QUESTION 11

Which of the following is the most likely organism causing the presentation shown in the photographs above?

A. Neisseria meningitides  
B. Staphylococcus aureus  
C. Mycoplasma pneumoniae  
D. Listeria monocytogenes  
E. Coxsackievirus

The pictures show a classic strawberry tongue with erythema of the palms.

MYCOPLASMA PNEUMONIA

- Associated with a mild erythematous maculopapular or vesicular rash
Year 2004 Paper two: Questions supplied by Megan

- Not associated with tongue changes
- Can also cause Steven-Johnson syndrome

**NEISSERIA MENINGITIDIS**

- Associated with a maculopapular rash early in course of illness (typically trunk and lower extremities)
- Can develop to petechiae/purpura
- Haemorrhage may be evident on mucous membranes
- No tongue changes

**LISTERIA**

- Not associated with a rash

**COXSACKIE**

- Hand, foot and mouth syndrome:
  - fever
  - oral vesicles which then ulcerate on the buccal mucosa and tongue
  - peripherally distributed small, tender vesicles on the hands and feet
- Occasionally coxsackie can cause petichial or purpuric rash

By exclusion, staphylococcus aureus must be the correct answer. None of the other conditions are associated with the appearances shown.

**TOXIC SHOCK SYNDROME**
Year 2004 Paper two: Questions supplied by Megan

- Caused by toxin-producing strains of staph aureus (TSS)
- Similar disease associated with group A strep (strept pyogenes) – streptococcal toxic shock syndrome (STSS)
- Toxins released are superantigens – activate a large number of T cells
- The results is massive cytokine release (TNF-a, IL-1, IL-2, IFN-g)
- Superantigens do not require processing by APCs but interact directly with MHC II and the V part of the T cell receptor
- Result is fever, rash, hypotension, tissue injury and shock
- Absence of an antibody to toxic shock syndrome toxin-1 is a major risk factor
- Mortality of TSS is 5-15% (STSS mortality is 30-50%)
- Both are rare

Skin and Mucous Membranes:

- Diffuse macular erythodermal rash (can look like sunburn)
- Scarlatiniform eruption is often present
- erythema and oedema of palms and soles
- Hyperaemia of conjunctiva and mucous membranes
- Strawberry tongue
- Delayed desquamation of palms and soles (usually 2-3 weeks later)

Multisystem Involvement:

- Fever >38.9
- Cardiovascular: hypotension, cardiomyopathy
- Gastrointestinal: nausea, vomiting, diarrhoea
- Muscular: rhabdomyolysis, severe myalgia, muscle tenderness, muscle weakness
- Renal: uraemia, acute renal failure
- Neuro: encephalopathy (probably related to cerebral oedema)
- Pulmonary: ARDS
- Hepatic: elevated enzymes and bilirubin, centrilobular hepatic necrosis
- Haematological: Thrombocytopenia, leukocytosis, DIC
- Metabolic: Electrolyte imbalances, metabolic acidosis, hypophosphataemia, hypocalcaemia

Associations:

- Influenza
- Sinusitis
- Tracheitis
- IV drug use
- HIV
- Burn wounds
- Allergic contact dermatitis
- Gynaecological infection
- Postpartum period

**Diagnosis:**

To meet the diagnostic criteria, must have all of:
- Fever >38.9
- Hypotension
- Diffuse erythroderma
- Desquamation (later)
- Involvement of at least 3 organ systems

**Treatment:**

- IV antis
- Supportive
- Treat cause

References: e-medicine, UTD and google