Human Parvovirus B19: ubiquitous but not necessarily benign

Jun Yi Sim^{a,b}, Luan-Yin Chang^a, Jong-Min Chen^a, Ping-Ing Lee^a, Li-Min Huang^a, Chun-Yi Lu^a

^aDivision of Pediatric Infectious Diseases, Department of Pediatrics, National Taiwan University Hospital, Taipei, Taiwan

^bDepartment of Pediatrics, Taipei Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation

More than erythema infectiosum

- Human parvovirus B19, a member of the *Parvoviridae* family, has been known to cause self-limiting diseases including **erythema infectiosum (fifth disease)** and **arthropathy** in healthy subjects.
- However, there is limited understanding on symptoms, physical findings, and clinical course, especially in patients with comorbidities.
- We **retrospectively analyzed patients who tested positive for parvovirus B19 by real-time PCR in blood** in our institution.
- We aim to **identify physical findings that were correlated with severe disease.**

Methods

- From January 2009 to December 2017, patients who were positive for parvovirus B19 in blood via real-time PCR were enrolled.
- Complicated patients were defined as having received a blood product transfusion.**

1. Young, N.S., Brown, K.E. Parvovirus B19. *N Engl J Med*, 2004,350:586-97
2. Wolfromm, A., et. al., Spectrum of adult Parvovirus B19 infection according to the underlying predisposing condition and proposals for clinical practice. *Br J Haematol*, 2015,170(2) 192-9

Results

- 26 patients (15 male/11 female)** had positive parvovirus B19 PCR in blood.
- Median age was **8.8 years**.
- Prior to a positive PCR test, patients' initial diagnosis were as follows:

Initial diagnosis	N
Erythema infectiosum	6
Fever of unknown origin (FUO)	7
Acute tonsillitis	6
Atypical infection	3
Scarlet fever	2
Hydrops fetalis	1
Viral myocarditis	1

	Self-limited (N=14)	Complicated (N=12)
Male sex (%)	71%	42%
Median age (years)	7.75	13.00
Comorbidities		
Admission		

● Yes ● No ● ICU

Table 1 (left) and Figure 1 (above): Characteristics and comparison of symptoms, physical findings, and initial diagnosis between patients with self-limited and complicated disease
***Indicates statistically significant, p<0.05**

Discussion

- This 8-year retrospective case series documents the **wide spectrum of parvovirus B19 presentation** in children and adults.

Self-limited	Complicated
<ul style="list-style-type: none">Transient reticulocytopenia but no clinical anemiaRash likely due to immune complex, viremia resolution	<ul style="list-style-type: none">Aplastic crisis due to short red cell lifespanProlonged viremia from immuno-suppressionHeart failure, hydrops

Conclusions

- Depending on host factors, the manifestations of parvovirus B19 infection can be multifaceted.
- Patients who required transfusion had physical findings that were significant compared to those with a self-limited course.