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# Amoxicillin Induced Steven Johnson's Syndrome: A Case Report

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## ABSTRACT

Stevens-Johnson syndrome (SJS) is a very rare, potentially fatal skin reaction that is typically the result of reaction to the drug. In particular, SJS is characterized by extensive skin and mucous membrane lesions (i.e. mouth, nose, esophagus, anus, and genitalia), epidermis detachment, and acute skin blisters. In 95 % of case reports, drugs were found to be an important cause for the development of SJS. This story is a case of A 42 year old male hospitalized with rashes all over the body and fever, after oral consumption of Amoxicillin drug for sore throat. This case study discusses the possibility that serious hypersensitivity reactions with Amoxicillin can rarely occur and can be extremely harmful and life-threatening Menacing.

**Keywords**: Toxic Epidermal Necrolysis, Stevens Johnson Syndrome, Adverse drug reaction, Nikolsky's sign

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## INTRODUCTION:

Adverse drug reactions (ADR) accounts for 6 percent of total hospital admissions, increases the economic burden on the healthcare system, leads to market withdrawal and death of drugs. Cutaneous drug reactions, mostly Stevens Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN), are rare but potentially fatal reactions that threaten the life of the patient [1].

Stevens-Johnson syndrome (SJS) is a severe, life-threatening disease normally associated with the use of medications rather than other etiological conditions. It is a severe form of exfoliative dermatitis, characterised by extensive epidermal erythema and blistering that eventually result in epidermal necrosis and detachment. It is a mucocutaneous cell-mediated hypersensitivity reactions. This is usually a reaction to medicine that starts with symptoms like fever, accompanied by a painful rash that spreads and blisters. For some days the top layer of infected skin falls, sheds and starts to recover.

Historically, two American physicians named Stevens and Johnson described SJS for the first time in 1922. They described an acute mucocutaneous syndrome in two young boys with severe purulent conjunctivitis, severe stomatitis with extensive mucosal necrosis [2]. The incidence of SJS has been reported to be 0.05 to 2 million persons per population per year. Mortality reported ranges from 3 to 10 per cent [3]. SJS is seen quite often in children vulnerable to viral infection, however Mortality is higher among older people [4].

Sulphonamides, non-steroidal anti-inflammatory medications, antifungal imidazole, cephalosporins, anticonvulsants, allopurinol, wide spectrum bactericidal agents and HAART protocol are the most common medicines that induce SJS. Fluoroquinolones will seldom induce severe reactions to the cutaneous medications [3,4]. Here, we report a case of SJS-induced by Amoxicillin.

## CASE REPORT:

A 42 Year old male presents with the complaints of fever, itchy skin eruptions all over the body for 4 days. He gave a history of sore throat for which he was administered with combination drug of Amoxicillin and clavulanic acid. The eruptions were seen after taking two doses.

After three days , patient developed unilateral painful skin lesions which were unruptured and filled with fluid. These

lesions first appeared over the left fore arm and then gradually progressed to all over the body. The eruptions were hyperpigmented, target like and round lesions. The eruptions were 3-5cm in diameter and present throughout the body and more concentrated on arms, palms, face and abdomen.

Patient was ill-looking, conscious, oriented with all his vitals in normal range. On examination, erosive vesicular lesions were present on tongue, lips, eyes and genitals. Which were associated with purulent discharge. Nikolsky's sign was positive. His laboratory investigation data on admission were as per table 1.

Table 1: Laboratory data of the patient on the day of admission

| Parameter | Observed Value | Reference value |
|---|---|---|
| Haemoglobin | 11.6g/dl | 11-14g/dl |
| Red cells | 4.9 m/mcL | 4.7-6.2 m/mcL |
| White blood cells | 11,000 c/ mcL | 4500-10800 c/ mcL |
| Platelets | 6,70,000 / $mm^3$ | 150,00-450,00 /$mm^3$ |
| Neutrophils | 83% | 40-75% |
| ESR | 50mm per 1st hour | 1-15mm per 1st hour |
| C-Reactive Protein | 26mg/dl | 0.5-10 mg/dl |
| Direct bilirubin | 3.82mg/dl | 0-0.3mg/dl |
| Indirect bilirubin | 0.9mg/dl | < 0.8 mg/dl |
| Total bilirubin | 3.05mg/dl | 0.3 - 1.0mg/dl |
| AST | 34 IU/L | 0-38 IU/L |
| ALT | 37 IU/L | 0-41 IU/L |
| GGT | 28 IU/L | 5-36 IU/L |
| Serum creatinine | 0.8 mg/dl | 0.5-1.2mg/dl |

Viral and bacterial infection tests including for cytomegalo virus(CMV), mycoplasma pneumonia and Epstein barr virus (EBV) was negative. Skin biopsy revealed dermal inflammation confirming the biopsy was compatible with SJS.

Based on the clinical findings, laboratory data and skin biopsy patient was diagnosed with Amoxicillin induced steven-johnson's syndrome. On causality assessment using Naranjo's algorithm, association was probable for Amoxicillin.

The patient was managed aggressively with parenteral antibiotics, antihistamines, steroids and nutritional supplements. Patient recovered after rigorous treatment for 20 days. He was subsequently discharged well, after 3 weeks of rehabilitation.

## DISCUSSION:

SJS is severe, life-threatening skin disorders under which the epidermis is separated from the dermis by cell death. This condition is known to be a complex of hypertensivity affecting the skin and mucous membranes. The exact etiology and diagnosis is not well known at this time.

Stevens-Johnson syndrome is an immune hypersensitivity complex that typically involves the skin and mucus membrane. SJS is minor form of toxic epidermal necrolysis (TEN). Clinical features include inflammation, blistering of mouth and eyes, and it attacks the deepest layer of the skin and mucous membrane.

SJS is thought to arise from a disorder of immune system. Genetic factors may play a role in SJS. Medications appear to be the most common cause of Stevens-Johnson syndrome and have been implicated in as many of 60% of cases studied. Incidence ranges from 1.2 to 6 cases per million per year [5]. The commonly associated drugs are antimicrobials (sulfonamide and other nonsulfonamide antibiotics such as aminopenicillins, cephalosporins, and quinolones), anticonvulsants (carbamazepine, phenytoin, phenobarbitone, and valproic acid), NSAIDs of the oxicam type, and allopurinol. [6-8]

The antibiotics of penicillin may cause skin hypersensitivity reactions such as rash and erythema. Patel et al.[9] reported that penicillin is one of the antimicrobials that sometimes triggers serious adverse cutaneous drug reactions (CADRs) in the Indian population. To date, few cases of SJS / TEN induced with Amoxicillin have been reported [8,10]. Usually these adverse events are minimized by early removal of the suspected offending agent (Amoxicillin, in this case).

Combination therapy with Amoxicillin and clavulanic acid was identified as the causative agent because of the temporal relationship between the combination administration and the onset of eruptions. Several other earlier reports have also associated Amoxicillin and clavulanic acid to Stevens-Johnson syndrome.

While mild variants of erythema multiforme majus can cure in two to three weeks, it can take two to three months to heal from Stevens-Johnson syndrome, based on the amount of organs involved and disease intensity.[11]

## CONCLUSION:

A causal association exists between the adverse effect (AE) and Amoxicillin. A frequent use of Amoxicillin and

subsequent ADR's cannot be avoided in developing countries such as India, where infectious diseases are widely prevalent. This case report describes the risk of serious hypersensitivity reactions with Amoxicillin and clavulanic acid, which can be dangerous and life-threatening. Clinicians and clinical pharmacists also need to be more vigilant when administering this drug. Appropriate drug therapy and timely reporting of ADRs is therefore necessary to prevent non-compliance with treatment with subsequent clinical failure and increased resistance to antimicrobials.

## CONFLICTS OF INTEREST:

The author declares that there is no conflict of interest to disclose.

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