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THE HISTORY OF STEVENS-JOHNSON SYNDROME

The History of Stevens Johnson Syndrome and Current Management

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Abstract

Steven-Johnson Syndrome is a rare disease. Most comprehensive ophthalmologists have only seen 1-2 cases in their career, and of those most are chronic cases. The exact etiology and treat-ment remains controversial since its first publication in 1922. This syndrome was first described by Albert Stevens (Surgeon) and Frank Johnson (Pediatrician).

Definition:

Stevens-Johnson syndrome and toxic epidermal necrolysis (TEN) are two forms of a life-threatening skin condition, in which cell death causes the epidermis to separate from the dermis. This syndrome is thought to be a hypersensitivity complex that affects the skin and the mucous membranes. The exact etiology and treatment at this time is not well understood. The most common causes for initiation of the syndrome are the use of certain antibiotics such as sulfa drugs. Stevens-Johnson syndrome (SJS) is a moderate form of TEN.

HISTORY:

Albert Stevens was born in 1884 in Rangoon, India, the son of a Baptist missionary. He moved to the United States at age ten and received a Bachelor of Arts degree from Yale University in 1905. He went to Oxford on a Rhodes Scholarship in 1908 and received his MD from Columbia University, College of Physicians and Surgeons in 1915. He was awarded a $125 (equal to $4000 in today's dollars) scholarship for the first year of medical school. The following year he wrote a letter expressing appreciation for the scholarship but said that he obtained summer em-ployment during his vacation and he no longer needed the financial help, and asked the commit-tee to give the money and scholarship to another needy student. He served in World War I as an assistant surgeon in the Army. He was captured by the Germans and repatriated to the US after the war ended. He joined the staff at Bellevue Hospital, New York City. where he practiced until retirement in 1948. He retired to Honolulu, Hawaii and taught in the Hawaiian school system and started a small plantation growing tropical fruit. He died August 6, 1945 at the end World War II

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Frank Johnson graduated from Rutgers College in 1916 and went to Columbia University, College of Physicians and Surgeons and graduated in 1920. He started a practice in pediatrics in New Brunswick, New Jersey. Unfortunately, he died in a quarry fall while studying geological formations and plant specimens on January 1, 1934.

How Albert Stevens and Frank Johnson met and collaborated is unknown, but probably both knew each other from medical school and both were on the staff of Bellevue Hospital. Neither one was an ophthalmologist.

They jointly collaborated on a publication entitled "*A New Eruptive Fever Associated with Stomatitis and Ophthalmia*" in the *American Journal of Diseases of Children* in December of 1922[1]. That was the name of that journal from 1911 to the 1990's. Then the name of the journal was changed to *Archives of Pediatrics and Adolescent Medicine*. The name of the journal was recently changed, and it is now called *JAMA Pediatrics*.

INTRODUCTION:

Two young boys had been admitted to Bellevue Hospital Center in New York City with skin eruptions of oval, dark red to purplish spots separated by normal tissue (Fig 1).

The appearance of each spot looked like a "bulls-eye." There was fever, conjunctivitis, inflamed mucus membranes, and one of the young boys had a total loss of vision. They had never seen this condition before and they had multiple consultants evaluate these patients. Their report was the first description of which later became Stevens-Johnson syndrome. The Lancet noted this article and described it as a new eruptive fever. When it became "Stevens-Johnson syndrome" is unclear.[2 & 3]

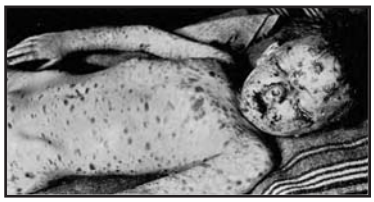

Figure 1:
Young boy from 1922 publication.
(Permission from JAMA Peds)

Clinical Features:

Stevens-Johnson syndrome is an immune hypersensitivity complex that typically involves the skin and mucus membranes.[4] (Fig 2) SJS is minor form of TEN with less than 10% body surface area of detachment of the epidermis. Overlapping SJS is TEN with the detachment of 10 to 30 percent or more of the body surface area. Clinical features include inflammation blistering of the mouth, eyes, and it attacks the deepest layer of the skin and mucous membrane. There is sloughing of the top layer of skin like a severe burn.

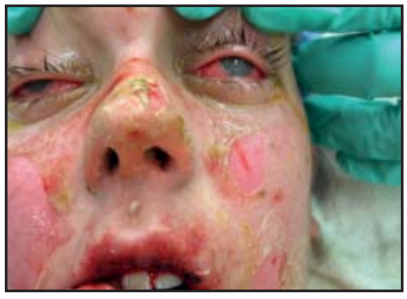

Figure 2: Acute Stage.
(Courtesy of Alexandra C. Pauley and Miami Valley Hospital, Dayton, OH)

SJS usually begins with a fever, sore throat, fatigue; it is commonly misdiagnosed and therefore often treated with antibiotics. Ulcers and other lesions begin to appear in mucous membranes and almost always in the mouth, lips, but also in the genital area. Conjunctivitis of the eyes oc-curs in about 30% of the children. The common offending drugs are antibiotics especially sulfa and certain non-steroidal anti-inflammatory medication like ibuprofen (Advil) often in 25% of cases no drug can be identified. SJS is thought to arise from a disorder of the immune sys-tem. Genetic factors may play a role in SJS and TEN. SJS a rare condition with a reported inci-dence of two to six cases per million per year. In the United States there are about three hundred new cases diagnosed yearly. Mortality of SJS is about 5%; however, the mortality of toxic epidermal necrolysis TEN is 30 to 40%.

Ocular signs:

1. *Eye Lid*: trichiasis, Meibomian gland dysfunction, and blepharitis

2. *Conjunctiva*: are papillae, follicles, keratinization, conjunctival shrinkage, foreshortening of fornices, symblepharon, and ankyloblepharon.

3. *Cornea*: superficial punctate keratitis, epitheal defect, stromal ulcer, keratinization and stromal opacity, perforation.

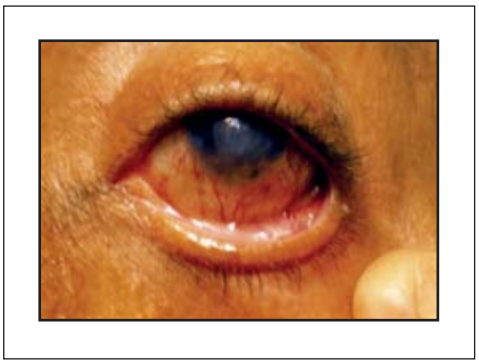

Figure 3:
Chronic kerato-conjunctivitis

Management:

An article in the February 2015 issue of *Ophthalmology* demonstrates the role of comparing systemic and immuno suppressive

therapy in chronic SJS...[5] Systemic the use of steroids, immune and combinations was shown to be no better than supportive therapy alone.

The role of an artificial clear plastic cornea, Boston K-Pro is gaining popularity. In a large case study in Ophthalmology[6], approximately 65% did well; however, patients with Stevens-Johnson syndrome do not have a good prognosis.

Summary:

Stevens - Johnson syndrome is a rare disease which includes ocular and systemic manifestations. The exact etiology is unknown and the best management is still being investigated.[7]

References:

1) Stevens, A. and Johnson, F. A new eruptive fever associated with stomatitis and ophthalmia: report of two cases in children. *American Journal of Children* 1922; 24: 526–533

2) A New Eruptive Fever, *Lancet*, Dec 30, 1922 p 1396

3) Thomas B The So-Called Stevens -Johnson Syndrome. *British Medical Journal* June 1950 p 1393

4) Bastuji-Garin, S., Rzany, B., Stern, R.S. et al. Clinical classification of cases of toxic epider-mal necrolysis, Stevens-Johnson syndrome, and erythema multiforme. *Arch Dermatol*. 1993; 129: 92–96

5) The Role of Systemic Immunomodulatory Treatment and Prognostic Factors on Chronic Ocular Complications in Stevens–Johnson Syndrome Ophthalmology Dong Hyun Kim, Kyung Chul Yoon, Kyoung Yul Seo, Hyo Seok Lee, Sang Chul Yoon, Chie Sotozono, Mayumi Ueta, Mee Kum Kim, *Ophthalmology* vol 122, 2 Feb 2015 Pages 254-264

6) Srikumaran D, Munoz B, Aldave AJ, Aquavella JV, Hannush SB, Schultze R, Belin M, Akpek EK. Long-term outcomes of Boston type 1 keratoprosthesis implantation: a retrospective multicenter cohort.*Ophthalmology*. 2014 Nov;121(11):2159-64.

7) Mockenhaupt M (2011). "The current understanding of Stevens–Johnson syndrome and toxic epidermal necrolysis". *Expert Review of Clinical Immunology* 2013, 7 (6): 803–15. doi: 10.1586/eci.11.66. PMID 22014021