

Hypersensitivity with Consumption of Oral Metronidazole (Skin Rashes on the Whole Body)

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Abstract

Consumption of oral Metronidazole (in form of suspension), may be related to a case of hypersensitivity which might be accompanied by signs and symptoms including skin rashes, hives (urticaria), fever, redness flushing, and itching on the entire body. With the application of the Prick test, the allergists found that patient showed a positive result to Metronidazole.

Introduction

Metronidazole is prescribed for dental abscesses and anaerobic infections in dentistry which most of the time is taken with Amoxicillin [1,2]. Hypersensitivity due to consumption of this drug is a rare reaction which has seen in a few patients. Most of the time, this hypersensitivity is not a life-threatening (like rashes, itch, flushing, fever) [3], but in some cases, it manifests as a health hazardous threat (such as Stevens-Johnson syndrome, Lupus) [4,5].

This type of reaction can appear in the local area or the whole body. We present a case of hypersensitivity where a child had a skin rash, hives, with itching all over her body, after taking oral Metronidazole suspension. (Figures 1, 2, 3, 4)



Figure 1: *Skin rash with itching on the back*



Figure 2: *Redness with itching*



Figure 3: Hives on the leg



Figure 4: Redness area on the cheeks

Mode of Action

Metronidazole belongs to a class of drugs called *Nitroimidazole* antimicrobials. By inhibiting nucleic acid synthesis it disrupts the DNA of microbial cells [6]. Hence, this function only occurs when Metronidazole is partially reduced. This reduction usually happens only in anaerobic cells; therefore, it does not have that much effect on human cells or aerobic bacteria [7].

History

A 5-year-old female child referred to the pediatric department with complications of skin rashes on her face one day after dental treatment. She did not have any history of hypersensitivity in the past. When asked about the incidence of this reaction, her parents said they noticed the red rashes have appeared on her face and the whole body in the next morning. As her mother explained, she had hives all over her body. Except for having a low-grade fever, the patient's general condition seemed satisfactory.

Parents were worried if the dental procedure had caused this problem. Furthermore, they were suspicious about the injection of local anesthesia which might have an adverse reaction; however, she did not have any reaction to that before.

It is necessary to explain that looking through the patient's file, there had been an insignificant swelling in the primary molar area with pain which was observed by our colleague on the day of the visit; PA radiography revealed this. Tooth E had a much extended carious lesion. Noteworthy, a pulpectomy was performed on that day, and due to the bacterial infection, the pediatric dentist prescribed the combination of Metronidazole with Amoxicillin to eliminate the infection.

Examination

The extra oral examination revealed the redness all over his face which was accompanied with small rashes on the lower side of his face; close to the primary molar region. No other intraoral findings were noted. A more detailed examination in the left side of the face suggests insignificant swelling and the possibility of an abscess in the area of teeth D and E.

Differential Diagnosis

There are many factors can trigger this reaction. Here, we summarize the most important ones in this case in the priority.

- A - Chemical reactions (dental materials)
- B - Drug allergies
- C - Latex
- D - Infections
- E - Chronic illness such as thyroid disease

Diagnosis

After asking parents about medication use, it was found that after the dental treatment, the dentist prescribed *Metronidazole* and *Amoxicillin* for her, and the patient is currently taking these medications. This was the first time, she was taking *Metronidazole*. She did not have any hypersensitivity reaction to use of *Amoxicillin* before. The consultation with specialists revealed the probability of this reaction is in the result of medicine allergy to oral *Metronidazole*.

Discussion

Regarding the appearance of extensive cutaneous rash in the entire body, and on the other hand the possible reaction to the anesthetic agent might be one of the causing factors, the referral to an allergy specialist was the most priority. Fortunately, because the symptoms appeared not to be an emergency case, and the general health of the patient was good, there was a time to investigate and consider these complications.

Patient did not have any medical complication because she had a new medical checkup 10 days ago. So, the likelihood of allergy due to medical illness cannot be the reason for this problem.

Parents were concerned about the reaction which might be appeared by the injection of local anesthesia. On the other side, she had a dental work a few days ago that needed a local anesthesia to be injected which no reaction was observed after that.

The latex reaction can be ruled out because the hypersensitivity was observed all over her body while the reaction to latex glove should be appeared merely on the contacted area, for example on the chin; or localized area on the cheek.

It has long been thought that there might be a link between tooth infections (such as an abscess) and urticaria. This link has not been proven yet [8]. It is rare for dental infection to spread to the skin; usually, dental infection drains along a path of least resistance, which usually leads to fistulas that occur on the gum tissue.

According to the child's mother, her daughter had no allergic reactions to the penicillin's group. Since the birth of her daughter, she had undergone treatments a few times with this group of antibiotics. Therefore, there is a strong possibility that *Amoxicillin* cannot be the cause of this hypersensitivity. One possible reason for the appearance of hives after the dental treatment is the drug hypersensitivity in case of use of anti-inflammatory medication along with antibiotics.

And lastly, the allergist performed cutaneous prick tests with *Metronidazole* as well as epicutaneous tests with *Metronidazole* at different concentrations. The test revealed the positive answer.

Here we refer to two published cases of hypersensitivity to *Metronidazole*. This might encourage the other colleagues to do more research and investigation about this issue. In one study (hypersensitivity reaction to *Metronidazole*), the authors investigated this issue, and the result showed that oral provocation with *Metronidazole* can cause *exanthema* [9].

The second case reported the occurrence of general erythema after using oral Metronidazole [10].

Treatment

After consultation with the Dermatologist and Allergist specialist, Metronidazole was discontinued immediately. The treatment with *Diphenhydramine* was instituted, but after one day, there was not that much improvement of the patient's condition. In the next day, *Methylprednisolone* was administered with diphenhydramine, and her condition improved over the next 5 days. However, the symptoms subsided with the use of Antihistamine and Corticosteroid medication; the potential hypersensitivity due to use of the other drugs should be consider and studied.

Conclusion

Until now, to the best of our knowledge, the sensitivity of Metronidazole in children might not have been observed. In one case, the allergic reaction was seen after taking this drug due to pulpal infection. The prick test was applied to determine if the cause of the hypersensitivity was the usage of Metronidazole. The result of the test was positive, hence, Metronidazole was discontinued. Of course, there was no need for hospitalization, and the patient was treated with antihistamines and corticosteroids at home.

Follow Up

After a month, the patient referred to the clinic for a subsequent examination. Fortunately, after discontinuation of oral suspension of Metronidazole, the redness and skin rashes on the face and the whole body was completely disappeared.

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