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## Case Report

# Angioedema induced by ofloxacin

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### ABSTRACT

A 42-year-old woman was prescribed the second-generation 4-fluoroquinolone antibiotic ofloxacin to cure loose movements. However, after taking the medication, she developed lip edema. Antibiotics called fluoroquinolones are frequently administered for a variety of medical disorders. The patient was successfully treated with corticosteroids after the diagnosis of ofloxacin-induced hypersensitive reaction was made based on the patient's history, clinical examination, and normal test results. Because ofloxacin, this type of reaction is extremely uncommon. Anti-allergic medicines and drug cessation were used to treat the disease.

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## 1. Introduction

A 4-fluoroquinolone antibiotic of the second generation is called ofloxacin. Most people tolerate it well, although typical side effects include allergic reactions, hypersensitivity reactions in the central nervous system (CNS), metabolic reactions, and gastrointestinal (GIT) system problems.<sup>1,2</sup> (Figures 1 and 2) Only 4% of participants in a clinical trial research reported relief from their negative effects when their medicine was stopped.<sup>2</sup> Patients taking ofloxacin have experienced severe and rarely fatal hypersensitivity responses and/or anaphylactic reactions. Cardiovascular collapse, hypotension/shock, seizure, loss of consciousness, tingling, angioedema (including swelling of the tongue, larynx, throat, or face), airway obstruction (including bronchospasm, shortness of breath, and acute respiratory distress), dyspnea, urticaria,

itching, and other serious skin reactions are among the reactions that frequently happen after the first dose. The first approach is to stop taking the medication right away.<sup>2,3</sup> In India, 2.85% of drug-induced cutaneous adverse drug reactions (CADRs) occur. Compared to NSAIDs or beta-lactams, fluoroquinolones had far fewer and milder cases of hypersensitivity or anaphylactic responses.<sup>4</sup> From mild to moderate rashes, angioedema, to potentially fatal Stevens-Johnson Syndrome and toxic epidermal necrosis, these CADRs can vary widely. An key factor in morbidity and death are ADRs.

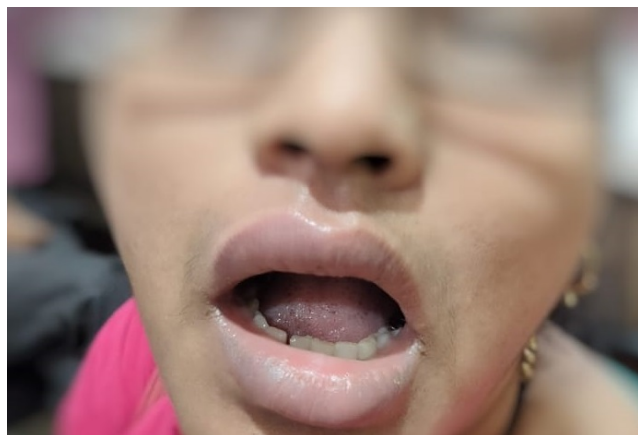
## 2. Case Report

An acute swelling of the upper limb was the complaint of a 42-year-old female patient who came to OPD. She complained of pain and discomfort and described having loose stools and stomach pain for two days. A local doctor advised her to consume plenty of oral

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fluids and prescribed an antibiotic tablet (ofloxacin 200 mg) twice day. After taking one ofloxacin tablets, the patient's frequency of loose stools decreased. However, a few hours after taking Tab 02, she experienced pain and discomfort as well as swelling in her upper lip. No prior history of breathing difficulties, rashes, or itching was present. Normal vitals included a pulse rate of 80 beats per minute, a blood pressure of 120/80 mmHg, bilaterally clean chest, and normal cardiac rhythms. An empirical diagnosis of Ofloxacin-induced hypersensitivity (angioedema) was made based on her complete hemogram, normal renal and liver function tests, clinical examination, and normal laboratory results. The patient was instructed to cease using the offending medication, Ofloxacin. Using Naranjo's causality assessment scale, the response was rated as "probable." (Table 1) She received a 100 mg intravenous dose of Acecort as well as a 10-mg once-daily tablet of levofloxacin for five days. She was instructed to follow up in the outpatient department following the attainment of symptomatic relief. The following day, there was less discomfort and swelling and the patient appeared to be recovering. The patient gave written and informed consent for the use of the case facts and clinical photographs.



**Figure 1:** Ofloxacin-induced hypersensitivity reaction (angioedema)

### 3. Discussion

A broad-spectrum antibiotic, ofloxacin works by preventing bacterial deoxyribonucleic acid gyrase from functioning, making it effective against both Gram-positive and Gram-negative bacteria.<sup>1,5</sup> It is an antimicrobial agent that is part of the second generation of fluoroquinolones and can be used topically, sublingually, orally, or by injection. Because of their minimal side effects and broad-spectrum antibacterial coverage (which includes anti-tubercular action), they are among the most widely prescribed and used antibiotics.<sup>1,6</sup> These medications are among the most widely used self-prescribed treatments



**Figure 2:** Ofloxacin-induced hypersensitivity reaction (angioedema)

for acute gastroenteritis, urinary tract infections, and respiratory infections in underdeveloped nations like India.<sup>1,7</sup> They are readily accessible at drug stores. A likely causal association was taken into consideration when the reaction (angioedema) was examined systematically utilizing Naranjo's causality assessment scale.<sup>8</sup>

There are two types of diarrhea: acute diarrhea, which lasts for less than four weeks, and chronic diarrhea, which lasts longer than four weeks. Diarrhea usually subsides in a few days, although occasionally it takes longer. Rehydration is the primary treatment to prevent fluid loss; the use of antibiotics is advised in cases of diarrhea caused by bacteria or other infectious agents.<sup>2</sup> Angioedema is swelling of the subcutaneous, mucosal, or both, involving the gastrointestinal or respiratory tracts as a result of inflammatory responses. A hypersensitive reaction to a variety of substances, including foods, medications, and insect venoms, is known as allergic angioedema. The primary pathophysiologic process is brought on by the production of inflammatory mediators, which cause tissue edema, inflammation, and arteriolar dilatation. These mediators include histamine, bradykinins, and serotonin.<sup>2</sup>

### 4. Conclusion

A broad-spectrum active fluoroquinolone of the second generation is called ofloxacin. In this case study, the patient had a hypersensitive reaction resulting in lip edema and puffy eyes, which is uncommon to describe in fewer than 5% of cases. A thorough allergy history of the patient should be obtained in order to prevent the occurrence of such drug-induced angioedema or any other ADRs. They should also be summoned for follow-up appointments, given Drug Lists for future reference, and cautioned regarding the gravity of

**Table 1:** Naranjo scale based causality assessment

S. No	Questions	Yes	No	Don't know	Score
1	Are there previous conclusive reports of this reaction?	+1	0	0	+1
2	Did the adverse event appear after the drug was given?	+2	-1	0	+2
3	Did the adverse reaction improve when the drug was	+1	0	0	+1
4	Did the adverse reaction reappear upon re administering the drug?	+2	-1	0	+2
5	Were there other possible causes for the reaction?	-1	+2	0	0
6	Did the adverse reaction reappear upon administration Of placebo?	-1	+1	0	0
7	Was the drug detected in the blood or other fluids in toxic concentrations?	+1	0	0	0
8	Was the reaction worsened upon increasing the dose? Or, was the reaction lessened upon decreasing the dose?	+1	0	0	0
9	Did the patient have a similar reaction to the drug or a related agent in the past?	+1	0	0	+1
10	Was the adverse event confirmed by any other Objective evidence?	+1	0	0	0
Total		8	1	0	7

Definite - 9 or higher, Probable - 5 to 8, Possible - 1 to 4, Doubtful - 0 or less.

ADRs. Therefore, the goal of our treatment should be to keep the same patient from experiencing similar episodes in the future. The Pharmacovigilance Programme of India (PvPI) shall frequently host a variety of ADR-related workshops and conferences, the primary goal of which should be raising awareness among medical practitioners. They must to be informed about the yearly rates of ADR morbidity and death as well as reporting requirements.

## 5. Source of Funding

None.

## 6. Conflict of Interest

The authors declare no conflict of interest.

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## References


- Rawal G, Yadav S, Kumar R, Wani UR. Ofloxacin Induced Angioedema: A Rare Adverse Drug Reaction. *J Clin Diagn Res.* 2016;10(11):FD03–4.
- Fredy IC, Krishnaveni YA, Lohith KB, Palatty PL. Ofloxacin induced-angioedema . 2016;5(1):1217–20.
- Nam YH, Kim JE, Kim SH, Jin HJ, Hwang EK, Shin YS, et al. Immunologic Evaluation of Ofloxacin Hypersensitivity. *Allergy Asthma*

*Immunol Res.* 2012;4(6):367–9.

- Sheth HJ, Sood SV, Patel RP, Malhotra SD. A case report on angioedema induced by levofloxacin: an unexpected occurrence. *Int J Basic Clin Pharmacol.* 2017;6(11):2749–51.
- Pham TDM, Ziora ZM, Blaskovich MAT. Quinolone antibiotics. *Medchemcomm.* 2019;10(10):1719–39.
- Ramani YR, Mishra SK, Rath B, Rath SS. Ofloxacin-induced cutaneous reactions in children. *J Clin Diagn Res.* 2015;9(6):1–2.
- Yadav S, Rawal G. Self-medication practice in low-income countries. *Int J Pharmaceut Chem Anal.* 2015;2(3):139–42.
- Naranjo CA, Busto U, Sellers EM, Sandor P, Ruiz I, Roberts EA, et al. A method for estimating the probability of adverse drug reactions. *Clin Pharmacol Ther.* 1981;30(2):239–45.

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