PIPADOR REVISION

MRCOG Part 1 Revision Notes

Hyperthyroidism

ENDOCRINOLOGY • LECTURE 191

VISUAL EXAMINATION REVISION NOTES

2026 Edition

191

MRCOG PART 1 REVISION NOTES | ENDOCRINOLOGY

Hyperthyroidism

Causes and diagnosis, maternal and fetal risks, Graves' disease management, thyroid storm and the neonate

≈ 85%	PTU	Carbimazole	≈ 1–5%
Graves' disease (of hyperthyroidism)	1st trimester	After 1st trimester	Neonatal thyrotoxicosis (Graves' pregnancies)

■ **KEY FACTS: Learning objectives**

- Describe the causes and diagnosis of hyperthyroidism, distinguishing Graves' disease from gestational thyrotoxicosis.
- Describe maternal and fetal risks of hyperthyroidism and of TSH-receptor antibodies.
- Describe the management of Graves' disease in pregnancy, thyroid storm and the neonate.

191.1 Causes and diagnosis

Cause	Features
Graves' disease	TRAb (TSH-receptor stimulating antibodies); diffuse goitre, ophthalmopathy, pretibial myxoedema
Gestational transient thyrotoxicosis	hCG-mediated, 1st trimester, with hyperemesis; TRAb negative, no goitre/eye signs (Lecture 192)
Toxic multinodular goitre / adenoma	Older women; nodules on scan
Thyroiditis	Subacute (painful), postpartum (painless), amiodarone
Molar pregnancy / choriocarcinoma	Very high hCG
Exogenous	Excess levothyroxine

Symptoms overlap with pregnancy (tachycardia, heat intolerance, anxiety). Clues: **weight loss or failure to gain**, tremor, resting **HR > 100**, eye signs, goitre. Diagnosis: **suppressed TSH with raised free T_4/T_3** (trimester-specific) + **TRAb**.

191.2 Risks

Maternal (uncontrolled)	Fetal / neonatal
Miscarriage, pre-eclampsia, preterm birth, heart failure, thyroid storm (labour, infection, CS)	FGR, stillbirth; TRAb cross placenta → fetal/neonatal thyrotoxicosis (tachycardia, goitre, hydrops, craniosynostosis) — even after maternal ablation; antithyroid drugs cross → fetal hypothyroidism/goitre if overtreated

191.3 Management of Graves' disease in pregnancy

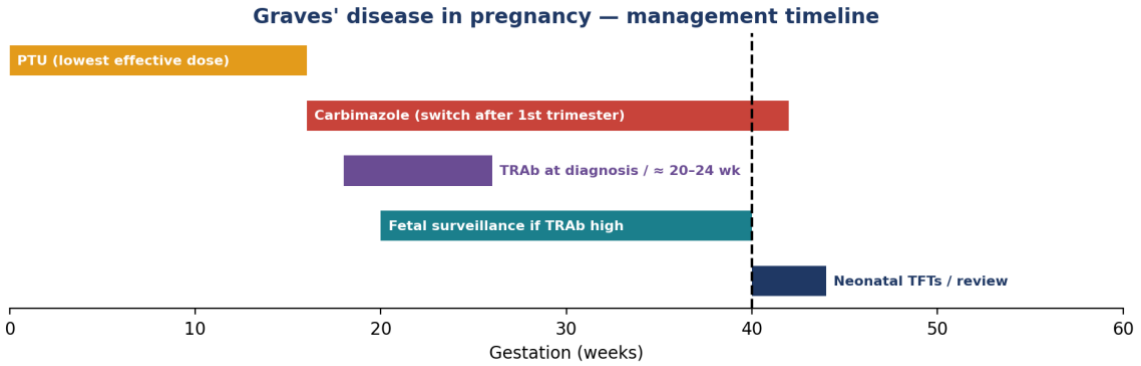


Figure 191.1 — Management timeline

Element	Detail
Antithyroid drugs	PTU in the 1st trimester — carbimazole/methimazole embryopathy (aplasia cutis, choanal/oesophageal atresia, omphalocele) at 6–10 wk; switch to carbimazole after the 1st trimester (PTU hepatotoxicity). Lowest effective dose keeping free T_4 at the upper end of normal (avoid fetal hypothyroidism)
Block-and-replace	Avoid — high ATD doses cross, while thyroxine crosses poorly → fetal hypothyroidism
β-blockers	Propranolol short-term for symptoms (FGR, neonatal bradycardia/hypoglycaemia with prolonged use)
Radioiodine	Contraindicated in pregnancy and breastfeeding (fetal thyroid ablation after 10–12 wk); avoid pregnancy for ≥ 6 months after
Surgery	Thyroidectomy in 2nd trimester if drugs fail/intolerant
TRAb	Measure at diagnosis/early and at ≈ 20–24 wk; > 3× upper limit → fetal surveillance (HR, growth, goitre) and neonatal team
Pre-conception	Achieve euthyroidism; consider definitive therapy before pregnancy; switch carbimazole → PTU when planning or at positive test
Postnatal / neonate	Graves' often flares postpartum; neonatal TFTs if maternal TRAb positive (onset may be delayed days as maternal ATD clears); breastfeeding compatible with moderate doses

■ **RED FLAGS**

- **Thyroid storm**: fever, tachyarrhythmia, heart failure, agitation, vomiting — precipitated by labour, infection, CS, pre-eclampsia. Treat with **PTU** (blocks T_4 → T_3 conversion), then **iodine** ≥ 1 h later, **propranolol**, **hydrocortisone**, cooling, fluids, supportive/ICU care; deliver only when maternal condition stabilised.

191.4 Must-know summary

■ **EXAM TIP**

- Graves' = **TRAb**; GTT = hCG, TRAb negative, hyperemesis, self-limiting.
- **PTU 1st trimester → carbimazole thereafter**; lowest dose, fT_4 upper-normal; no block-and-replace; no radioiodine.
- TRAb crosses → fetal/neonatal thyrotoxicosis (even post-ablation) — check TRAb ≈ 20–24 wk.
- Thyroid storm: PTU → iodine → β-blocker → steroids.

■ **MNEMONIC / MEMORY AID**

'PTU for the First, Carbimazole for the Rest'. **Storm order — 'P-I-P-S'**: PTU, Iodine, Propranolol, Steroids.