission	Diagnosis	Toxoplasmosis Triad	Treatment
• Affects 2:1000 pregnancies • Recurrence can happen in mothers with HIV infection • It is a parasite when ingested can spread to maternal blood and lymphatics • Usually from Cat feaces	• 21 days	• 1st trimester: 10% • 2nd trimester: 25% • 3rd trimester: 85%	• ELISA test for dx • PCR for amniotic fluid • US 2 weekly if suspected, looking for ascites and hepatosplenomagely	• Hydrocephaly • Choriorenitis • Intra cerebral calcification	• TOP • Spiramycin

Question

1.Patient returned from Sri Lanka. She has fever with nose bleeds for 2 days. This was a/w epigastric pain, nausea, vomiting and myalgia

Dengue fever

2. Patient returned from west India with a fever, bloodshot red eyes, cold, barky cough, runny nose and red rash in her upper part of her body. She is 12 weeks pregnant

Measles

3. Patient returns from Zimbabwe with fever, voiting, headache and body ache

Malaria

4. School teacher 14 weeks pregnancy developes rash, joint pain and malaise

Parvovirus

a.Dengue Fever
b. Falciparum
c.Zika Virus
d. Measles
e.Cocksackie
Rubella
f.Parvovirus
g. Hespes
h.Varicella zoster

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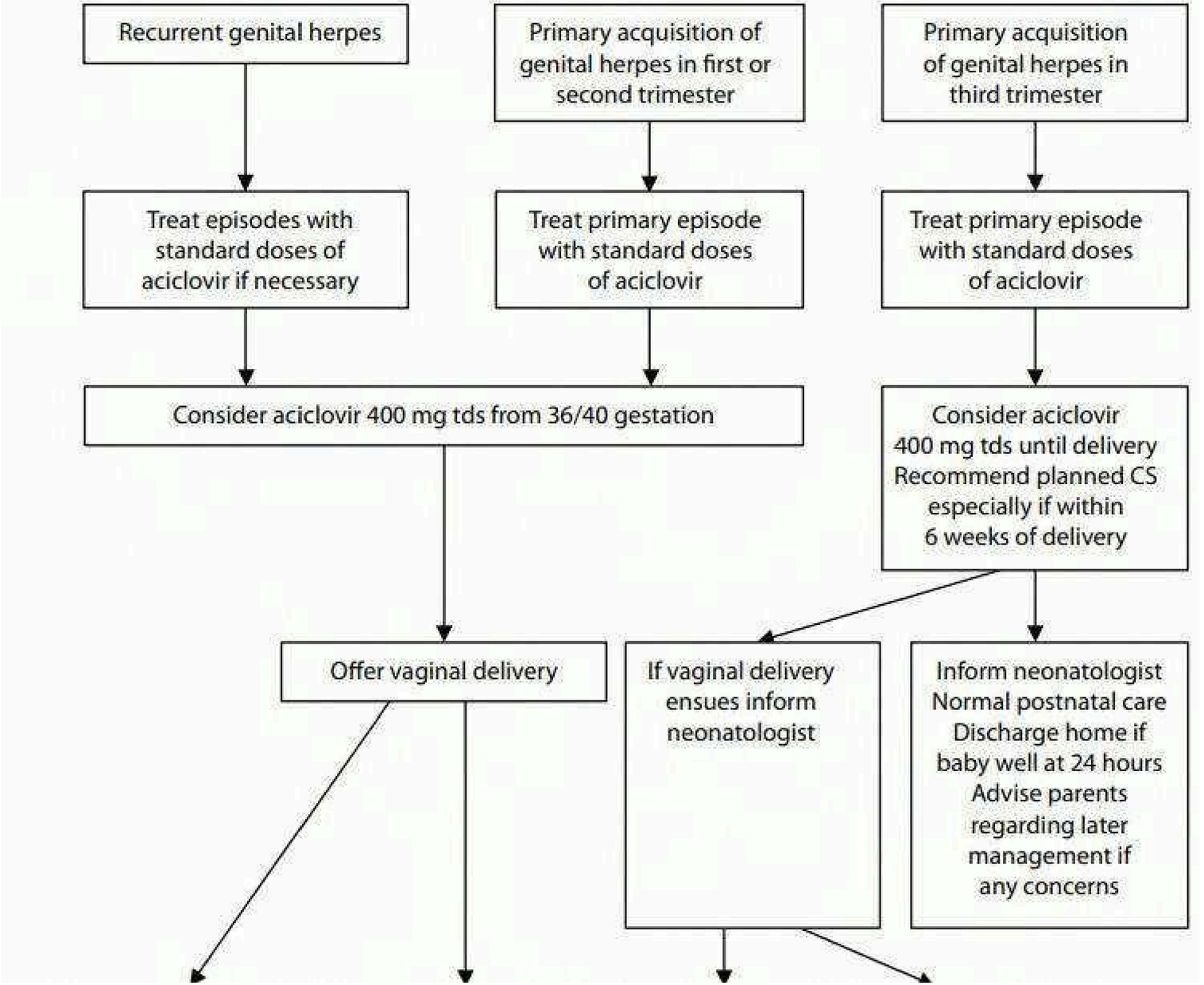
Management of Genital Herpes in Pregnancy October 2014

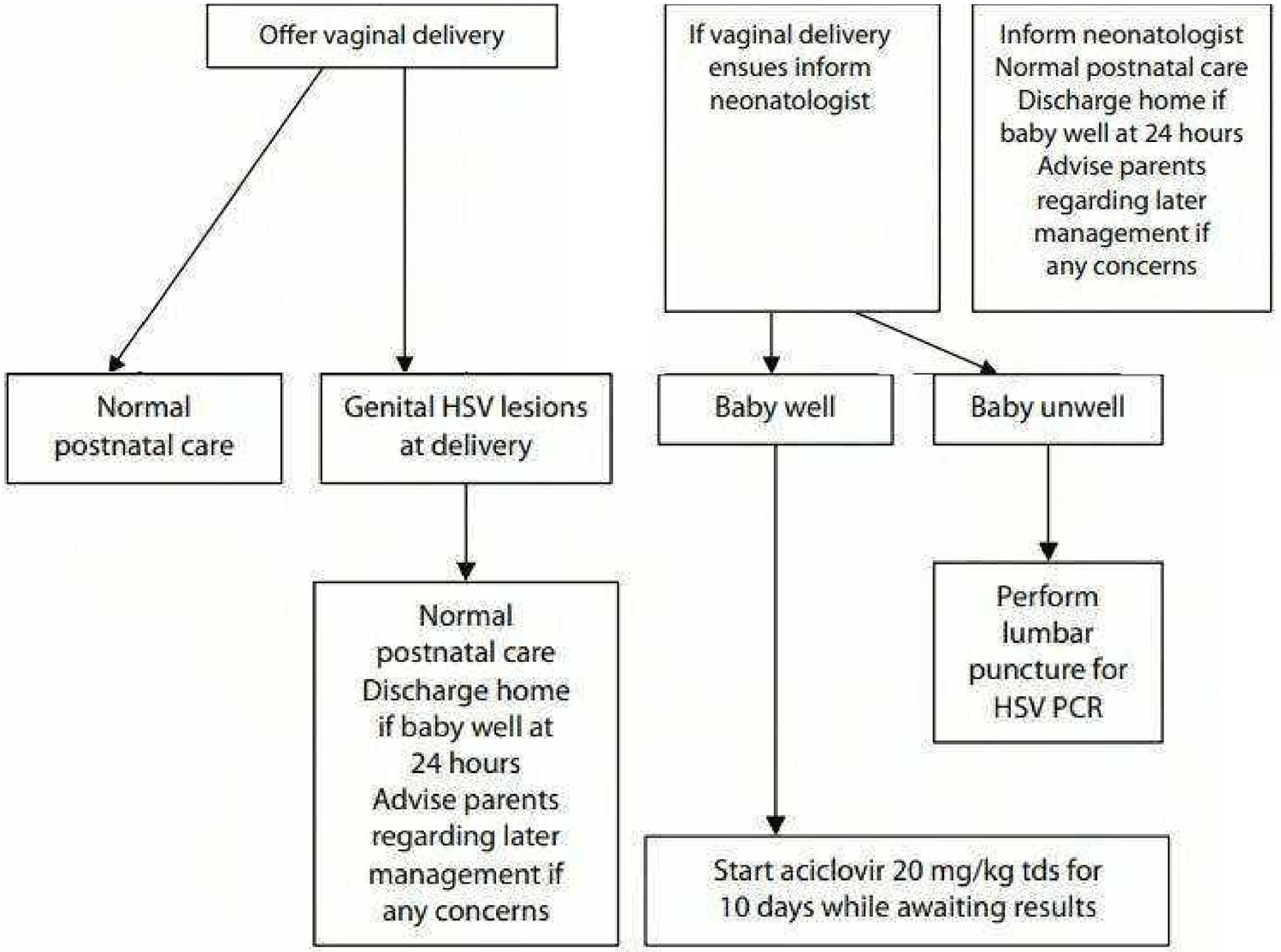
INTERNATIONAL MEDICAL UNIVERSITY

Genital Herpes

Disease	Incubation	Infection	Maternal Risk	Neontal Infection
• DNA virus 1/3 are due • to type I Neonatal • herpes are 50% HSV 1 and HSV 2	• Incubation <7 days Viral • shedding occurs up to 3 weeks post infection Can • get from asymptomatic person	• Need to know if it is Primary Infection or recurrence • Do a serology if patient not sure about history (2-3 weeks from infection) • Must include contact tracing • 15% of cases where the women present with first episode is actually recurrence	• Urinary retention • Encephalitis • Disseminated infection	Neonatal herpes • Skin, eyes and/or mouth (30%) lesions • Local CNS and /or disseminated without skin, eye and mouth lesion 60% • Disseminated and/or CNS (70%)

Algorithm for the management of herpes in pregnancy and care of neonate




Offer vaginal delivery
Normal postnatal care
Genital HSV lesions at delivery
Normal postnatal care Discharge home if baby well at 24 hours Advise parents regarding later management if any concerns
If vaginal delivery ensues inform neonatologist
Inform neonatologist Normal postnatal care Discharge home if baby well at 24 hours Advise parents regarding later management if any concerns
Baby well
Baby unwell
Perform lumbar puncture for HSV PCR
Start aciclovir 20 mg/kg tds for 10 days while awaiting results

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Reducing the Risk of Thrombosis and Embolism during Pregnancy and the Puerperium and Acute management (Green-top Guideline No. 37a +b)

Appendix I: Obstetric thromboprophylaxis risk assessment and management

Antenatal assessment and management (to be assessed at booking and repeated if admitted)

- Any previous VTE except a single event related to major surgery → **HIGH RISK**
  Requires antenatal prophylaxis with LMWH
  Refer to trust-nominated thrombosis in pregnancy expert/team
- Hospital admission
  Single previous VTE related to major surgery
  High-risk thrombophilia + no VTE
  Medical comorbidities e.g. cancer, heart failure, active SLE, IBD or inflammatory polyarthropathy, nephrotic syndrome, type I DM with nephropathy, sickle cell disease, current IVDU
  Any surgical procedure e.g. appendicectomy
  OHSS (first trimester only) → **INTERMEDIATE RISK**
  Consider antenatal prophylaxis with LMWH
- Obesity (BMI > 30 kg/m²)
  Age > 35
  Parity ≥ 3
  Smoker
  Gross varicose veins
  Current pre-eclampsia
  Immobility, e.g. paraplegia, PGP
  Family history of unprovoked or estrogen-provoked VTE in first-degree relative
  Low-risk thrombophilia
  Multiple pregnancy
  IVF/ART → **Four or more risk factors: prophylaxis from first trimester**
  Three risk factors: prophylaxis from 28 weeks
  Zero to two risk factors: prophylaxis if admitted to hospital
- Transient risk factors: Dehydration/hyperemesis; current systemic infection; long-distance travel → **LOWER RISK**
  Mobilisation and avoidance of dehydration

Postnatal assessment and management (to be assessed on delivery suite)

- Any previous VTE
  Anyone requiring antenatal LMWH
  High-risk thrombophilia
  Low-risk thrombophilia + FHx → **HIGH RISK**
  At least 6 weeks' postnatal prophylactic LMWH
- Caesarean section in labour
  BMI ≥ 40 kg/m²
  Readmission or prolonged admission in the puerperium
  Any surgical procedure in the puerperium except immediate repair of the perineum
  Medical comorbidities e.g. cancer, heart failure, active SLE, IBD or inflammatory polyarthropathy; nephrotic syndrome, type I DM with nephropathy, sickle cell disease, current IVDU → **INTERMEDIATE RISK**
  At least 10 days' postnatal prophylactic LMWH
- Age > 35 years
  Obesity (BMI ≥ 30 kg/m²)
  Parity ≥ 3
  Smoker
  Elective caesarean section
  Family history of VTE
  Low-risk thrombophilia
  Gross varicose veins
  Current systemic infection
  Immobility, e.g. paraplegia, PGP, long-distance travel
  Current pre-eclampsia
  Multiple pregnancy
  Preterm delivery in this pregnancy (< 37+0 weeks)
  Stillbirth in this pregnancy
  Mid-cavity rotational or operative delivery
  Prolonged labour (> 24 hours)
  PPH > 1 litre or blood transfusion
  - **Two or more risk factors** → **NB If persisting or > 3 risk factors consider extending thromboprophylaxis with LMWH**
  - **Fewer than two risk factors** → **LOWER RISK**
    Early mobilisation and avoidance of dehydration

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Question

A 35 years pregnant female smoker with no other comorbidity delivered vaginally at 38 weeks. What is the thromboprophylaxis?

A. No need
B. From 28 weeks till 6 weeks post partum
C. 10 days post partum
D. Till 6 weeks post partum
E. Mobilization and avoid dehydration.

	Advantages	Disadvantages
CTPA	Lower dose of radiation to fetus Better sensitivity and specificity to VQ scan Can detect other pathology (eg: Aortic dissection) Readily available	Higher dose of radiation to the breast tissue with a 13.6% increased lifetime risk of developing breast cancer. May miss small peripheral PEs
V/Q scan	Lower dose of radiation to the breast tissue The ventilation scan can often be omitted, further lowering the radiation dose. High negative predictive value	10x higher dose of radiation to the fetus Scan may be delayed because of the availability of isotope

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Question

What are the benefits of performing a V/Q scan compared to CTPA in a women presenting with SOB with a suspicion of Pulmonary Embolism?

A. VQ scans have better specificity and sensitivity

B. Lower risk of childhood cancer

C. Decrease the rate of breast cancer

D. More commonly available

Question

A 35 years old lady at 34 weeks of gestation comes to your emergency with shortness of breath. You perform a CXR that was normal, what will be your next step of management?

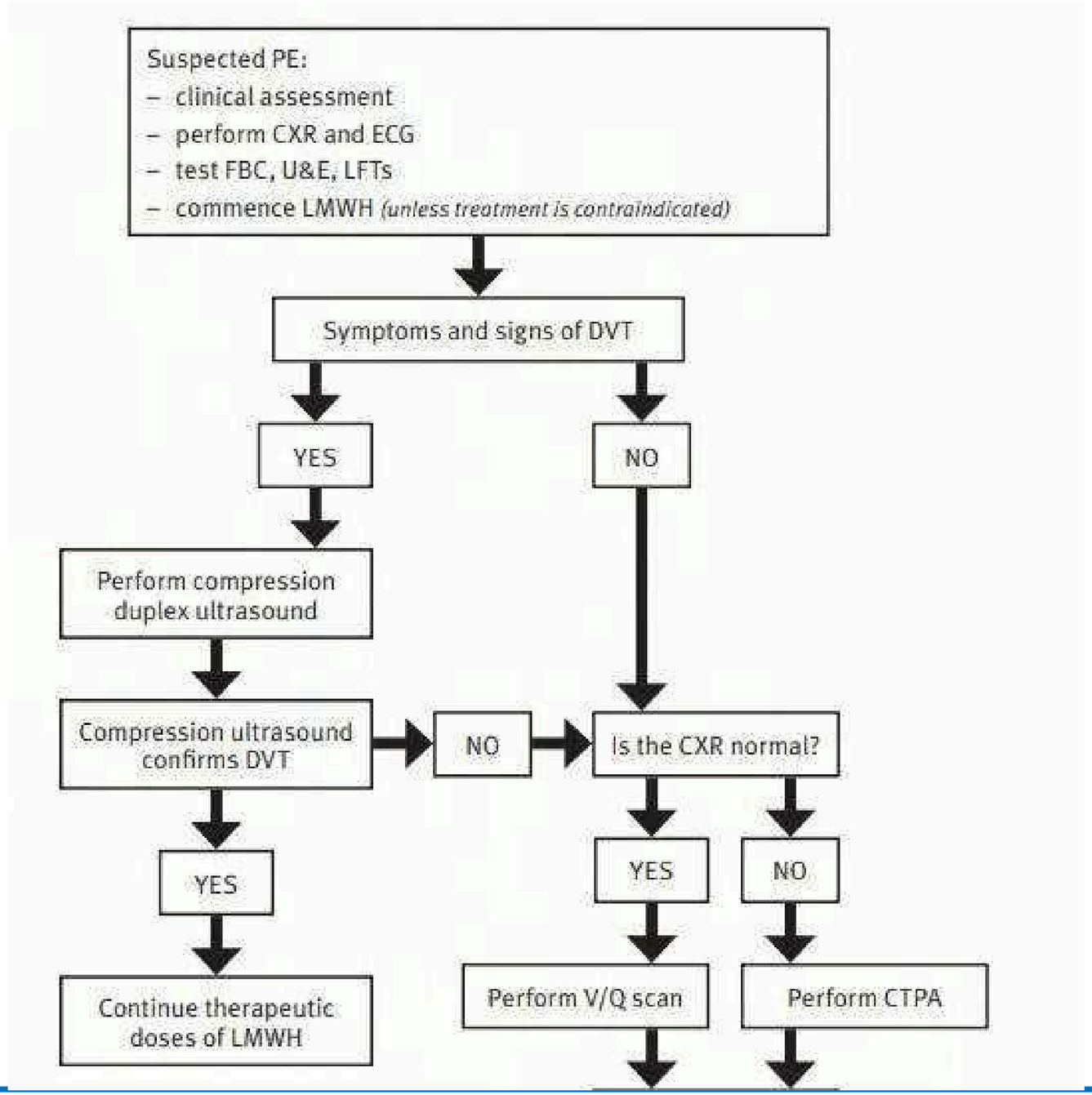
A. Perform a compression duplex ultrasound

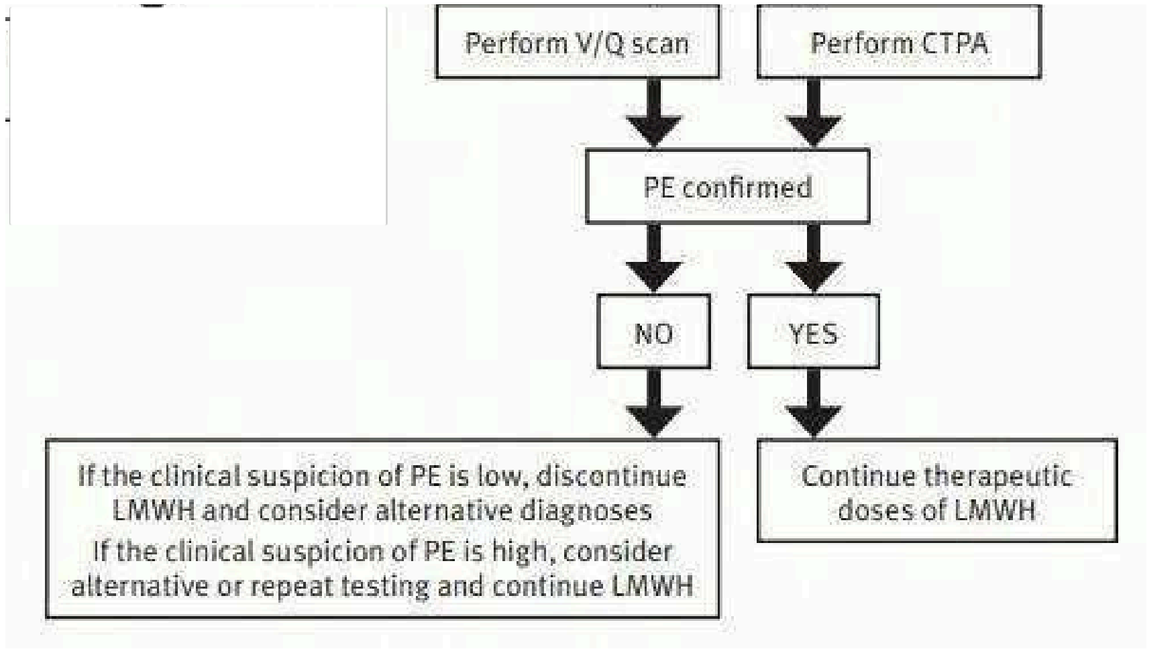
B. Perform a CTPA

C. Perform a VQ scan

D. Perform an angiopgraphy

E. Do an ECG


Suspected PE:
– clinical assessment
– perform CXR and ECG
– test FBC, U&E, LFTs
– commence LMWH (unless treatment is contraindicated)
Symptoms and signs of DVT
YES
NO
Perform compression duplex ultrasound
Compression ultrasound confirms DVT
NO
Is the CXR normal?
YES
YES
NO
Continue therapeutic doses of LMWH
Perform V/Q scan
Perform CTPA


Perform V/Q scan
Perform CTPA
PE confirmed
NO
YES
If the clinical suspicion of PE is low, discontinue LMWH and consider alternative diagnoses
If the clinical suspicion of PE is high, consider alternative or repeat testing and continue LMWH
Continue therapeutic doses of LMWH

Question

A 40 year old, multiparous lady at 30 weeks of gestation comes to your emergency department with unliteral leg swelling and pain and you suspect lower limb DVT. You perform a compressive duplex ultrasound which was unfortunately negative for DVT. After observing her in the ward for 24 hours, her symptoms does no subside. What is your next management?

A. Continue LMWH prophylactic dose
B. Continue treatment LMWH dose for 3 months
C. Repeat the compressive duplex ultrasound immediately
D. Repeat the compressive duplex ultrasound at day 3
E. Discharge the patient as she is well.

Question

Performing an ECG in a patient with suspected pulmonary embolism is vital as 41% of them will present with ECG changes. What is the most common ECG sign that you will see in a patient with suspected pulmonary embolism?

A. T inversions
B. S1Q3T3
C. RBBB
D. LBBB
E. St depressions in all chest leads

T inversions (21%), S1Q3T3 (15%) and RBBB (18%)

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Preterm labour and birth NICE guideline [NG25] November 2015 Cervical cerclage (Green-top Guideline No. 75) February 2022

Choice of prophylactic vaginal progesterone or prophylactic cervical cerclage to women who have both:

- a history of spontaneous preterm birth (up to 34+0 weeks of pregnancy) or loss (from 16+0 weeks of pregnancy onwards)

AND

- results from a transvaginal ultrasound scan carried out between 16+0 and 24+0 weeks of pregnancy that show a cervical length of 25 mm or less

Prophylactic vaginal progesterone

- a history of spontaneous preterm birth (up to 34+0 weeks of pregnancy) or loss (from 16+0 weeks of pregnancy onwards)

OR

- results from a transvaginal ultrasound scan carried out between 16+0 and 24+0 weeks of pregnancy that show a cervical length of 25 mm or less.

Prophylactic cervical cerclage

- preterm pre labour rupture of membranes (P-PROM) in a previous pregnancy

OR

- a history of cervical trauma

Emergency Cerclage

16+0 and 27+6 weeks of pregnancy with a dilated cervix and exposed, unruptured fetal membranes
Insertion of a emergency cerclage may delay birth by approximately **34days**

History indicated cerclage at 12 weeks	**B**
Emergency Cerclage	**C**
Expected management	**D**
Ultrasound indicated cerclage	**E**
Sonographic assessment of the cervix from 16 weeks	**F**
Sonographic assessment of the cervix from 14 weeks	**G**
Transabdominal cerclage	**H**
Shirodkar cerclage	**I**
Mc donald Cerlage	**J**
Vaginal Progesterone	**K**

1. A 35 years old, lady comes to your clinic with a previous history of spontaneous preterm birth during her second trimester. This is her 2nd singleton pregnancy.

G: Sonographic assessment of the cervix from 14 weeks

2. A 21 years old, lady with no significant antenatal history was referred to you as the sonographer discovered a cervical length of 2cm during a routine 20 week scan. She has otherwise no symptoms

K: Vaginal Progesterone

3. A women with history of spontaneous second trimester miscarriage was noted to have a cervical length of 20mm during her sonographic assessment of the cervix.

E: Ultrasound indicated cerclage

4. A women with a previous unsuccessful transvaginal cerclage comes to your clinic, what is your management?

H: Transabdominal cerclage

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2019;21:169–75

Review

Smoking in pregnancy: pathophysiology of harm and current evidence for monitoring and cessation

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Accepted on 27 December 2018.

Key content

- Smoking in pregnancy is a risk factor for miscarriage, stillbirth, placental abruption, preterm birth, low birthweight and neonatal morbidity and mortality.
- The adverse effects of cigarette smoke are primarily driven by carbon monoxide, tar and nicotine.
- Psychosocial interventions are effective in helping women to quit smoking during pregnancy.
- There is weak evidence that nicotine replacement therapy (NRT) with behavioural support can improve cessation rates in pregnancy.
- Electronic cigarettes are more popular among smokers, but evidence of their safety and effectiveness in pregnancy are lacking.

Learning objectives

- To understand the pathophysiology of harm from cigarette smoking.
- To describe the role of exhaled carbon monoxide testing among pregnant women.
- To review the evidence on the safety and use of NRT and electronic cigarettes as methods of cessation.

Keywords: carbon monoxide monitoring / electronic cigarettes / nicotine replacement therapy / pregnancy / smoking

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2022;24:50–7

Review

Pregnancy in underweight women: implications, management and outcomes

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Question

Signs that may suggest an underlying eating disorder include which of the following?

A. Male pattern hair loss.

B. Heavy menstrual bleeding

C. Parotid enlargement (hamster sign)

D. Gestational diabetes

E. Development of early onset pre-eclampsia

Management of women with eating disorders

Pre-conception counselling should ideally be offered to women with ED. Women with active EDs should be treated and in remission before seeking to become pregnant.

Enquiry should be made about the use of appetite suppressants, laxatives or diuretics, which may be harmful in pregnancy. EDs can go undetected in primary care and women with ED may be reluctant to disclose symptoms to healthcare providers. The first antenatal visit or obstetric appointment is an opportunity to screen for their presence, so obstetricians should be aware of the signs suggestive of an underlying ED. In addition to a low BMI, difficulties conceiving related to oligomenorrhoea or amenorrhoea, a lack of weight gain, hyperemesis or psychological problems might raise suspicion of an underlying ED. Physical examination may further help to differentiate a constitutionally thin, healthy woman from one with an underlying ED. Signs may include nail damage or calluses across finger joints from induced vomiting, thinning of hair or fine facial hair (lanugo), dental problems including enamel erosion, and dry skin. Parotid enlargement ('hamster sign') can also suggest self-induced vomiting.

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THANK YOU