

Impaired Splenic Function in Adults; Prevention of Infection - Microbiology Full Clinical Guideline

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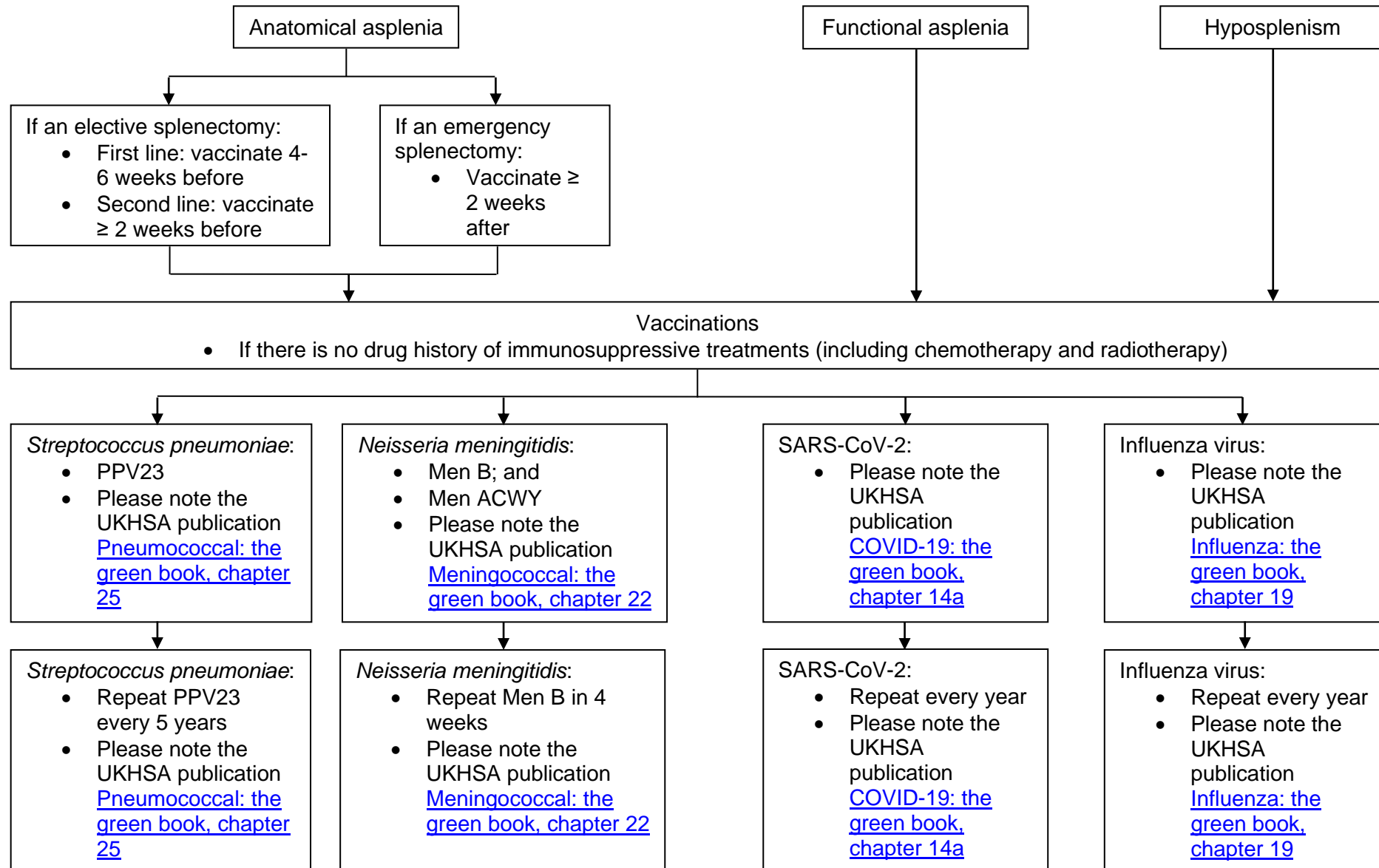
Introduction

- The multiple functions of the spleen include the B cell mediated production of antibody.
- The diverse functionality of antibodies includes the binding of macromolecules within the (i) capsule of bacterial pathogens and (ii) envelope of viral pathogens.
- Impaired splenic function can be classified into:
 - 1. Asplenia: complete loss of splenic function.
 - Subclassified into:
 - Anatomic: absence of the spleen with loss most commonly secondary to surgical intervention (i.e. splenectomy).
 - Functional: presence of the spleen with loss of function most commonly secondary to medical pathologies (e.g. sickle cell anaemia).
 - 2. Hyposplenism: partial loss of splenic function most commonly secondary to medical pathologies (e.g. thalasseмии).
- The complete/partial loss of splenic function predisposes asplenic/hyposplenic to infection.
- With the specific loss of antibodies, the medical/microbiology literature commonly includes the encapsulated bacteria *Streptococcus pneumoniae*, *Neisseria meningitidis*, and *Haemophilus influenzae*, and the enveloped influenza virus and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in lists of notable pathogens.
- To reduce the risk of invasive bacterial disease/severe respiratory syndromes, patient education, vaccination, and antimicrobial prophylaxis can be utilised.

Patient education

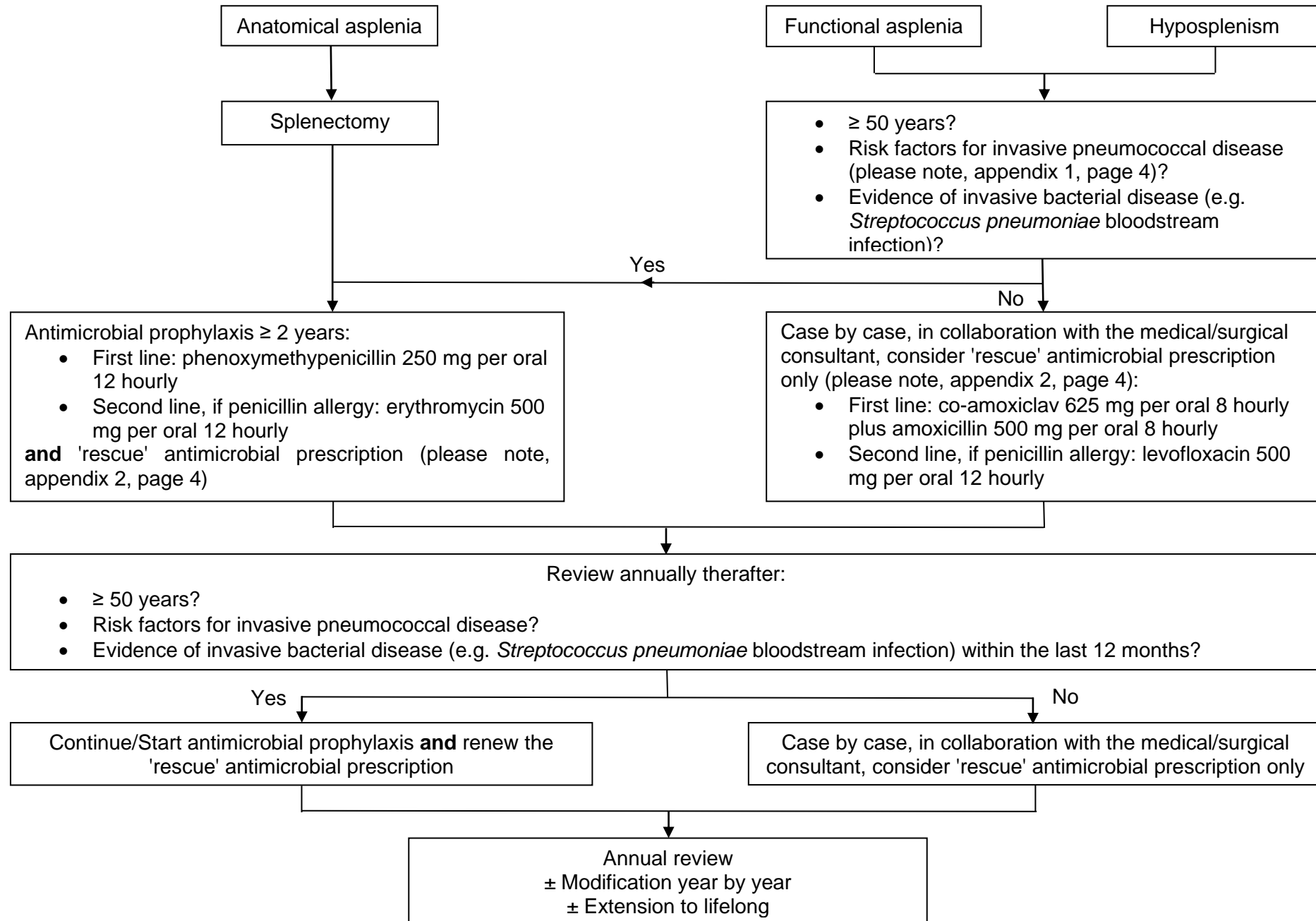
- Infection may progress into [sepsis](#), septic shock, organ dysfunction, or death.
- To reduce the risk of this spectrum of infectious disease, the United Kingdom Health Security Agency (UKHSA) website includes:
 - [Information for patients with an absent or dysfunctional spleen.](#)
 - [Splenectomy: patient record card.](#)
 - [Travel health advice.](#)
 - [Information on the spleen.](#)

Vaccination



NB Regarding *Haemophilus influenzae*, the Green Book states "Although additional vaccination against *Haemophilus influenzae* type b (Hib) used to be recommended for asplenic patients, current control of Hib is excellent because of a long-standing successful vaccination programme in children and the risk of Hib disease is extremely low. Therefore, additional Hib vaccination is no longer recommended."

Antimicrobial prophylaxis



Appendix 1: risk factors for invasive pneumococcal disease

- Invasive pneumococcal disease is associated with an eclectic array of risk factors including:
 - Past medical history:
 - Chronic pulmonary disease (e.g. asthma, chronic obstructive pulmonary disease).
 - Chronic cardiovascular disease (e.g. cardiomyopathy, heart failure); immunodeficiency (e.g. haematological malignancy, hematopoietic cell transplant, solid organ transplant, human immunodeficiency virus).
 - Chronic renal failure.
 - Chronic liver disease (e.g. cirrhosis); inflammatory bowel disease.
 - Diabetes mellitus.
 - Drug history:
 - Glucocorticoids.
 - Social history:
 - Alcohol abuse; cigarettes; crack cocaine use; opioid use.

Appendix 2: 'rescue' antimicrobial prescriptions

- Noting that antibiotic prophylaxis complications include the selection of sub-populations of microorganisms with resistance to the antimicrobial; and
 - With the UKHSA outlining - within the [information for patients with an absent or dysfunctional spleen](#) - that "Most illnesses will be minor and can be dealt with as usual but sometimes a fever, sore throat, severe headache or abdominal pain may be the beginning of something more serious":
 - To reduce the risk of infection progressing into [sepsis](#), etc., 'rescue' antimicrobial prescriptions can be considered with regard to outpatient management:
 - First line: co-amoxiclav 625 mg per oral 8 hourly plus amoxicillin 500 mg per oral 8 hourly.
 - Second line, if penicillin allergy: levofloxacin 500 mg per oral 12 hourly.
- [Sepsis](#) (a life threatening organ dysfunction caused by a dysregulated host immune response to infection) warrants inpatient management.

Appendix 3: nil by mouth

- If the patient is nil by mouth:
 - If there is no extra indication for antimicrobial chemotherapy:
 - Phenoxymethylpenicillin per oral can be converted to benzylpenicillin intravenously.
 - Erythromycin per oral can be converted to clarithromycin intravenously.
 - If there is an extra indication for antibiotics:
 - Empiric intravenous antimicrobials with antipneumococcal activity include co-amoxiclav, piperacillin tazobactam, cefuroxime, ceftriaxone, meropenem, teicoplanin, vancomycin, daptomycin, clarithromycin, clindamycin, linezolid, co-trimoxazole, and levofloxacin.

References

Pasternack, M. S. 2022. Prevention of infection in patients with impaired splenic function. UpToDate. Available at: [Prevention of infection in patients with impaired splenic function - UpToDate](#).

Document control

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