

Infection & ER combine meeting

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Discussion

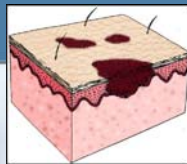
- Fever and skin rash
- Measles

Fever and rash

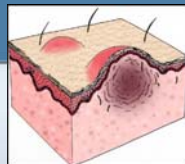
- Age of the patient
- Season of the year
- Travel history, Geographic location
- Exposures including to insects, animals, and ill contacts
- Medications
- Immunizations and history
- The immune state of the host
- Fever and Rash Emergencies

Fever and rash

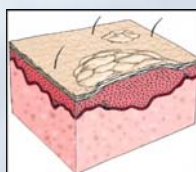
- Characteristics of the lesions
- Distribution and progression of the rash
- Timing of the onset in relation to fever
- Progression, if any, of the lesions such as papules to vesicles or petechiae



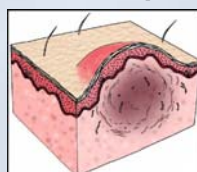
Macules



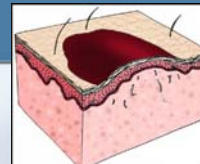
Papules



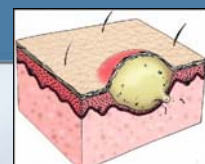
Plaques



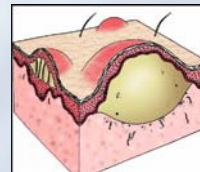
Nodules



Wheals



Pustules



Vesicles and Bullae

Fever and skin rash

- *Nonpalpable purpura* is a flat lesion that is due to bleeding into the skin;
if <3 mm → *Petechiae*
if >3 mm → *Ecchymoses*
- *Palpable purpura* is a raised lesion that is due to inflammation of the vessel wall (vasculitis) with subsequent hemorrhage.

Age, childhood

- Measles (rubeola)
- Chickenpox
- Rubella
- Erythema infectiosum (fifth disease)
- Roseola infantum
- Scarlet fever
- Acute rheumatic fever (ARF)
- Kawasaki syndrome
- Nonpolio enteroviruses

Travel history and Geography

- Rocky Mountain spotted fever — south-central and Atlantic states
- Typhoid fever — Mexico or India who ingest food or water contaminated by fecal matter.
- Dengue virus
- Scrub typhus

Exposure history

- Toxoplasmosis and cat scratch disease from cats and kittens
- Psittacosis from poultry, finches, or parrots
- Cryptococcosis from pigeon, dog, or cat feces
- Plague from goats, rabbits, dogs, squirrels(松鼠), or coyotes(土狼)
- Rat bite fever or leptospirosis from rats
- Tularemia in sheep handlers, wild game cooks, pelt dealers, and veterinarians

Medication history

- Penicillins
- Cephalosporins
- Trimethoprim-sulfamethoxazole
- Barbiturates
- Phenytoin
- Procainamide
- Quinidine

Accompany symptoms

Arthritis or arthralgia	Desquamation
Acute meningococemia	Arcanobacterium haemolyticum infection
Allergic purpura	Drug hypersensitivity
Disseminated gonococcal infection	Graft-versus-host reaction
Erythema marginatum (acute rheumatic fever)	Kawasaki syndrome
Hepatitis B virus, prodromal phase	Measles
Lyme disease	Rocky Mountain spotted fever
Parvovirus B19	Scarlet fever
Reiter's syndrome	Staphylococcal scalded-skin syndrome
Rocky Mountain spotted fever	Stevens-Johnson syndrome
Roseola (especially in adults)	Toxic epidermal necrolysis
Rubella	Toxic shock syndrome
Serum sickness	von Zumbusch pustular psoriasis
Still's disease	
Systemic lupus erythematosus	

Accompany symptoms

Lymphadenopathy	Meningitis
Cervical	Acute meningococemia
Kawasaki syndrome	Cryptococcosis
Rubella	Enterovirus (Coxsackieviruses, echoviruses)
Scarlet fever	Leptospirosis
Generalized	Lyme disease
Infectious mononucleosis	Rocky Mountain spotted fever
Secondary syphilis	Secondary syphilis
Serum sickness	
Sarcoidosis	
Systemic lupus erythematosus	
Toxoplasmosis	
Hilar	
Atypical measles	
Sarcoidosis	
Local	
Cat-scratch disease	
Tularemia	

Fever and Rash Emergencies

- Meningococemia
- Bacterial endocarditis
- Rocky Mountain spotted fever
- Toxic shock syndrome

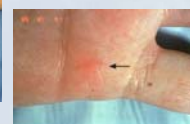
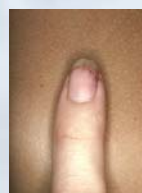
Meningococemia

- *N. meningitidis*
- Children and young adults
- Complement deficiency, splenectomy
- Fever, myalgia, somnolence, headache, and nausea,
- Macular → petechial or purpuric
- Distal extremities and trunk, usually sparing the palms and soles
- Mortality rates 10~25%



Bacterial endocarditis

- Petechiae, splinter hemorrhages, Janeway lesions, Osler's nodes, and Roth spots.



Rocky Mountain spotted fever

- Tick-borne disease caused by *Rickettsia rickettsii*
- Fever, headache, malaise, conjunctival suffusion, and myalgia
- Wrists and ankles → Palms and soles → Arms, legs, face, and trunk.
- Erythematous and maculopapular → Petechial rash
- South-central and Atlantic states



Toxic shock syndrome

- *S. aureus*, Group A streptococci (GAS)
- BT > 38.9°C, hypotension, a desquamating rash, involvement of at least three organ systems
- Mortality : GAS:30%, *S. aureus*:3%

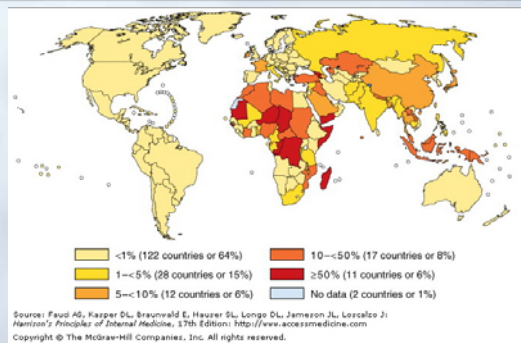


Measles

- Measles (rubeola) is a highly contagious, acute, exanthematous respiratory disease with a characteristic clinical picture and a pathognomonic enanthem.
- Measles virus is the only member of the genus *Morbillivirus* that infects humans.

Measles

- Measles virus invades the respiratory epithelium and spreads via the bloodstream to the reticuloendothelial system, from which it infects white blood cells, thereby establishing infection of the skin, respiratory tract, and other organs.



臨床症狀 (CLINICAL MANIFESTATIONS)

時間 = 天數
(TIME = DAYS)

暴露 (EXPOSURE)

10 天的潛伏期
(10 DAY INCUBATION)

3-4 天的前驅症狀
(3-4 DAY PRODRROME)

1-2 天的 Koplik's 斑點
(1-2 DAY KOPLIK'S SPOTS)

6 天的出疹
(6 DAYS RASH)

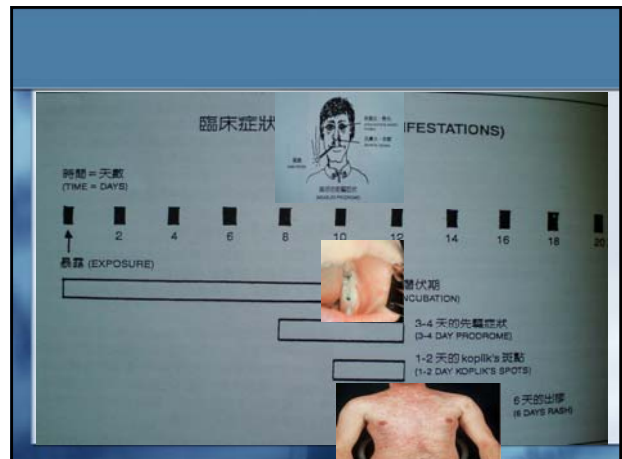


High fever
Conjunctivitis
Coryza
Cough



Buccal mucosa, alongside the second molars

- The characteristic erythematous, nonpruritic, maculopapular rash of measles begins at the hairline and behind the ears, spreads down the trunk and limbs to include the palms and soles, and often becomes confluent.



Complications

- Respiratory tract
Otitis media, Pneumonia, Croup
- Gastrointestinal tract
Gastroenteritis, Hepatitis, Appendicitis, Ileocolitis, and Mesenteric adenitis
- CNS
Acute encephalitis
Subacute sclerosing panencephalitis (SSPE)
→ 1/100000, occurs in infancy, seen 5-10 years later

- Atypical Measles
- Measles in the Immunocompromised Host
- Measles in Adults



Diagnosis

- Immunofluorescent staining of a smear of respiratory secretions for measles antigen.
- Measles virus can be demonstrated by culture or polymerase chain reaction in respiratory secretions or urine.
- Serologic diagnosis by enzyme immunoassay (EIA)
→ IgM antibodies are detectable within 1-2 days after rash onset.
- → IgG titer rises significantly after 10 days.

Prevention and Treatment

- Prevention
Vaccination: 12-15 months and school age
Vaccination within 72 h of exposure may also provide protection
- Treatment
Supportive and symptom based
Otitis media and pneumonia → Antibiotics
Encephalitis → Supportive, ICP monitor
High doses vitamin A : young children hospitalized, immunodeficiency, vitamin A deficiency

項目	麻疹	德國麻疹	猩紅熱	嬰兒玫瑰疹
年齡	> 6 個月大	> 6 個月大	大於 3~5 歲	6 個月~2 歲
家族/學校病例	+	+	++	±
可傳染期	出疹前後 四日內	出疹前後 七日內	至有效抗生素使 用滿 24 小時	
傳播方式	空氣/飛沫	飛沫	飛沫	飛沫
隔離方式	負壓隔離	單人房	單人房	未強制要求
通報時限	24 小時內	24 小時內	一週內通報(註 2)	不需通報
咳嗽、流鼻水	++	+(註 1)	±	±
結膜炎	+	+(註 1)	-	-
柯氏斑	+	-	-	-
頸部淋巴結腫	±	++(註 1)	±	±
扁桃腺滲出液	-	-	±	-
草莓舌	-	-	+	-
皮疹	紅色斑丘疹，大多 不癢，皮疹有融合 的趨勢	紅色斑丘疹，大 多不癢，皮疹只 持續三日	紅色發癢的丘 疹，如同曬傷， 摸起來像砂紙	紅色斑丘 疹，大多不癢
發燒與皮疹的 關聯	發燒 3~4 天後出 疹，二者並行數日	一起出現	一起出現	燒退後才 出疹(註 3)
脫皮	手腳無，全身皮疹 細屑，消退後會留 下棕色的色素沉著	-	手指指及肛門周 圍	-
盤尼西林	不退燒	不退燒	退燒	不退燒

■ Thanks