

ERYTHEMA INFECTIOSUM



Sabine de Barra (Kate Winslet) offers King Louis XIV, (Alan Rickman) a Four Seasons Rose, "A Little Chaos", 2014.

MARQUISE DE MONTESPAN: *Oh. The king comes. Have you been presented before?*

SABINE DE BARRA: *No.*

MARQUISE DE MONTESPAN: *Your Majesty, it is my pleasure to present Madame de Barra.*

LOUIS XIV: *Madame.*

SABINE DE BARRA: *Your Majesty (handing the King, a rose).*

LOUIS XIV: *Is it a Four Seasons?*

SABINE DE BARRA: *It is, Sire. For the most famous gardener in the world.*

MARQUISE DE MONTESPAN: *Allow me, Your Majesty, (takes the rose from Sabine and hands it to the King)*

LOUIS XIV: *A light, honest scent. Natural and unforced. Some of the roses seem faded and overblown.*

SABINE DE BARRA: *That fate awaits all roses, Sire.*

LOUIS XIV: *Continue, Madame.*

SABINE DE BARRA: *All roses are open to the elements, Your Majesty. They bud, bloom and fade.*

LOUIS XIV: *Is that so, Madame?*

SABINE DE BARRA: *The rose grows entirely unaware, changing naturally from one state to another, and although the elements may treat her cruelly, she knows nothing of it and continues to her end without judgment on her beauty. Alas, 'tis not the same for us.*

LOUIS XIV: *If such a rose could speak, what would she say?*

SABINE DE BARRA: *Yes, I am here and gave service under nature's eye, and after me, my children will be. Is there any greater contribution or more graceful end?*

LOUIS XIV: *A wise rose. And what protection can the gardener afford this rose from the harsh elements of change?*

SABINE DE BARRA: *Patience, care and a little warmth from the sun are our best hope, Your Majesty.*

SABINE DE BARRA: *I'm obliged to you, Madame, for that sweet reminder. Now walk with me. And tell me of your progress in our garden.*

King Louis XIV of France, the greatest and most powerful absolute Monarch in all of Europe, known throughout the world as the Sun King, for his radiance and the refined brilliance of his court, the most glittering in the history of the world, has embarked on his most glorious enterprise - the vast gardens of Versailles. The King entrusts the design and construction of the Gardens of Versailles to his most beloved architect André Le Nôtre. Le Nôtre conducts interviews of the most famous landscape gardeners in France, inviting them to submit designs for the monumental project. Astonishingly he includes a woman who works alone, Sabine de Barra. She has

gained a legendary reputation, and although employing a woman is completely out of the question, *Le Nôtre* is curious to meet her and so offers her an interview.

Upon Sabine's arrival at Versailles he spies her through his high level window, rearranging potted plants in his garden. During the interview, he questions Sabine's startling defiance of order in design. Sabine explains that she would like to create something uniquely French rather than slavishly following Classical or Renaissance styles. *Le Nôtre* politely shows her to the door in record time, amidst the sneering smirks of her male competitors. But on pondering what Sabine had said, he later has a change of heart and offers her a small part of the project - an outdoor ballroom surrounded by a fountain and landscaping. Sabine is excited beyond measure, but at the same time terrified to accept the offer, as she must be presented at Versailles to the Sun King himself.

Meanwhile the shocking news is heard that the Queen, Marie Therese has suddenly died. *André Le Nôtre* informs his wife, *Françoise*, who is shaken at the prospect that this will lessen her influence at court. Andre is also shaken, as his own reputation at court has rested in part on his wife's aristocratic family. Neither love each other, their marriage is purely one of convenience, and *Françoise* has her suspicions that Andre is strongly attached to Sabine. *Françoise* now determines to sabotage Sabine's work. Even though the King has many mistresses he is shocked and distraught at the loss of his wife. He seeks refuge in a small country nursery where among the pear trees he dismisses his court followers and body guards, so that he can be alone for a short while free of the heavy cares of state. Suddenly Sabine stumbles upon him. Neither knowing who the other is, they get talking about a common love, their plants, especially of pears and roses. Louis is particularly taken with Sabine's "Four Seasons" roses. He does not let on who he is as he enjoys the anonymity and the pleasant conversation takes his mind away from Kingly matters. Eventually, by a slip of Louis's tongue, however, Sabine comes to realize who she is conversing with. She is speechless, trembling and scarce able to breath, but the King reassures her that she has found great favour in his eyes and, to her astonishment, he invites her to travel with him and his court to see his palace and gardens at Fontainebleau.

Later it comes time for Sabine, as one of the King's new gardeners to be presented at Versailles. She is terrified and cannot bring herself to enter the great Hall of Mirrors, and remains outside the doors, which are shut firmly in her face. Although, quite scandalously, Sabine is a mere commoner, she is stunningly beautiful, and all eyes at court are immediately focused onto her. Everyone wonders how this unknown has come to be at Versailles. She attracts the attention of the King's brother, *Duc Philippe d'Orleans* and his lovely wife *Elizabeth Charlotte, the Princess Palatine*. They take the frightened woman under their wing. The *Duc de Lauzun* introduces Sabine to the King's mistress, the *Marquise de Montespan*. She next introduces her to the women of the court, who at first snub her as a mere commoner. However when they learn she is widowed and has also lost her 6 year old daughter, they begin to reveal their own sad losses and welcome her into their circle, where they discuss topics the King forbids at court

Finally the King arrives accompanied by an enormous retinue of the greatest and most powerful aristocrats of the realm, each with their own servants. The *Marquise de Montespan* presents Sabine to the King, not knowing they have already met. Neither give the slightest hint that they have already met, the idea of the King having

been with a commoner would be scandalous in the extreme. Louis keeps a completely expressionless dead-pan face.

The French court is the most refined in the history of the world. The slightest slip in manner, gesture, nuance of body language or breach of protocol of the most trivial sort, can in an unguarded instant, destroy careers, even lives. Tension is now palpable in the Great Hall. How will the commoner cope with being presented to the King. More interesting still, how will the Sun King respond to a commoner. Sabine keeps her outward demeanour in perfect control. She nervously offers the King a rose. The Marquise de Montespan, jealous of Sabine's beauty, and wary of her own declining favour in the King's eye, takes the rose from Sabine, and offers it to the King, herself. When the King sneeringly alludes to "fading roses", none are in any doubt that he refers to the Marquise. But Sabine defends the Marquise in a beautiful and touching allegory about roses. The whole court begins to understand what a remarkable and noble woman Sabine is. The Marquise, all too well acquainted with the brutalities of court life, whispers to herself in tearful gratitude, "such kindness I have never seen". Even King Louis is taken aback, perhaps even ashamed of the slap he has just delivered to his mistress. To the hushed silence of the room, Louis says to Sabine, "...I'm obliged to you, Madame, for that sweet reminder. Now walk with me. And tell me of your progress in our garden". Francoise will dare not sabotage Sabine's work now. The commoner has been accepted at the court of the Sun King.

Among the infinitely complex procedures of etiquette that held sway at the Court of the Sun King, Louis XIV, dress and personal appearance were supreme. The most fabulously elaborate and expensive clothing was required. Powdered wigs reached their elaborate apogee in this age, as well as perfumes and makeup, in particular, rouge.. This applied not simply to the women of the court, but also to the men who wore on their faces rouges every bit as red and deep as the women. Red cheeks were traditionally seen as denoting health, beauty and vigour. But there were many types of rouged cheek at the court of King Louis, and not only of the cosmetic variety; Among these were the bright red glows in the faces of the women, that reflected the radiance of the Sun king should he deem to notice them. But there was also another less desirable rouge - the deep red of devastating embarrassment of a pointed verbal slap on the cheek from the King. Also known to the Medical profession of the age, were other more feared varieties of "slapped cheek" in form of scarlet fever and erysipelas.

But the most famous rouge of all at the court of Versailles was that introduced by the commoner, Sabine de Barra, light and honest of scent, both natural and unforced, it was the Rose of the Four Seasons.

ERYTHEMA INFECTIOSUM



Facial rash of erythema infectiosum

Introduction

Erythema infectiosum is a common viral infection of childhood and occurs worldwide.

Synonyms include:

- **Slapped cheek disease**
- Fifth disease

Infection is usually mild and benign, but occasionally there are potential complications in patients who are:

- Immunocompromised
- Pregnant
- Suffer from a chronic haemolytic disease

Any pregnant woman who contracts parvovirus infection must be referred to Obstetrics.

History

The name is derived from the Latin, *parvum* meaning small, reflecting the fact that B19 ranks among the smallest of all DNA viruses.

Historically there were considered to be 6 common childhood exanthemas (or exanthema subitum).

These were listed as:

First disease:	<i>Measles</i>
Second disease:	<i>Scarlet Fever</i>
Third Disease:	<i>Rubella</i>
Fourth Disease:	<i>Staphylococcal Scalded Skin</i>
Fifth Disease:	<i>Erythema infectiosum</i>
Sixth Disease:	<i>Roseola</i>

The terminology for all but the **fifth disease (Erythema infectiosum)** is now obsolete.

Although parvoviruses commonly cause disease in animals, it was not until 1975 that the first **human** pathogen of this family was discovered by Cossart and colleagues.

Epidemiology

Human parvovirus infection occurs worldwide and is a common childhood disease.

Outbreaks tend occur during winter and spring.

Epidemics tend to occur every 3 - 4 years.

Slapped cheek usually affects **children** between the ages of **4 -10 years** but it can occur at any age, even in adulthood.

Pathology

Organism

- Human parvovirus B19.

This organism is a single-stranded DNA virus of the family Parvoviridae and genus Erythrovirus.

Note that this virus is *different* to the parvovirus that infects cats and dogs.

Reservoir

- Humans

Transmission

- Parvovirus infection is spread by contact with infected respiratory secretions and can spread rapidly in child care centres and schools.
- It may be spread vertically from mother to foetus
- Rarely, by transfusion of blood or blood products.

Incubation Period

- The incubation period varies from 4 - 20 days.

Period of communicability

- Children with erythema infectiosum are most infectious **before the onset** of the rash, (up to 2 weeks)

They are probably **not** infectious *after* the rash appears.

- Persons with aplastic crises are infectious for a week after the onset of symptoms.
- **Immunosuppressed** persons with chronic infection and anaemia may excrete virus for years.

Susceptibility & resistance

- Generally 5-10 % of preschool children and more than 50 % of adults have serological evidence of past infection.
- Infection confers life-long immunity.

Clinical Features

Illness is usually mild only.

Asymptomatic infection with human parvovirus B19 is common (around 20 - 25 % of cases).

Symptoms can be relatively longer lasting in adults.

For those with clinical disease, manifestations include the following:

1. Fever (usually mild).
2. Mild upper respiratory tract symptoms:

- Cough
- Coryza.

3. Rash:

- The rash occurs 7- 10 days after contracting the virus.
- Typically there is a striking redness of the cheeks (hence “**slapped cheek disease**”, see above).
- This may be followed 1- 4 days later by an erythematous / pink rash on the trunk and limbs that fades but may recur over several weeks on exposure to heat or sunlight.
- In adults, the rash is often atypical or absent.



Small child with characteristic “slapped cheek appearance” of erythema infectiosum, caused by human Parvo virus B19. Note also the macular rash over the upper body (From, Knoop K. J et al. Atlas of Emergency Medicine, 2nd ed. 2002.

4. Polyarthropathy:

- A polyarthropathy syndrome can occur with acute infection, especially in women.

Patients develop an acute symmetric arthritis affecting the small joints of the hands and feet.

Symptoms typically last for 1 - 3 weeks. In a small number of cases , symptoms may be more prolonged, and last for months.

Complications

Parvovirus can affect the **development** of **red blood cells**.¹

As a result, certain groups of people are at increased risk of developing complications:

These are:

1. **Patients with hemoglobinopathies or haemolytic diseases:**

- Persons with hemoglobinopathies or chronic haemolytic diseases (for example, **sickle cell disease**) may develop **transient aplastic crises** after parvovirus infection, often in the absence of a rash.

In patients with hemoglobinopathies or hemolytic anemias, in whom the duration of erythrocyte survival is decreased, a decrease in the reticulocyte count to less than 1% (usually to 0%) may precipitate transient aplastic crisis.

Such a crisis is characterized by profound anemia caused by a temporary halt in new erythrocyte production.

Also abnormal erythrocytes, such as those associated with hemoglobinopathies, have a significantly shortened half-life because they are removed from circulation by the reticuloendothelial system.

Any interruption in new erythrocyte production may trigger a crisis.

2. **Immunosuppressed patients:**

- These may develop severe chronic anaemia form red cell aplasia

3. **Pregnant patients:**

Adverse effects from parvovirus infection during **pregnancy** are uncommon, occurring in **less than 5%** of the time among all pregnant women with parvovirus B19 infection.³

Complications, if they do occur, happen more commonly during the **first half (i.e. first 20 weeks) of pregnancy**.^{1,3}

Infection of the foetus may result in:

- Fetal anaemia, **hydrops foetalis** and fetal death (*in fewer than 10 per cent of cases of maternal infection*), if the infection occurs within the first 20 weeks of pregnancy.
- Spontaneous abortion.

The risk to unborn babies is low. Spread from mother to baby can only occur if the **mother is not immune**. Even if the mother is affected only one-third of babies will develop the infection (generally about a month after the mother's illness).

Infection does *not* appear to cause congenital abnormalities.

Investigations

The diagnosis is usually be made on clinical grounds, especially during periods of **outbreaks**.

1. FBE:

Look for

- Anemia

Less commonly:

- Leukopenia
- Thrombocytopenia

2. Serological antibody testing:

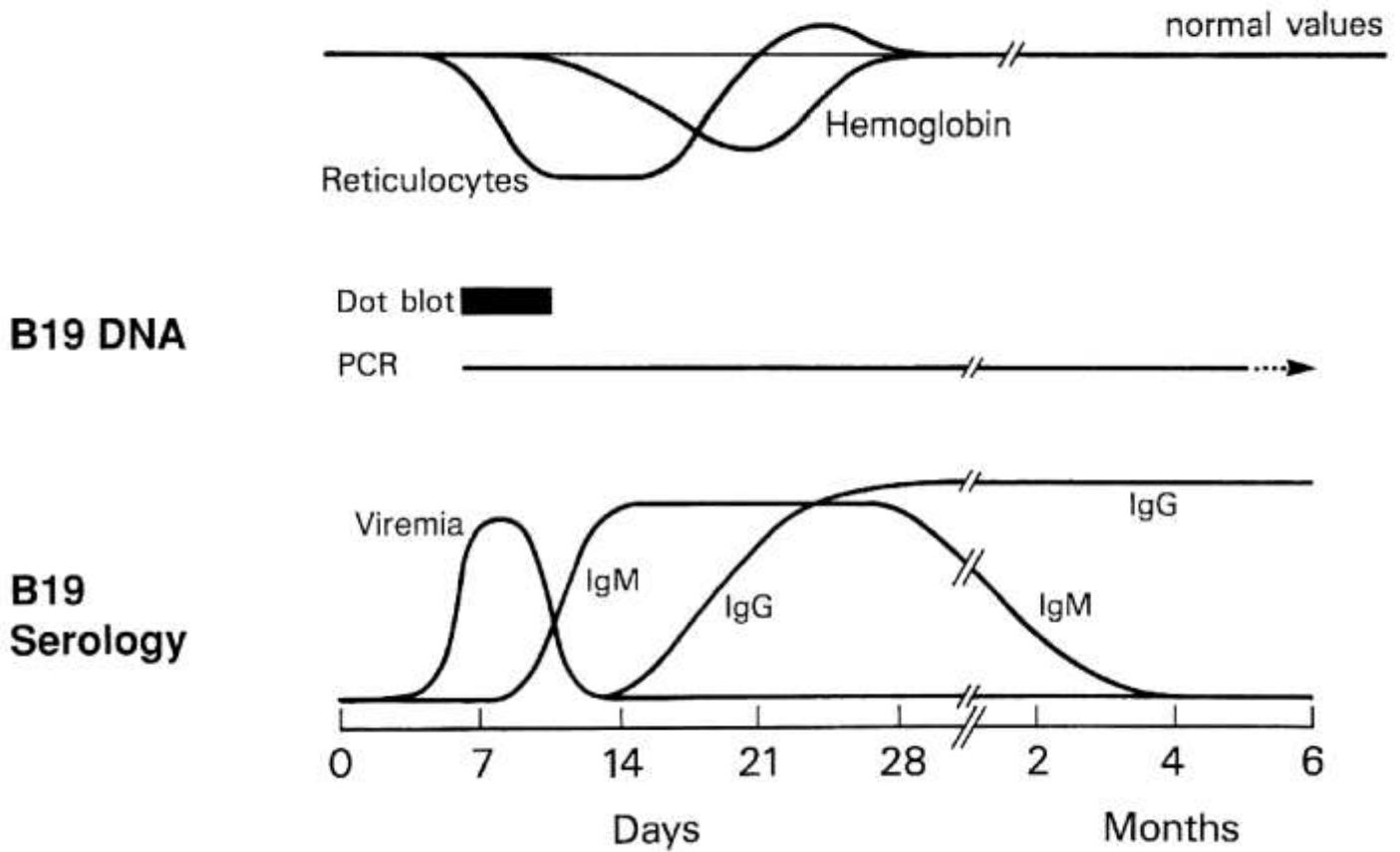
- IgM indicates *acute* infection:
 - ♥ Specific IgM antibody titres decline 2 - 3 months after acute infection.
- IgG (without IgM) indicates *past* infection:
 - ♥ IgG levels, which appear 2 weeks after infection, can persist indefinitely.

3. PCR testing:

- Polymerase chain reaction (PCR) testing for B19 DNA is the most sensitive test.

It will often be positive during the first month of acute infection and for prolonged periods in some people, particularly those with transient aplastic crisis or pure red cell aplasia.

The test is done on **blood** samples.



Interpretation of results in pregnancy:

Result	Interpretation
Positive IgG & negative IgM	Indicates past infection (no risk to fetus).
Positive IgG & positive IgM	Indicates infection within the last 7-120 days (possible risk to fetus).
Negative IgG & positive IgM	Indicates acute infection (higher risk to fetus).
Negative IgG and negative IgM	Indicate that the mother is not immune and that no evidence of acute infection is noted. In this case, repeat the tests in 3 weeks. Subsequent development of IgM indicates an acute infection.

Positive PCR	<p>Low levels may be detected long after clinical infection.</p> <p>PCR may also be performed on fetal serum of amniotic fluid to detect virus.</p>
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Management

1. There is no specific treatment for erythema infectiosum and so treatment is supportive.
2. There is no current vaccine available.
3. Pregnant women:

Pregnant women who contract parvovirus infection may be at increased risk of fetal anemia or fetal death.

- There is **no** risk to women who have **antibodies** due to previous infection.

♥ **The mother can be tested for IgG and IgM antibodies.**

- If **active** infection is diagnosed, ultrasound is performed **every 1 -2 weeks** to monitor the health of the baby.

If there are signs the baby is having difficulty with severe anemia a blood transfusion while the baby is still in the womb may be considered.

4. Patients and healthcare workers with **acute parvovirus infection** should not have contact with high-risk hospitalized patients, such as pregnant women, the immunosuppressed and those with a chronic haemolytic anaemia.

Notification:

Notification of parvovirus infection is not required in the State of Victoria.

School exclusion:

Persons with parvovirus infection need not be excluded from child care or schools, as cases are infectious before the onset of the rash and are probably not infectious after the rash occurs.

However all *at risk* persons (see above) in close contact with children in settings where parvovirus infection may occur (schools, child care centres, health care facilities and so on) should be advised of the risk that parvovirus infection may pose, and warned of school and child care centre outbreaks.

Disposition:

If a pregnant woman has contracted parvovirus infection, they must be referred to their **obstetrician** for further assessment and advice.

Specialist Advice in Victoria

Appropriate specialist advice should be sought if an infected person :

- **Has an immunodeficiency**
- **Has a blood disorder**
- **Is pregnant**

Further specific advice relating to infection and pregnancy can be obtained from:

- The Foetal Diagnostic Unit, Monash Medical Centre.
- **Communicable Diseases Section** Victorian Government Department of Human Services, Telephone **1300 651 16**



“If such a rose could speak, what would she say?”



“Yes, I am here and gave service under nature’s eye, and after me, my children will be. Is there any greater contribution or more graceful end?”

References

1. The Blue Book Website, (Health.vic), Accessed April 2019
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