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Case Report

Drug-induced Esophagitis as Rare Cause of Dysphagia in Adolescent Patients: Four Case Reports

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Abstract

Drug-induced esophagitis (DIE) is a rare condition and doxycycline is responsible for more than 50% of the cases. Most cases can be prevented and treated conservatively. In this case series, four patients with DIE that treated at our center will be presented. Four adolescents, aged 14, 16, 16, and 17 years, presented to the clinic with complaints of dysphagia and odynophagia. All patients had a history of oral doxycycline use for acne vulgaris. Upper GI endoscopy revealed erosions and ulcers in the thoracic esophagus in two cases and in the distal esophagus in the other two cases. All patients were managed conservatively, and follow-up endoscopy showed no development of strictures. DIE should be considered in the differential diagnosis of adolescents presenting with dysphagia and odynophagia. Proper education about medication use can reduce the risk of developing esophagitis.

Keywords: Adolescent, doxycycline, drug induced esophagitis, dysphagia, esophagogastroduodenoscopy

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Esophagitis is a common disorder among esophageal diseases. While various drugs can cause drug-induced esophagitis (DIE), doxycycline is the cause of more than 50% of the cases. The most commonly reported symptoms are retrosternal pain, odynophagia, and dysphagia.[1-3]

Anamnesis and esophagogastroduodenoscopy (EGD) are utilized in diagnosis. Histopathological findings include areas of necrosis containing lymphocytes and eosinophils, with nonspecific changes observed. Lesions are often seen at the level of the aortic arch. They can also occur in the distal esophagus and rarely in the proximal esophagus.[1,2]

Severe complications are rare in children. Adequate fluid intake with medication, avoiding medication close to bedtime can prevent DIE.[1,2]

With the increased use of tetracyclines in the treatment of acne vulgaris and sexually transmitted diseases, there has been an increase in cases of DIE.[1,3] In our clinic, four cases of DIE have been presented in patients undergoing doxycycline treatment.

Case Presentations

Case 1 — A fourteen-year-old female patient admitted with dysphagia and odinophagia. Oral doxycycline 1×100 mg for acne vulgaris started 4 days ago, and patient took the tablets with little water and before going to bed. Patient had no significant medical history. Physical examination was unremarkable, and laboratory tests were within normal limits. EGD revealed superficial ulcerations at the 15th cm of

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Table 1. Patients characteristics

Case No	Sex	Age	Causative	Complaints	Complaint Onset Time	Endoscopic Findings	Localisation	Treatment	Late Complication
1	Female	14	Doxycycline	Odynophagia	5 days	Superficial ulcerations	Middle 1/3 of the esophagus	PPI + Conservative	None
2	Female	16	Doxycycline	Odynophagia	5 days	Superficial ulcerations	Middle 1/3 of the esophagus	PPI + Conservative	None
3	Female	17	Doxycycline	Odynophagia	2 days	Kissing ulcers	Distal 1/3 of the esophagus	PPI + Conservative	None
4	Female	16	Doxycycline	Retrosternal pain	4 days	Ulcer	Distal 1/3 of the esophagus	PPI + Conservative	None

PPI: Proton-pump inhibitor.

the esophagus. Oral regimen was stopped, and doxycycline treatment was discontinued. Proton pump ntak ema (PPI) and sucralfate therapy were initiated. On the 3rd day of antiacid treatment, the oral regimen was gradually reintroduced with liquid and soft-textured foods. The patient, who tolerated oral intake and resolved symptoms, was discharged on the 4th day. A follow-up endoscopy performed at the 6th week of treatment showed significant resolution (Table 1).

Case 2 — A sixteen-year-old female patient admitted to pediatric emergency clinic with odynophagia and back pain. Oral treatment with doxycycline 1×100 mg had been initiated five days ago due to acne vulgaris, and she took the tablets with little water before going to bed. There was no history of any medication use or illness in her medical history. Systemic examinations were normal. Laboratory tests were within normal limits. EGD revealed superficial ulcerations at the 13th cm of the esophagus (Fig. 1). Oral regimen was stopped, and doxycycline treatment was discontinued. PPI and sucralfate therapy were initiated. On the 3rd day of antiacid treatment, the oral regimen was gradually reintroduced with liquid and soft-textured foods. The patient, who tolerated oral intake and resolved symptoms, was discharged on the 4th day. A follow-up endoscopy performed at the 6th week of treatment showed significant improvement (Table 1).

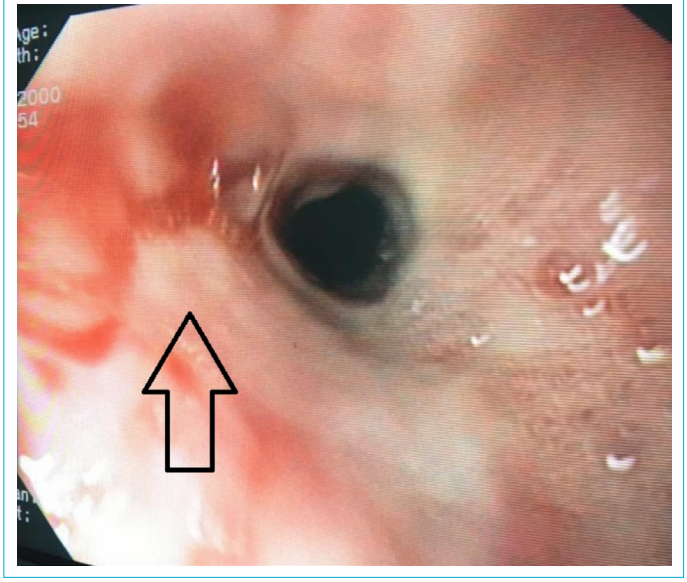

Figure 1. Superficial ulcerations at the 13th cm of the esophagus (Arrow).

Case 3 — A 17-year-old female patient who had known indeterminate inflammatory bowel disease and familial Mediterranean fever admitted with odynophagia. Doxycycline 1×100 mg was initiated two days ago due to acne vulgaris, and she took the tablets with little water before going to bed. The physical examination was unremarkable. Laboratory tests were in normal limits. EGD revealed two ulcerations, each measuring 0.5x0.5 cm, at the 35th cm of the esophagus. Oral regimen was stopped, and doxycycline treatment was discontinued. PPI and sucralfate therapy were initiated. On the 3rd day of antiacid treatment, the oral regimen was gradually reintroduced with liquid and soft-textured foods. The patient, who tolerated oral intake and resolved symptoms, was discharged on the 4th day. A follow-up endoscopy is planned for the 6th week (Table 1).

Case 4 — A 16-year-old female patient without any known disease admitted to our clinic with chest pain, dysphagia, and retrosternal burning. Doxycycline 1x100 mg treatment had been initiated 10 days ago for acne vulgaris, and symptoms started on the 4th day of treatment. No cardiac abnormalities were detected. Physical examination of the patient revealed no specific findings. EGD revealed mild hyperemia in the esophageal mucosa, a 2x3 cm ulcer at the 30th and 33rd cm, and erosion prone to bleeding. Erosions were also present in the distal esophagus. The oral regimen was stopped, and doxycycline treatment was discontinued. PPI and sucralfate therapy were initiated. On the 1st day of antiacid treatment, the oral regimen was gradually reintroduced with liquid and soft-textured foods. The patient, who tolerated oral intake and resolved symptoms, was discharged on the 2nd day. No abnormalities were detected in the follow-up endoscopy on 6th week (Table 1).

Discussion

Esophagitis is the most frequently observed esophageal disorder in children.[1,2] Retrosternal pain, odynophagia, and dysphagia are the most common symptoms. In this case series, we aimed to emphasize the importance of questioning the use of doxycycline in adolescent female patients presenting to the pediatric gastroenterology clinic with these complaints, particularly those with acne vulgaris, and considering DIE in the diagnosis.

Esophagitis developed in all of our cases after the use of doxycycline. In the obtained histories, it was a risk factor for the development of esophagitis that the patients did not drink plenty of water while taking the medication and took it before sleep. The chemical structure of the drug, the motility characteristics of the esophagus, and the way the patient uses the drug are important in the development of DIE.[1,3] Although more than 70 drugs have been reported to cause esophageal damage in the literature, tetracycline and clindamycin are responsible for more than 50% of the cases.[3-5] Doxycycline directly causes damage to the esophageal mucosa and inhibits epithelial repair.[4] The drug's poor water solubility and acidic properties may explain its adverse effects on the esophageal mucosa.[6] Practices that increase reflux after drug intake (lying down) or using the drug with minimal water may increase the contact time and the risk of damage to the esophagus.

Given that DIE related to tetracyclines prescribed for conditions like acne vulgaris, which are common in adolescent girls, represents the most frequent form in this patient group, it can be inferred that adolescent girls have an increased risk of developing DIE.[7] Providing patients in this group with information about the risk of DIE and proper medication use may help reduce the likelihood of developing DIE.

Most DIEs are detected in the middle third of the esophagus, especially in areas with esophageal narrowing.[3,5,6,8] In one of our patients, the lesion was found in the proximal third of the esophagus, in one in the middle third, and in the other two cases, it was found in the distal third. The number and size of ulcers varied. Large ulcers are not typical for drug-induced esophageal damage in children. In adult studies, large ulcers have been reported for esophageal mucosal damage. Although lesions ranging from mucosal hyperemia to deep ulcerations can be observed, generally, small and superficial ulcers are seen.[6, 9] Non-specific signs of inflammation are encountered in biopsy.[9]

DIE is a self-limiting esophagitis that usually tends to improve within 7-10 days.[1-3] All cases became asymptomatic with antiacid treatment, and sequel-free, uncomplicated recovery was confirmed by endoscopy.

Conclusion

Considering that tetracycline was used with minimal water before bedtime in all cases, the way the drug is used is crucial in the development of esophagitis. When the tetracycline group treatment is necessary for acne, detailed information should be provided to families and patients about the use of the drug. In patients, especially adolescent girls with dysphagia and retrosternal pain with medication history, considering DIE, and discontinuing drug intake may be the first step in the improvement of symptoms, and referral of cases to the pediatric gastroenterology clinic is recommended.

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