



RESEARCH ARTICLE

A CASE REPORT ON AMOXICILLIN INDUCED ALLERGY REACTION IN 25 YRS PREGNANT WOMAN

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ABSTRACT

Adverse side effects are response to a drug that can occur at any dose irrespective of any drug form, any class of drug and its dosage regimen which can trigger an immune response leading to Type 1, 2, 3 or 4 hypersensitivity reactions. Cutaneous adverse drug reactions are the common Adverse Drug Reactions (ADR) that can most likely occur in response to drug hypersensitivity. The most common ADRs with penicillin's antibiotics includes Amoxicillin immune-mediated allergic reactions. Cutaneous adverse drug reactions can vary in presentation and severity, ranging from moderate benign maculopapular exanthema to severe drug hypersensitivity resulting allergic and non allergic erythematous rash, urticaria, Stevens – Johnson syndrome (SJS). Here, we report a case of Augmentin (Amoxicillin and potassium clavunate) drug induced immediate allergic erythematous maculopapular rash characterized by raised, itchy red coloured welts (urticaria). The erythematous rashes onset was within hours of the first dose. It was itchy and widespread on upper limbs and lower back portion of a 25-year old PRIMI GRAVIDA female at 37 weeks of gestational age who was initially diagnosed and managed on the line of viral pyrexia. The diagnosis was highly suggestive, the patient was closely monitored until the onset was decreased.

INTRODUCTION

Penicillin antibiotics are used as first line antibiotics for many bacterial infections, particularly those caused by gram-positive bacteria. Amoxicillin belongs to the class called beta lactam antibiotic. It is an aminopenicillin (a semisynthetic derivative of ampicillin). It is bactericidal in nature. It inhibits bacterial cell wall synthesis by binding to penicillin-binding proteins (PBPs) which results in inhibition of peptidoglycan cross-linking, leading to the cell linking and cell death. It has broad spectrum of antibacterial activity and effective against both Gram Positive Bacteria: Streptococcus spp., Enterococcus faecalis & Gram Negative Bacteria: E. coli, H. influenza, salmonella, shigella, proteus mirabilis. It is well absorbed than amoxicillin. Not affected by food. It is widely distributed, but poor penetration into CNS unless meninges are inflamed. It is excreted largely unchanged in urine via renal excretion. Normal adult dose is 250 to 500mg every 8hrs BID it is often combined with clavulanic acid (a beta lactamase inhibitor) Augmentin – Amoxicillin + Clavulanic acid which extends its spectrum to include beta lactamase producing bacteria.

Amoxicillin is widely used for Respiratory track infections like (tonsillitis, Bronchitis, otitis media) Urinary track infection, H. pylori eradication (triple therapy), Typhoid fever, Gonorrhea & Prophylaxis for endocarditis in the high risk patient undergoing dental procedures these indications are FDA – APPROVED.

PREGNANCY CONSIDERATIONS:- 4

Amoxicillin is classified as a pregnancy category B drug. Under the former FDA classification system, indicating a lack of studies demonstrating clear risk. This medication is widely used in pregnant woman. Side Effects are hypersensitivity reactions like:

HYPERSENSITIVITY REACTIONS (IMMUNE-MEDIATED)

CLINICAL FEATURES & EPIDEMIOLOGY

- Nearly 11% of amoxicillin cases reported rash as an adverse event, and about 6.6% had urticaria

TYPE	MANIFESTATION	MECHANISM
ALLERGIC (TYPE 1,2,3 & 4)	RASH;URTICARIA; ANAPHYLAXIS, SJS	IMMUNE HYPERSENSITIVITY
NON – ALLERGIC RASH	RASH IN EPSTEIN – BARR VIRUS, CHRONIC LYMPHOCYTIC LEUKEMIA	NON-IMMUNE UNKNOWN MECHANISM
GI EFFECTS	DIARRHOEA, NAUSEA, DIFFICILE COLITIS	ALTERED GUT FLORA
INFECTIONS	ORAL CANDIDIASIS, COLITIS	OVERGROWTH OF RESISTANT ORGANISM
RENAL EFFECTS	INTERSTITIAL NEPHRITIS	IMMUNE MEDIATED
HEMATOLOGICAL	HEMOLYTIC ANEMIA, THROMBOCYTOPENIA, LEUKOPENIA	AUTOIMMUNE
CNS	SEIZURES	HIGH DOSE FAILURE DRUG ACCUMULATION IN CNS

RASHTYPE	ONSET OF TIME	APPEARANCE & SYMPTOMS	SEVERITY
MACULOPAPULAR /MORBILLIFORM	3-10 DAYS (UPTO 2 WEEKS)	FLAT,RED ,SMALL BUMPS,MILD ITCH	MILD,SELF-RESOLVING ANTIBIOTIC THERAPY CAN BE INITIATED.
URTICARIA(HIVES)	WITH IN HOURS	RAISED ITCHY WELTS,MIGRATORY	HYPERSENSITIVIY ALLERGIC REACTION
SJS/TEN	1-3 WEEKS	BLISTERS,MUCOSAL LESIONS,FEVER	EMERGENCY IMMEDIATELY HOSPITALIZATION
DRESS	2-8 WEEKS	RASH,FEVER,FACIAL EDEMA, ORGAN INVOLVEMENT	HIGH SEVERITY,STOP DRUG & HOSPITALIZE
PHOTOSENSITIVITY	USUALLY WEEKS	SUNBURN LIKE RASH ,FULL BODY REDNESS, SCALING, ERYTHRODERMA	SERIOUS MEDICAL CONDITION (RARE) BUT NEEDS MEDICAL EVALUATION.

- Non-allergic rashes in adults typically resolve within 1–2 weeks without treatment.
- Hypersensitivity cases are rarer: 17% of adult referrals with suspected amoxicillin allergy were confirmed upon testing, with cross-reactivity noted with clavulanic acid

These are most common ADR'S with penicillin's, including amoxicillin. It bind to body proteins and forms an antigenic complex .This triggers an immune response (Type 1, 2, 3, 4 hypersensitivity reactions)

TYPESOFREACTIONS :-6,7,8,9,10.

TYPE 1: IMMEDIATE, IgE- MEDIATED:- URTICARIA, ANGIOEDEMA, ANAPHYLAXIS

TYPE 2: CYTOTOXIC:- HEMOLYTIC ANEMIA , THROMBOCYTOPENIA

TYPE 3: IMMUNE COMPLEX:- SERUM SICKNESS-LIKE SYNDROME

TYPE 4: DELAYED HYPERSENSITIVITY:- MACULOPAPULAR RASH, STEVENS -JOHNSON SYNDROME(RAREST TYPE)

Here, we are reporting a case of immediate urticaria associated with maculopapular, erythematous rash along itching induced by amoxicillin/clavulanate

CASE REPORT

A 25 year female patient PRIMI @37 weeks of gestational age was admitted to the hospital with the chief complaints of gravid uterus + proper fetal movements , fever with joints pains , since yesterday morning. At first as the first line therapy coamoxiclav augmentin 650 mg was given to reduced fever which resulted in developing in immediate rashes with itching at both upper limbs ,at lower back area and all over the body on 21 October 2024 in the evening and immediately treated with tab levocetirizine 5mg

Pasthistoryofthepatient: History of right side facial deviation with left lower motor neuron bells palsy since 05/10/2024 and medically managed by using acyclovir × 7 days OD , with

complaints of weakness not progressing. History of hypothyroidism on medication LT4 25mcg since this pregnancy.

She was brought to the ekashilaa hospital for further treatment at 11pm on 22 October 2024. She was treated immediately(STAT) with inj hydrocort 100mg iv,inj pcm 1gm iv&inj pantop 40mg iv

MANAGEMENT

TREATMENT CHART

BRAND NAME	DOSE	ROUTE OF APPLICATION	FREQUENCY
AVOID CO-AMOXICLAV			
DERMOCALM LOTION	100ml	TOPICAL APPLICATION	BID
INJ.MONOCEF	1gm	IV	BID
INJ.PCM	1gm	IV	SOS
INJ.PAN	40mg	IV	OD
SYP.DYPHALAC	20ml	PO	HS
TAB.THYRONORM	25mcg	PO	BBF(BEFORE BREAKFAST)
TAB.LEVOCET	5mg	PO	HS
TAB.BIO D3 MAX	1TAB	PO	OD

PROVISIONAL DIAGNOSIS:- A case of viral pyrexia , thrombocytopenia with anemia

PATIENT'SLABORATORYINVESTIGATIONS

COMPLETE BLOOD PICTURE

	DAY 1	DAY 3	NORMAL VALUE
HB	8.9gms	9.3 gms	(12.0 – 15.0)
TOTAL RBC	3.3 mill/cumm	4.1 mill/cumm	(3.8 – 4.8)
TOTAL WBC	4,700 cells/cumm	5,000 Cells/cumm	(4000 – 10,000)
PLATELET COUNT	99,000	1,09,000	(1,09,000 – 4,50,000)
UREA SERUM	20 mg/dl	19 mg/dl	(15-40)
SERUM CREATININE	0.9 mg/dl	0.9 mg/dl	(0.6 – 1.3)
URIC ACID	5.9 mg/dl	5.7 mg/dl	(2.0 – 6.0)

PATIENT OBJECTIVE FINDINGS

VITALS	DAY 1	DAY 2	DAY 3
TEMPERATURE	101°F	101°F	100°F
PULSE RATE	20	20	20
BLOOD PRESSURE	110/70	110/80	120/70
CVS	S1S2+	S1S2+	S1S2+
R.R	BAE+	BAE+	BAE+

GENERAL EXAMINATION AND INVESTIGATIONS:

Patient was prescribed with co-amoxiclav 650mg OD PO on 21/07/2024 in the evening in order to reduce pyrexia and immediately developed itching associated with maculopapular rash over the trunk area with in half n hour of administration and disseminated to both upper limbs and lower back area as shown in fig 1, by observing the patients condition, it was ideally considered to discontinue the treatment with co-amoxiclav and was advised to switch on to tab levocetirizine & calamine lotion as local applicant to relieve from itching and control further by continuing medication. On the next day I.e 22 October 2024 she was admitted in EKASHILAA Hospital and continued further treatment. On examination, patient was conscious, oriented and stable.



Figure 1. Onset of maculopapular rash with erythema



Figure 2. Maculopapular rash with erythema at both upper limbs

All the objective and subjective findings were evaluated and patient was closely monitoring. As a Part of counselling, when the patient was assessed for the medical history, the patient

revealed no such previous experience had occurred while administering the antibiotics before as this was the first time of being treated with co-amoxiclav. By considering the above facts we have assessed the present data on Naranjo's causality assessment scale for which the outcome obtained from it was definite.

DISCUSSION

As a part of our daily routine pre-ward rounds we came across a case of maculopapular skin rash, associated with redness and itching at bilateral upper limbs and at lower back area of female PRIMI gravida patient At gestational age of 37+ weeks .These maculopapular rashes were found with redness and were extreme itchy in nature. The reason was turned out to be drug-induced maculopapular rashes by amoxicillin/clavulanate. The previous studies convey that around 10% of the population administered with beta lactams were produced to such allergic reaction which was globally reported. Maculopapular rashes or skin abbreviations or skin lesions or skin eruptions most common forms to express irritability in the epidermis of the skin indicating an adverse cutaneous drug reactions to their antibiotics. These cutaneous drug reactions exhibits specific morphological patterns they vary from mild irritation to toxic epidermal Necrolysis. There are various skin diseases causing medical conditions that express cutaneous disruption. It is essential to consider drug are as possible cause of any eruption because drug eruptions can take form of any skin lesion. An adverse drug reaction mimics a systemic infection that can cause skin rashes .One should differentiate between infectious and drug-induced EM based on the characteristics of the distribution pattern of the skin rash. The pathophysiology of the drug induced adverse skin eruption is not exactly known however immune mediated reaction occur as a result of desired effect most of these symptoms vary from fever , fatigue, lymph node enlargement , dysfunction of internal organs such as liver, kidney and can be life threatening if neglected.

In a Previous retrospective analysis it was found that other than antibiotics (31%) various other agent costs severe skin rash is the most common drug implicated where anti epileptic (50%) of the anti epileptic. carbamazepine was the most common often implicated drug (27%) followed by the filler trade (13.6%).*12 In another study conducted in India reported that the drug most often cause for the various cutaneous ADR where antimicrobials anticonvulsant and NSAID. Among the ADRs, anticonvulsants where concerned in (41.6%) of the maculopapular rashes sulfonamide accounted for (43.3%) and NSAID for (30.7%) of the drug eruptions, urticaria was associated with mainly by NSAID (24.3%) penicillin class of drug (20%)*13 The reactions may be localised or spread all over the body associated with itching causing generalised eruptions this reactions are frequent in paediatrics Ashok Kumar malpani, Riyaz Miya et.al reported amoxicillin induced immediate allergic reaction in one year seven days old male baby admitted to the paediatric ward of Gulbarga institute of medical science hospital with complaints of hyperthermia from 4 days and multiple Abscess on the head since one month. *14 Management of amoxicillin induced skin reactions involves early recognition and withdrawal of the particular drug rapid initiation of supportive care by fluid and electrolyte replacement. Symptomatic treatment with anti systemic drugs and topical applications like calamine , liquid paraffin & aloe

vera like soothing agents calms the skin and helps in relieving itching and skin rash by reducing it.

FACTORSTHATINCREASEADRRISK

- Previous allergy to you Beta lactams
- High dose or prolonged therapy
- Renal impairment (decrease drug excretion)
- Co-existing viral infections : asthma, eczema
- polypharmacy (drug interactions)
- Immunocompromised status

MANAGEMENT OF OVERDOSE

- Discontinuation of amoxicillin therapy , provide supportive care to patients
- Maintain the patient's airway, breathing and circulation.
- Amoxicillin can be removed from circulation by hemodialysis

CONCLUSION: 10,15

When starting empirical therapy, the right drug and dose must be chosen carefully. Amoxicillin is commonly associated with adverse drug reactions (ADRs), so risk assessment is essential. WHO pregnancy category guidelines should be considered, and patients must be closely monitored. Physicians should evaluate the patient's medical history, previous antibiotic exposure, and frequency of use to minimize ADRs. Patient counselling is vital—patients should disclose amoxicillin allergy or hypersensitivity, as re-exposure may cause life-threatening reactions. Physicians must take extra caution and document allergy history before prescribing, especially in pregnant women, where antibiotics form a major part of gynaecological prescriptions for maternal and fetal health.

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ETHICAL APPROVAL AND CONSENT TO PARTICIPATE: The study was approved by the institutional ethics committee.

CONFLICT OF INTEREST: The authors declare that there is no conflict of interest.

SUMMARY

Amoxicillin, a widely used aminopenicillin, is generally well tolerated, but numerous case reports highlight its potential to cause significant adverse drug reactions (ADRs). The most frequently reported are hypersensitivity reactions ranging from mild rashes to severe cutaneous adverse reactions. Case reports describe Stevens–Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), and drug reaction with eosinophilia and systemic symptoms (DRESS) following short courses of

amoxicillin. Non-allergic rashes are particularly observed in patients with infectious mononucleosis. Rare but serious manifestations include hematological abnormalities, interstitial nephritis, and even neuropsychiatric effects. In most cases, symptoms resolve after drug withdrawal and corticosteroid or supportive therapy, though severe forms may require intensive management. These reports emphasize that even a commonly prescribed antibiotic like amoxicillin can produce unpredictable and potentially life-threatening ADRs, highlighting the need for early recognition and prompt discontinuation.

REFERENCES

1. Tripathi, K.D. Essentials of Medical Pharmacology (8th Edition) Chapter 49: Penicillins, Cephalosporins and other β -Lactam Antibiotics.
2. Kwon YH. Amoxicillin. In: Helicobacter pylori [Internet]. Springer Singapore; 2016 [cited 2021 Jan 9]. p. 387–96. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK482250/>.
3. Beta-lactamase inhibitors [Internet]. 2015 Jan [cited 2021 Jan 9]. Available from: www.lahey.org/Studies/.
4. Akhavan BJ, Khanna NR, Vijhani P. Amoxicillin. [Updated 2023 Nov 17]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan.
5. ijbcp.com+6pmc.ncbi.nlm.nih.gov+6drugs.com.
6. Drugs.com,verywellhealth.com+15drugs.com+15medicalnewstoday.com+15drujscimedcentral.com+11medicalnewstoday.com+15.
7. Jscimedcentral.com+1medicalnewstoday.com+1.
8. Verywellhealth.com+15dermnetnz.org+15texaschildrens.org+15.2oakleafclinics.com+15drugs.com+15medicalnewstoday.com+15.
9. Verywellhealth.com+3healthline.com+3verywellhealth.com+3.
10. En.wikipedia.org+1jscimedcentral.com+1.
11. Satish Kumar B P1, Anwitha Johns2*, Lavanya P R2, Pudota Mary Pravallika2. A Case Report on Maculopapular Skin Rash Due to Amoxicillin Hypersensitivity Reaction. Int. J. Pharm. Sci. Rev. Res., 66(1), January - February 2021; Article No. 20ISSN 0976 – 044X
12. KumarDK, RajganeshR, JayaDBS, CherianSN, MohamedT. Amoxicillin induced erythematous maculopapular rashes: a case report. Int J Basic Clin Pharmacol 2020;9:806-9
13. Brar BK, Kaur J, Kumar S, Sethi N, Kumar R. Cutaneous adverse drug reactions profile in a tertiary care hospital in North India. J Pakistan Association Dermatologists. 2017;27(2):158-63.
14. Hal TW, Sluiter HE, Scheur MR, Ginkel CJ. A case of acute generalised pustulosis due to amoxicillin/clavulanic acid. Neth J Med. 2014;72(4):245-6.
15. Ashok kumar malpani, Riyaz Miya, Praveen Teja, Brahmani Shankar Reddy T. Amoxicillin induced immediate allergic reaction a case report .