Case Series of Transient Humoral Immunodeficiency with Progression to Autoinflammatory Disorder in an Adolescent

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ABSTRACT:

It is well recognized that primary immunodeficiencies (PID) frequently display a degree of concurrent autoimmune or autoinflammatory disease. This is a novel case series regarding two adolescent females presenting with transient humoral deficiency during childhood with subsequent development of a cyclical autoinflammatory disease.

BACKGROUND:

PID patient's often exhibit a degree of immune dysregulation, which tends to fall within a spectrum of autoimmune or autoinflammatory disease.[1] PIDs associated with autoimmunity include deficiencies in RAG[2] and CTLA4 haplodeficiency.[3] Immunodeficiencies associated with autoinflammation include chronic granulomatous disease,[4] PLAID,[5] HIDS,[6] and PFAPA.[7]

CASES:

CASE 1: JG is a 15-year-old female with a history of immunoglobulin deficiency. She initially presented with a failure to thrive and recurrent sinus infections and at 18 months of age she was managed successfully with intravenous immunoglobulin (IVIG). At 5 years old she presented with episodes of arthralgias, fever, flushing, mouth sores, body aches, cervical lymphadenopathy, leg and arm sores, and swollen, tender, erythematous fingers. These episodes occurred every 2-3 weeks and last 24-48 hours. She failed multiple trial therapies successful management on infliximab 145.89 mg/4 weeks intravenously and colchicine 3 mg/day by mouth.

CASE 2: MB is a 26-year-old female with a history of transient humoral deficiency. At 6 months of age breast-feeding was discontinued and she developed multiple sinopulmonary infections and was diagnosed with immunoglobulin G subclass 2 deficiency. She is currently controlled on subcutaneous immunoglobulin therapy. She presented to the clinic with a long history of episodic arthralgias, fever, flushing, mouth sores, body aches, and cervical and axillary tender lymphadenopathy that began in childhood. These episodes occur monthly and last 72 hours. She received a tonsillectomy at age 21 with minimal relief.

	Patient 1 - JG	Patient 2 - MB
Oral Ulcers	X	X
Fevers	X	X
Body Aches	X	X
Lymphadenopathy	X	X
Arthralgias	X	X
Flushing	X	X
Erythematous Fingers	X	

DISCUSSION:

We report the first case series concerning the presentation of two patients with humoral immunodeficiency, managed with IVIG, who subsequently developed cyclical autoinflammatory disease. This previously undescribed phenomenon draws questions regarding its clinical significance as well as its place within the spectrum of immunodeficiency, autoimmunity, and autoinflammatory conditions. It may be beneficial to screen for the development of a cyclical autoinflammatory condition in patients with humoral immunodeficiency and those treated with IVIG therapy. If this condition does arise in a similar context a trial of TNF-α blocking agents and colchicine may be indicated.

CONCLUSION:

- **Autoinflammatory disease is relatively common among young people**
- **PIDs often fall within a spectrum of autoimmune and autoinflammatory diseases**
- **In patients with PID treated with IVIG, screening for a cyclical autoinflammatory condition may be recommended**
- **In such patients, consider treatment with TNF-α blocking agents and colchicine**