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Duodenal Ulcer in Osteoarthritis Patient Using Non Steroidal Anti Inflammatory Drugs

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Abstract: ***68-year-old female Javanese tribe comes with a major complaint of melena and pain in the epigastric area. Patients often consume nsaid as a pain reliever on their knees, because patients have been diagnosed with osteoarthritis. The patient came pale and weak, on the laboratory examination patients get a severe anemia. Esofagogastroduodenoscopy then performed on this patient and obtained a picture of ulcers on the duodenum. Transfusions and Proton Pump Inhibitor medication are administered to treat the patient's condition, NSAID medications are temporarily not given.***

Keywords: duodenal ulcer, nsaid, osteoarthritis

1. Introduction

Osteoarthritis is an inflammatory disease that attacks the joint cartilage and subcondral bone, associated with genetic factors, biomechanical and biochemical changes in joint cartilage.[1]Risk factorsinclude advancing age, trauma, genetics, female sex, and obesity. Disability in activities of daily living can happen because joint pain usually worsened by movement.[2]Disease that have symptom of musculoskeletal pain, like Osteoarthritis, NSAIDs arecommonly usedbecause of their effect as analgesic and anti-inflammatory.ACR in 2012 recommends if the patient doesn't have a satisfactory response with analgetic acetaminophen full dose, they recommend the use of oral NSAIDs or topical or intraarticular corticosteroid injection. [3,4] Furthermore ACR recommend using COX 2 selective NSAIDs or combination of NSAIDs and PPI in patient with GI ulcer

Mechanism of action of NSAIDs was by inhibition of Prostaglandin synthesis, through inhibition and binding of enzyme cyclooxygenase (COX) including two isoform COX-1 and COX-2 [5]NSAIDs are a leading cause of drug-related morbidity, especially in the elderly andpatients with comorbidities.[6]Renal problem,cardiovascular and hepatic injury was either adverse event of using NSAIDs, however, the most important and common adverse effects of NSAIDs are thegastrointestinal (GI) adverse effects. The adverse events of this drug can cause new problems besides the pain problem that the patient is experiencing.The extensive use of NSAIDs in prescriptions and by overthecounter NSAID users has made GI complications asevere problem, because the patient can easily use it without precaution.[7]Gastrointestinal adverse event that usually happen is bleeding including gastric or duodenal ulcer or both at the same time, and to a lesser extentobstructions and/or perforations.[8,9]

2. Case report

A 68-year-old female Javanesse tribe was admitted to the hospitalwith chief complaint melenic stoolssince 7 days prior admission. She also feltabdominal pain or discomfort in epigastric area since 5 days prior admission,mostly when she eats some food she feels the symptom a little relieved and she felt weak since 5 days ago that worsen prior to admission. She also found itdifficult to walk because of the pain and stiffness she experienced on both knee since about 3 years ago that worsen from about 6 month ago, history of accident and trauma was denied by patient, she had previously been diagnosed with osteoarthritis. The patient reported being prescribed piroxicam20 mg daily as needed for the pain by her primary health care, and patient usually buys analgetics over the counter by herself if the pain doesn't improve. Reported the patient from 6 month ago usually feeling epigastric pain and the symptom relieved when she consume antacida, no personal or family history of gastric ulcer, no diabetes mellitus, hypertension, hepatic and cardiovascular problem.On examination, the patient looks lethargic and pale in the conjunctiva,with blood pressure of 120/80 mmHg, heart rate of 100 beats per minute. On abdominal examination we foundtenderness in epigastric area if palpated. Extremities examination, on left and right knee there was no deformation, feel warm on palpation, crepitation and there was decreased range of motion. Hemoglobin was 5.8 g/dL and hematocrit was 18.5%; BUN 41, creatinine serum 0.7, all other evaluated laboratory values were within normal limits. Using modified Glasgow blacthford the score was 12 indicating that endoscopy needed in this patient. Endoscopy revealed ulcer in the pars 1 of duodenum with forrest 3 classification.

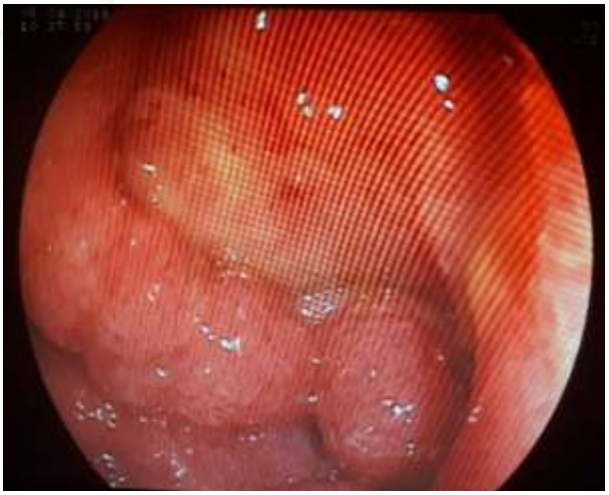

Figure 1: Duodenal ulcer in the pars 1 duodenum

Biopsies was not performed because the patient refuse it.. The patient was treated with an intravenous proton-pump inhibitor (PPI) bolus of 80mg initially then twice daily, given blood transfusion and remained hospitalized for observation and to evaluate for rebleeding, NSAID medications are temporarily not given. After 7 dayswithout evidence of rebleeding, with the patient hemoglobin reaches ≥10 g/dL, and stable vital sign, she was then discharged home with an oral PPI.

3. Discussion

Peptic ulcer disease is a problem ofthe gastrointestinal tract characterizedby mucosal damage secondaryto pepsin and gastric acid secretion.It usually occurs in the stomach and proximalduodenum; less commonly, it occurs inthe lower esophagus, the distal duodenum,or the jejunum. Lifetime prevalence of peptic ulcer disease in the general population has been estimated to be about 5−10%, and incidence 0·1–0·3% per year.[10]In the United Statesapproximately 500,000 personsdeveloppeptic ulcer disease each year.[11]In 70 percent of patients it occursbetween the ages of 25 and 64 years.[12]

Peptic ulcer diseasesymptoms include episodic epigastric pain either burning or gnawing; pain occurring after meals or on an empty stomach; and nocturnalpain relieved by food intake, antacids,or antisecretory agents. The most specific symptoms like a history of episodicor epigastric pain, relief of pain after foodintake, and nighttime awakening because ofpain with relief following food intake canhelp rule in the diagnosis.[13]Lossof appetite, Indigestion, heartburn, intolerance of fatty foods, a positive family historyand vomiting, was some less common symptoms.[13] Thephysical examination was not very helpful in onestudy, tenderness to deep palpation reducedthe likelihood of ulcer. [13] Postprandialepigastric pain that relievedby food or antacids is more likely to be in patients with duodenalulcers than in those with gastric ulcers.

If the initial clinical presentation suggests thediagnosis of peptic ulcer disease, the patientshould be evaluated for alarm symptoms.Anemia, hematemesis, melena, or hemepositivestool,continuous vomiting, anorexia or weight loss, persisting upper abdominalpain radiating to the back,and severe, spreading upper abdominalpain was some of the alarm symptoms. Patients older than55 years and those with alarm symptomsshould be referred for prompt upper endoscopy.Esophagogastroduodenoscopy (EGD)is more sensitive and specific for peptic ulcerdisease and allows biopsy of gastric lesions.[14]. Symptoms in these patients have led to dudodenum ulcers. egd examination which will then be done is appropriate, because the patient's age is more than 55 years ie 68 years, and alarm symptoms have been found in this patient that is anemia and melena. Results from esofagogastroduodenoscopy then indicate this patient has duodenal ulcer in pars 1 duodenum with forrest 3 classification.

The use of nonsteroidalanti-inflammatory drugs (NSAIDs) are the major causes of peptic ulcer disease.[15]Otherfactor including H.Pylori infection, medication like steroid, bisphosphonates, potassium chloride,chemotheerapeutic agents (e.g., intravenousfluorouracil), rare condition like Acid-hypersecretorystates (e.g., Zollinger-Ellison syndrome), Malignancy (Gastric cancer, lymphomas, lung cancers), Stress (After acute illness, multiorgan failure, ventilatorsupport, extensive burns (Curling's ulcer), or headinjury (Cushing's ulcer) can also contribute to gastroduodenal ulcers.[16]NSAIDs users compared with non-users, NSAID use can increase the risk of complications of peptic ulcer disease by four times.[15,17]

Main mechanism of the gastroduodenal damage that caused by NSAIDs is trough systemic inhibition of cyclooxygenase 1 (COX-1) that cause reduced prostaglandin. Reduced mucosal prostaglandin values are associated withdecreased mucosal blood flow, low mucus and bicarbonate secretion, inhibition of cell proliferation, which are essential to maintenance of mucosal integrity. Studies showing that coadministration exogenous prostaglandins can reduces mucosal damage supporting the COX hypothesis. [18] However, this hypothesis does not fully explain the spectrum of mucosal damage. People taking NSAIDs could have a decrease in mucosal prostaglandins without developing gastric lesions.[19,20,21]The other mechanism NSAID sinitiate mucosal damage in the cell is through disruption of mucus phospholipids or the cell membrane and by uncoupling of mitochondrial oxidative phosphorylation. The loss of mucosal integrity is followed by tissue reaction amplified by luminal content such as acid, pepsin, food, bile, and *H pylori*.[20,21]NSAIDs can cause local injuries via *trapping* theory, in gastric juice NSAIDs are lipid soluble and non-ionized, these NSAIDs then diffuse across gastric mucosa epithelial cell membranes to the cytoplasm, where the pH is neutral. In neutral pH NSAIDs are converted into the re-ionized and relatively lipophobic form.Therefore, NSAIDs are trapped and accumulate within cells leading to cellular injury. [22]

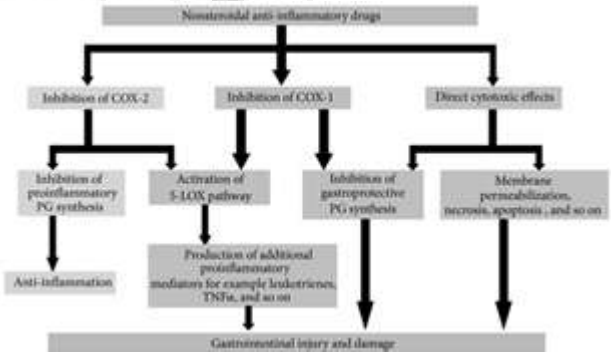

Figure 2: Mechanism NSAIDs induce gastrointestinal damage.[23]

Different NSAIDs have different upper-GI risks. In a systematicreview and meta-analysis of observational studies,different NSAIDs, including COX2 inhibitors, showed differentrisks of upper-GI complications.[24]The NSAIDs withthe lowest relative risk included celecoxib and ibuprofen,while piroxicam had one of the highest.Based on studies have proven that non-selective NSAIDs especially piroxicam is one of the factors that influence the incidence of duodenal ulcer in this patient. It is also possible that the ulcer in this patient is also caused by the use of NSAIDs in conjunction with H.pylori infection because the patient refuses to do the biopsy.

Treatment for the acute non-variceal upper GI bleeding should be started empirically with an acid suppression medication, suggested intravenous PPI, eg esomeprazole 40mg twice daily after an initial bolus of 80mg intravenous. PPI may also promote hemostasis in patients with lesion other than ulcer, this maybe occurs because neutralization of gastric acid leads to the blood clotsstabilization.[25].

ACR recommends If the patient has a history of asymptomatic or complicated upper GI ulcer but in the past year has nothad an upper GI bleed and the practitionerchooses to use an oral NSAID, ACR strongly recommendsusing either a cyclooxygenase 2 (COX-2) selectiveinhibitor or a nonselective NSAID in combination with aproton-pump inhibitor[26]If the patient has had an upper GI bleed within thepast year and the practitioner still chooses to use an oralNSAID, the ACR recommends using a COX-2selective inhibitor in combination with a proton-pumpinhibitor. Therefore,for the chronic managementof patients with knee or hip OA, the practitionershould consider adding a proton-pump inhibitor when chooses NSAIDs oral as the treatment to reducethe risk of development of symptomatic or complicatedupper GI events.[27]

American College of Gastroenterology in guidelines on management of bleedingUlcers also stated that In patients with NSAID-associated bleeding ulcers whomust resume NSAIDs, it is recommended to give a dailyPPI together with a COX2-selective NSAID at the lowesteffective dose.[27]In patients with low-dose aspirin-associatedbleeding ulcers that have been resumed on aspirin for secondaryprevention, long-term daily PPI therapy should alsobe provided.[28].In these patients we did not continue with nsaid administration because we chose to use topical nsaid and nonpharmacologic therapy given the age of the patients who were too old and the side effects that had occurred.

4. Conclusion

This case report discusses a 68-year-old woman with duodenal ulcer caused by long-term use of NSAIDs due to her osteoarthritis disease, h pylori infection still can not be excluded because the patient refused to do biopsy. As a doctor we should consider the therapy to be given, given the side effects of NSAIDs very often found in the gastrointestinal tract. May be considered non-pharmacological therapy and the use of a selective nsaid or nsaid use in combination with ppi in patients that we have to administer analgesics.

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