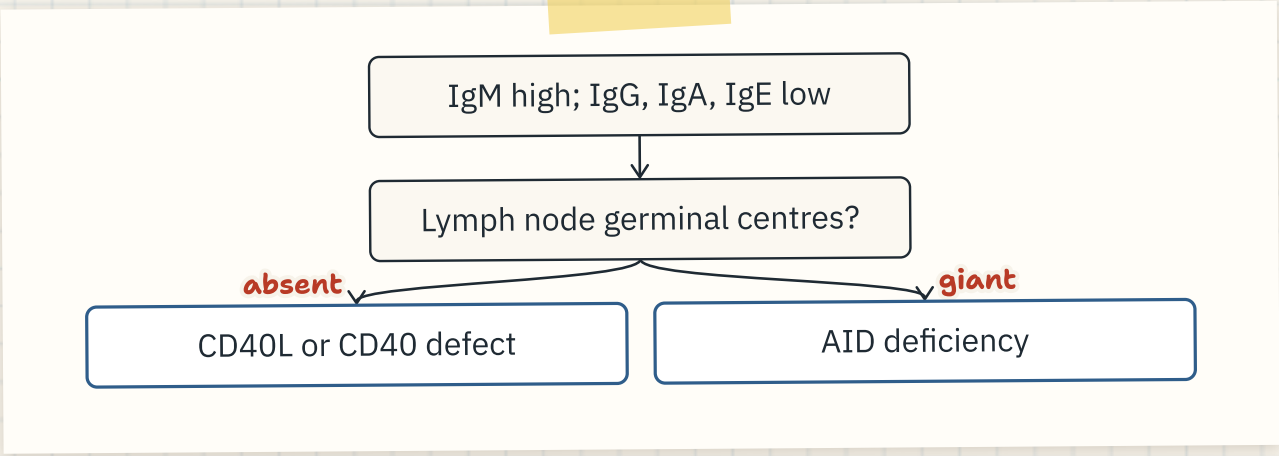
Hyper IgM in one card

CD40 ligand, class switching and infections



Step by step

1. B cell makes IgM first
2. Helper T cell: CD40 ligand binds CD40
3. With cytokines, AID switches on
4. Class switch and germinal centre
5. Block: IgM stuck, others low

	CD40L deficiency	AID deficiency
Fault	T-cell signal	Inside the B cell
Infections	Sinopulmonary, Pneumocystis, Cryptosporidium	Sinopulmonary bacteria
Lymph nodes	No germinal centres	Giant germinal centres

CD40 ligand deficiency versus AID deficiency

Rule of thumb

No CD40 ligand signal, no switch

IgM normal or high; IgG, IgA, IgE low

Exam traps

- CD40 ligand deficiency is a combined immunodeficiency, not a pure antibody defect.
- AID deficiency looks similar, but the fault is inside the B cell.
- Flow cytometry on activated T cells usually shows no CD40 ligand.

Hyper IgM syndrome: CD40 ligand and class switching

Video, written lesson, practice question and sources: medservatory.com/usmle-step-1/immunology/hyper-igm-syndrome-cd40-ligand-class-switching

For exam study only, not medical advice. Follow local guidelines and your lab's ranges.
© 2026 Medservatory, a project of ADMR Solutions Ltd. Free to print and share for personal study.