

was not found within the resected lesion. This highlights the difficulty that may occasionally be encountered in differentiating between benign and malignant disease. Alternatively, this may indeed be a malignant lesion, despite histopathologic findings. Some investigators have suggested that pathologic examination may occasionally fail to differentiate serous cystadenocarcinoma from serous cystadenoma, with 1 series reporting a failure to detect malignancy in 38%.⁵ Therefore, vigilant clinical follow-up of this patient is indicated.

The second unusual feature of this case is the finding of PanIN in the adjacent pancreas. PanIN is a microscopic non-invasive epithelial neoplasm arising in the PDs.⁶ It is a precursor to invasive adenocarcinoma and exhibits sequential acquisition of genetic alterations and increasing cellular atypia as it progresses toward invasive disease.⁷ Very few case reports of synchronous serous cystadenoma and pancreatic malignancy exist.^{5,8,9} To our knowledge, no cases of its coexistence with PanIN have been reported. Whether the coexistence of pathology in this patient is coincidental or related to either long-standing obstruction or a cancer-susceptible state (note the personal and family histories of colon and breast cancers) clearly cannot be determined from a single case. Routine preoperative duct brushings to exclude synchronous adjacent neoplasia cannot be recommended on the basis of this single case report, although the presence of duct obstruction should always raise concern for a malignant process. The importance of thorough examination of the entire surgical specimen for synchronous lesions is emphasized.

DISCLOSURE

None of the authors have any conflicts of interest to disclose.

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Angioedema as a hypersensitivity reaction to polyethylene glycol oral electrolyte solution

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Systemic allergic reactions to oral polyethylene glycol (PEG) solution are extremely rare. Only 3 cases have been reported in the literature. Schuman and Balsam¹ reported a case of anaphylaxis, and Brullet et al² reported a generalized urticarial rash. Stollman and Manten³ reported a case of angioedema in a 70-year-old man who was also taking an angiotensin converting enzyme (ACE) inhibitor for hypertension.

CASE REPORT

We report a case of a 52-year-old African American woman with a medical history of hypertension, coronary artery disease, and aortic valve replacement, who presented to the emergency room with severe anemia. The patient had accompanying complaints of fatigue, dyspnea, and melena. She denied aspirin or nonsteroidal anti-inflammatory

drug use. After an upper endoscopy revealed no abnormality, a colonoscopy was recommended, and the patient underwent a 3.8 L PEG bowel preparation (Golytely; Braintree Laboratories, Braintree, Mass) in 300-mL doses. After ingesting the second 300-mL dose of PEG, the patient developed swelling in her lips, with deep induration but without erythema, pain, pruritus, or dyspnea. The PEG preparation was discontinued, and the patient was given intravenous diphenhydramine and dexamethasone. Her symptoms resolved over the next few hours. The colonoscopy was performed, with a sodium phosphate enema as a preparation, with no adverse reaction. Diverticular disease was found.

DISCUSSION

Many endoscopists prefer colonoscopy preparation with PEG because of its efficacy, good tolerance, and low incidence of adverse reactions. Abdominal pain, cramping, anal irritation, flatulence, and, rarely, nausea/vomiting are the most common side effects. Isolated cases of pruritus, urticaria, rhinorrhea, dermatitis, and anaphylactic reactions have been reported.⁴ Angioedema, however, is not mentioned among the side effects of PEG in several different drug information references. The allergic reaction in our patient appeared to be attributable to PEG. Although the patient had been taking an ACE inhibitor (benazepril) for several years, she had no previous episodes of angioedema. In addition, her antihypertensive medications, including benazepril, were discontinued on admission because of hypotension from bleeding 2 days before the angioedema episode. Finally, the patient restarted benazepril when she was discharged, with no further episodes of angioedema to date. No other potential dietary or pharmacologic (such as antibiotics) causes of angioedema were given during the hospital admission. The original PEG solution given to the patient was unflavored and contained no dyes.

Angioedema, a deep vascular leakage that produces swelling, predominantly in subcutaneous areas, typically occurs in the oropharynx but may take place anywhere in the integument, including the genitalia. It most commonly arises as part of an allergic response to exogenous substances and conditions, but it may occur because of an intrinsic defect involving the complement system.^{5,6}

The chief advantage of high molecular weight PEG is its low rate of absorption (0.2%) by the intestinal mucosa, which avoids the problems associated with absorption of large amounts of water and sodium after ingestion of commonly used balanced electrolyte or saline solutions.⁷ Although minimal, even this low absorption could be sufficient to provoke the appearance of systemic hypersensitivity reactions in susceptible patients.

This case represents a very rare occurrence of angioedema as a reaction to a PEG oral electrolyte solution. Although other allergic side effects have been noted in pharmacologic references, these did not include angioedema. This is only the second known case report, to our knowledge, of angioedema reaction to PEG.

DISCLOSURE

The authors have no conflicts to disclose.

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