European Journal of Therapeutics

DOI: 10.5152/EurJTher.2018.654

Case Report

How Should Helicobacter Pylori Eradication Be Performed in Cases of Extensive Allergies to Proton Pump Inhibitors?

Yasin Şahin[1], Özlem Yılmaz[2]

[1]Division of Pediatric Gastroenterology, Mersin City Training and Research Hospital, Mersin, Turkey

[2]Division of Pediatric Allergy, Mersin City Training and Research Hospital, Mersin, Turkey

ABSTRACT

In this presentation, we would like to discuss the path followed for drug selection in the case of a pediatric patient with extensive allergies to proton pump inhibitors (PPIs). A 15-year-old male patient presented with complaints of dyspepsia and epigastric pain for over a period of 4–5 years. It is known that there was a previous fixed drug eruption described with omeprazole and widespread rashes after lansoprazole. Famotidine treatment was initiated, but the patient was unable to use the drug because he presented with rash and itching 1 hour after drug intake. On physical examination, fixed drug eruption was observed in the whole body and gluteal region. Gastroduodenoscopy was performed. Macroscopically, the corpus and antrum were hyperemic, antrum and duodenum were nodular, and bulbus was normal. Multiple biopsies were taken. He was referred to the pediatric allergy department for evaluation of possible cross-reactivities between PPIs. In addition to skin prick and intradermal tests with famotidine and ranitidine, the patient underwent skin patch tests with all available PPIs. The pathologic result of biopsies was Helicobacter pylori (HP) (+++) with Giemsa staining. Because of the cross-sensitivity between PPIs and the positivity of the allergy tests, triple HP treatment was not considered. This is an interesting case because the patient had extensive allergies to all existing PPIs, and no similar cases have been reported yet in the literature. After evaluation of allergic tests, quadruple treatment without PPI (bismuth, ranitidine, metronidazole, and tetracycline) was initiated. HP treatment was assessed after 4 weeks, and two-step monoclonal stool HP antigen test was found to be negative.

Keywords: Eradication, extensive proton pump allergy, helicobacter pylori

INTRODUCTION

Helicobacter pylori (HP) eradication usually prevents ulcer recurrence and complications following appropriate proton pump inhibitor (PPI) treatment. HP eradication is also important in the treatment of stomach disorders such as MALT lymphoma, but it is controversial in gastric cancer prevention (1). Patients with penicillin allergies are provided with amoxicillin-free treatments. In this presentation, we would like to discuss the path followed for drug selection in a case of a pediatric patient with extensive allergies to PPIs.

CASE PRESENTATION

A 15-year-old male patient presented with complaints of dyspepsia and epigastric pain for over a period of 4–5 years. It is known that there was a fixed drug eruption described with omeprazole 3 years prior to presentation and widespread rashes in the body after lansoprazole in the previous year. Famotidine treatment was initiated, but the patient was unable to use the drug because he presented with rash and itching 1 hour after drug intake. On physical examination, fixed drug eruption was observed in his gluteal region (Figures 1a-d). One week later, gastroduodenoscopy was performed. Macroscopically, the corpus and antrum were hyperemic, antrum and duodenum were nodular, and bulbus was normal (Figures 2a-c). Multiple biopsies were taken. He was referred to the pediatric allergy department for evaluation of possible cross-reactivities between PPIs.

The patient underwent skin prick tests with famotidine and ranitidine (10 mg/mL and 40 mg/mL, respectively) and intradermal tests with famotidine and ranitidine (1/100 and 1/10 dilution). The patient also underwent skin patch tests with all available PPIs (10% and 30% concentrations). Skin patch test was found (++) positive with 30% concentration with lansoprazole and esomeprazole, whereas omeprazole was found to be negative (Figure 3). Omeprazole was not considered as a treatment option for the patient due to fixed drug eruption described with omeprazole 3 years prior to admission. Prick and intradermal tests were found to be negative with ranitidine. Oral provocation test with ranitidine was also negative. Prick and intradermal tests were

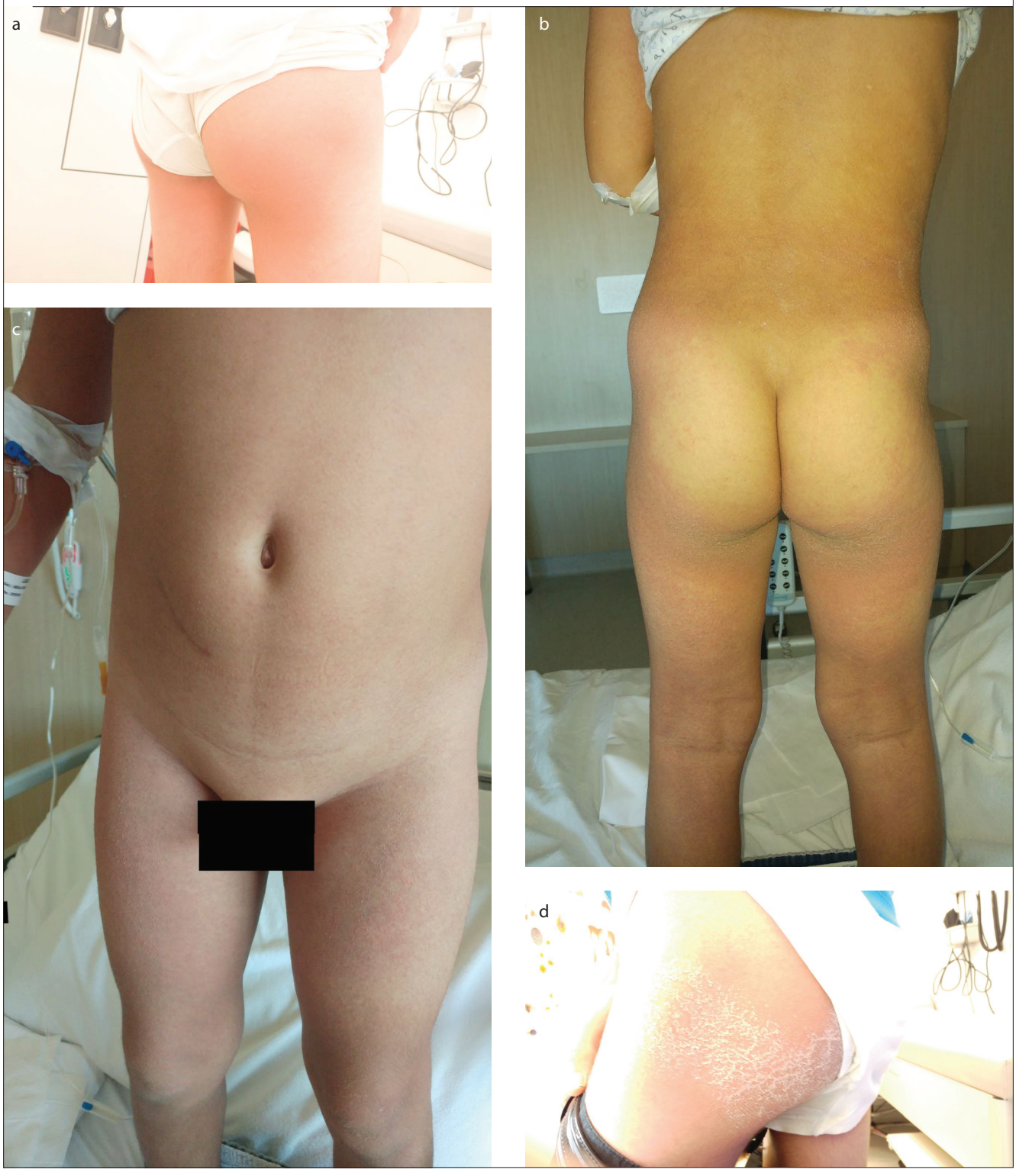
This case report is presented at the 12th National Pediatric Gastroenterology, Hepatology and Nutrition Congress, Çeşme, İzmir, Turkey, 18–21 April 2018.

ORCID IDs of the authors: Y.Ş. 0000-0002-7394-4884; Ö.Y. 0000-0003-2971-283X.

Corresponding Author: Yasin Şahin **E-mail:** ysahin977@gmail.com

Received: 04.04.2018 • **Accepted:** 24.04.2018

Figure 1. a-d. Fixed drug eruption described with famotidine (a-c). Healing period of fixed drug eruption and skin peeling (d)



negative with famotidine, but because of the recent reaction, it was not considered again.

The pathologic results of endoscopic biopsy was HP (+++) with Giemsa staining and there was no intestinal metaplasia. Because of the cross-sensitivity between PPIs and the positivity of the allergy tests, triple HP treatment was not considered. This is an interesting case because the patient had extensive allergies to all existing PPIs, and no similar cases have been reported yet in the literature. Quadruple treatment without PPI (bismuth, ranitidine,

Figure 2. a-c. Hyperemic and nodular antrum (a). Hyperemic and nodular antrum (b). Nodular appearance of duodenum (c)

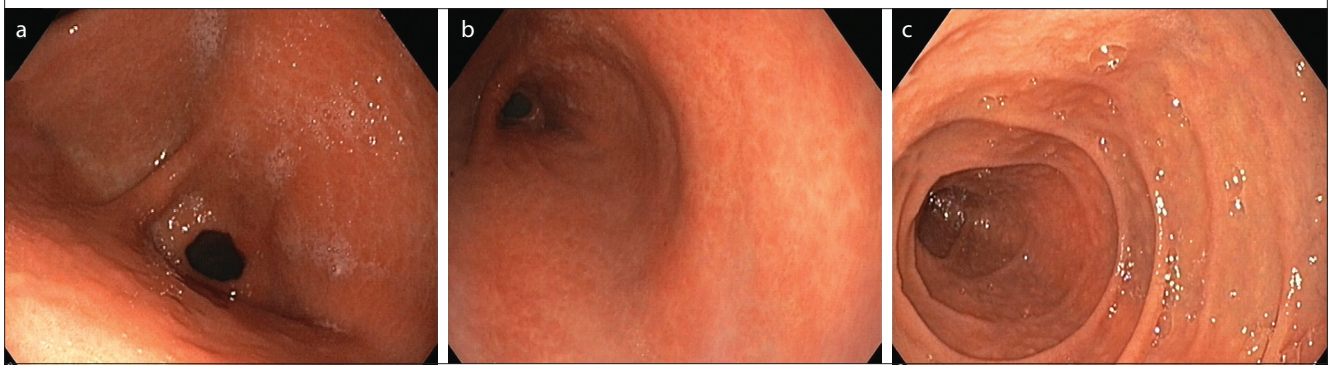
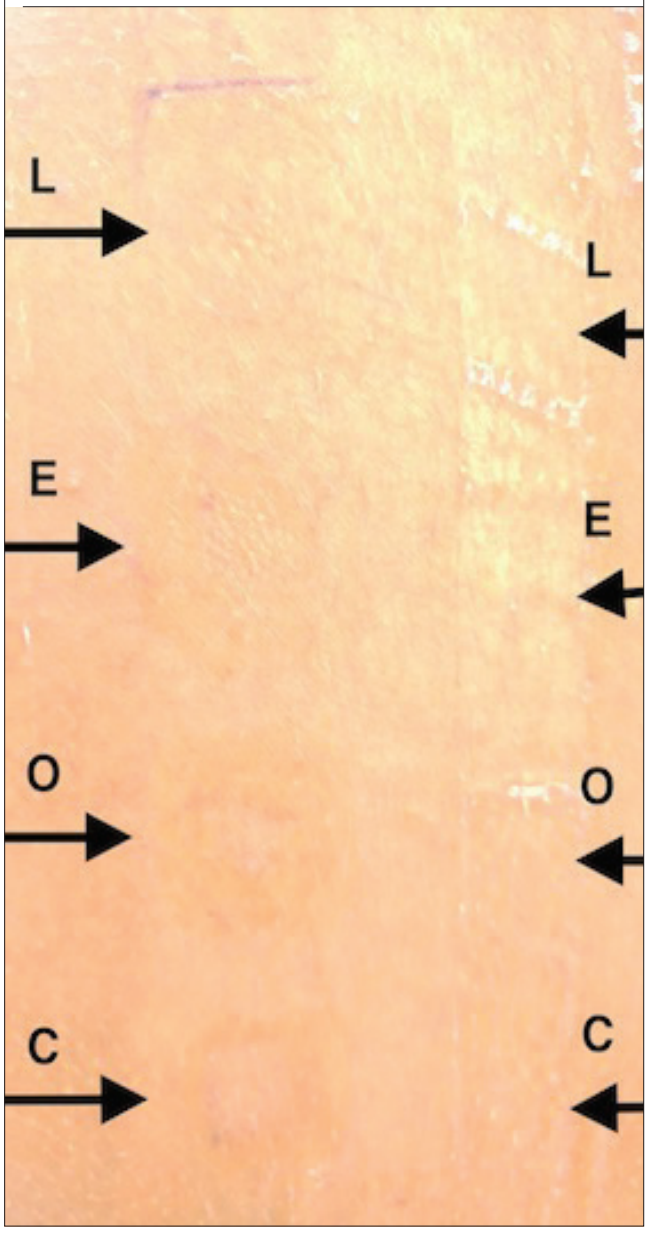


Figure 3. Skin patch tests with lansoprazole, esomeprazole, and omeprazole (right, 10% and left, 30% concentrations)
L: lansoprazole; E: esomeprazole; O: omeprazole; C: control with vaseline



metronidazole, and tetracycline) was initiated. He had no complaints after 2 weeks of this treatment. Following the completion of the treatment, HP treatment was assessed after 4 weeks, two-step monoclonal stool HP antigen test was found to be negative, and the patient was asymptomatic.

Written informed consent was obtained from the patient and his parents for the publication and presentation of case and images.

DISCUSSION

Despite the decreasing prevalence of HP infection, it still infects 30%–50% of the general population in western countries (2). HP causes active chronic gastritis in all infected persons and may cause complications, such as gastric malignancies, peptic ulcers, and dyspepsia. Its eradication usually prevents ulcer recurrence and complications (2).

The most frequently used initial treatment for HP is triple treatment including PPI, amoxicillin, and clarithromycin. If the patient comes from a place with increased resistance to clarithromycin, metronidazole is used instead (1).

All international guidelines agree that 14-day triple treatment with clarithromycin can be used as a first-line treatment for HP eradication (3).

If the strain is susceptible to clarithromycin and metronidazole in penicillin allergy, triple treatment with standard metronidazole should be provided instead of amoxicillin; if the strain is resistant to clarithromycin and the age of the patient is over 8, bismuth treatment with tetracycline should be provided instead of amoxicillin (4).

Helicobacter pylori eradication treatment is challenging because of developing resistance. Therefore, 2 or 3 antibiotics are usually given together with PPIs and/or bismuth-containing compounds for eradication (3).

Bismuth-containing quadruple treatment includes bismuth salt, tetracycline, and metronidazole in addition to a PPI (5). This treatment regimen has been previously proposed as the second-line treatment, since it is more complex than the standard treatment (6).

However, bismuth-containing quadruple therapy is a powerful weapon against antibiotic resistance as neither clarithromycin nor levofloxacin is involved. For this reason, bismuth-containing quadruple treatment has been returned in the last decade and is now also recommended as a first-line treatment (7).

International guidelines recommend using 2 standard doses of PPI to increase the effectiveness of antimicrobial drugs (3). This is because high intragastric pH reduces HP bacterial load and minimal inhibitor concentration of antibiotics (8).

With the increasing use of PPIs, significant treatment difficulties, side effects, and complications have occurred (6).

The case of this patient was interesting because of his extensive allergies to all available PPIs, and no similar case being reported yet in the literature. After evaluating the patient in terms of allergy tests, quadruple treatment without PPI (bismuth, ranitidine, metronidazole, and tetracycline) was provided to the patient to increase the effectiveness of the treatment. Instead of PPIs, we used ranitidine based on the results of the allergic tests. He had no complaints after 2 weeks of this treatment. HP antigen in stool was negative and he was asymptomatic after 1 month.

CONCLUSION

As a result, cross-reactivity between PPIs should be considered before HP treatment in patients with allergies to PPIs. The choice of treatment should be planned based on the results of allergic evaluations.

Informed Consent: Written informed consent was obtained from the patient and his parents for the publication and presentation of case and images.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – Y.Ş., Ö.Y.; Design - Y.Ş., Ö.Y.; Supervision - Y.Ş., Ö.Y.; Materials - Y.Ş., Ö.Y.; Data Collection and/or Processing - Y.Ş., Ö.Y.; Analysis and/or Interpretation - Y.Ş., Ö.Y.; Literature Search - Y.Ş., Ö.Y.; Writing Manuscript - Y.Ş., Ö.Y.; Critical Review - Y.Ş., Ö.Y.

Conflict of Interest: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

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How to cite:

Şahin Y, Yılmaz Ö. How Should Helicobacter Pylori Eradication Be Performed in Cases of Extensive Allergies to Proton Pump Inhibitors? Eur J Ther 2019; 25(1): 89–92.