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A case report of missed diagnosis of gastric cancer in a long-term NSAID user and clinical warnings

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Abstract

Objective: To analyze a case of missed diagnosis of gastric cancer in a patient on long-term Non-Steroidal Anti-Inflammatory Drug (NSAID) therapy, to explore the complexity of diagnosing malignancies in the context of multiple chronic diseases, and to emphasize the importance of physician-patient communication, risk disclosure, and standardized follow-up in clinical practice.

Methods: The clinical data of a 47-year-old male patient were reported. The patient had a 10-year history of ankylosing spondylitis and was on long-term NSAID therapy; he was diagnosed with type 2 diabetes mellitus one year prior. He was admitted to the hospital for "upper abdominal discomfort accompanied by weight loss for more than three months" and was ultimately diagnosed with advanced gastric cancer. A thorough analysis of the reasons for the missed diagnosis, the clinical lessons learned, and preventive strategies was conducted in conjunction with a review of relevant literature.

Results: During the long-term use of NSAIDs, the patient never underwent gastrointestinal risk screening or gastroscopic monitoring. The recent onset of weight loss was attributed to the newly diagnosed diabetes, thereby delaying the early diagnosis of gastric cancer. By the time of definitive diagnosis, the tumor was already at an advanced stage, and the patient had lost the opportunity for curative surgery.

Conclusion: This case reveals potential "cognitive blind spots" and "attribution bias" among clinicians in the management of multiple chronic diseases. Long-term use of NSAIDs is an independent risk factor for gastric cancer, and strict implementation of gastrointestinal protective strategies and regular endoscopic monitoring is mandatory. Furthermore, strengthening physician-patient communication, reinforcing the duty of disclosure, and enhancing patient health literacy are key to preventing such tragedies.

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Introduction

Gastric cancer is one of the most common malignancies worldwide. Its early symptoms lack specificity, leading to a low rate of early diagnosis and a poor prognosis [1]. In clinical practice, when patients have multiple chronic diseases, new symptoms are often easily attributed to the existing conditions, resulting in the missed or delayed diagnosis of malignant tumors. Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are the cornerstone of therapy for rheumatic diseases such as ankylosing spondylitis, but their long-term use can cause gastrointestinal damage, including gastritis, peptic ulcers, and even an increased risk of gastric cancer, which has become a clinical consensus [2,3]. This paper reports a case of advanced gastric cancer in a patient with a long-term history of NSAID use and a background of diabetes. By analyzing the errors and lessons in his diagnostic and therapeutic process, it aims to provide a profound warning for clinicians and emphasize the importance of systematic risk assessment and standardized follow-up.

Case presentation

Patient: Male, 47 years old. Admitted due to "dull epigastric pain for over 3 months, worsening for 1 week." The patient developed dull epigastric pain without obvious cause three months prior, accompanied by loss of appetite and nausea. He had lost approximately 8 kg in the past three months. The patient was diagnosed with "type 2 diabetes mellitus" at another hospital a year prior and was treated with oral hypoglycemic agents with fair glycemic control. The recent weight loss was considered by the patient and his family to be a consequence of diabetes and was not given special attention.

Medical history: The patient had a 10-year history of "ankylosing spondylitis." To relieve cervical and lumbar stiffness and joint pain, he had been self-medicating with non-steroidal anti-inflammatory drugs such as "diclofenac sodium" or "celecoxib" for nearly 10 years with almost no interruption. He denied any history of chronic diseases like hypertension or coronary heart disease. There was no family history of cancer.

Physical examination: The patient was conscious, listless, and emaciated. No palpable enlargement of superficial lymph nodes was found. Cardiopulmonary examination was unremarkable. The abdomen was flat, with no visible gastrointestinal peristalsis. Deep tenderness was present in the upper abdomen, without rebound tenderness, and no masses were palpable. The physiological curvature of the spine was lost, with limited mobility, presenting a "ankylosed" state.

Laboratory and imaging studies: Post-admission blood tests revealed mild anemia (hemoglobin 95 g/L). Tumor markers: Carcinoembryonic Antigen (CEA) was 25.6 ng/mL (reference value <5.0 ng/mL), and Carbohydrate Antigen 19-9 (CA19-9) was 158 U/mL (reference value <37 U/mL), both significantly elevated. A contrast-enhanced CT scan of the abdomen showed irregular thickening of the gastric wall in the gastric antrum with a coarse serosal surface and multiple enlarged surrounding lymph nodes, suggesting gastric cancer with lymph node metastasis.

Pathology: Esophagogastroduodenoscopy (EGD) revealed a large ulcerative lesion on the lesser curvature of the gastric antrum, with irregular margins, a base covered with foul-smelling slough, and a texture that was fragile and bled easily on contact. The biopsy pathology report indicated: (Gastric Antrum) Moderately to poorly differentiated adenocarcinoma.

Final diagnosis: 1. Gastric antrum adenocarcinoma (cT4aN+M0, Stage IIIC); 2. Ankylosing spondylitis; 3. Type 2 diabetes mellitus; 4. Drug-related anemia.

Discussion

The core tragedy of this case lies in the failure of both the physician and the patient to be sufficiently vigilant about the 10-year history of NSAID exposure. NSAIDs cause mucosal damage, erosion, and ulcers by inhibiting Cyclooxygenase (COX), particularly COX-1, thereby reducing the synthesis of prostaglandins and weakening the defense and repair mechanisms of the gastric mucosa [4]. More importantly, long-term chronic inflammatory stimulation is considered a key link in the development and progression of gastric cancer. Studies have shown that long-term use of NSAIDs, especially non-selective ones, is associated with an increased risk of gastric cancer [2,5]. According to authoritative guidelines such as the "Chinese Guideline for the Diagnosis and Treatment of Rheumatoid Arthritis," for patients requiring long-term NSAID therapy, risk assessment should be performed. For high-risk patients (e.g., elderly, history of ulcers, combination drug therapy), proton pump inhibitors or misoprostol should be co-prescribed for gastric mucosal protection, and regular endoscopic monitoring should be conducted [6]. During his 10 years of treatment, this patient was never informed of the associated risks and never underwent any form of gastrointestinal screening, which was undoubtedly a dual failure in medical oversight and patient education.

Another profound lesson from this case is the cognitive trap of "diagnostic anchoring" or "attribution bias." When a patient has multiple diseases that can explain a particular symptom, clinicians tend to attribute it to the most familiar or most recently diagnosed condition [7]. In this case, the patient's weight loss appeared after the diagnosis of diabetes, and this temporal relationship made it natural for both the physician and the patient to attribute it to the metabolic disorder or dietary control of diabetes. However, weight loss is a typical "red flag" symptom of malignancy. Any unexplained weight loss, especially when accompanied by digestive symptoms, must undergo a systematic differential diagnosis to exclude the possibility of a malignant tumor. When managing patients with multiple chronic diseases, clinicians must break free from linear thinking, adopt a holistic perspective, and maintain a "zero-tolerance" vigilance for any new or worsening symptoms.

The root cause of this case lies in the breakdown of physician-patient communication and the absence of shared decision-making. As professional health guardians, the primary duty of physicians is to provide adequate risk disclosure. When prescribing NSAIDs, it is not enough to inform the patient of their analgesic effects; one must also explicitly explain their potential gastrointestinal, cardiovascular, and renal risks, and provide a written explanation of the necessity and specific plan for regular monitoring [8]. As the primary person responsible for their own health, patients also need to improve their health literacy. However, in the fast-paced clinical environment, such in-depth communication is often simplified or even omitted. Effective physician-patient communication should not be a one-way "informing" but a two-way "dialogue" to ensure the patient truly understands their condition, the risks and benefits of the treatment plan, and actively participates in health management. By conducting health seminars and providing

easy-to-understand educational materials, patients can be empowered to transform from passive recipients of treatment into active managers of their health.

Conclusion

The tragedy of this 47-year-old gastric cancer patient is a mirror reflecting the systemic deficiencies in clinical practice. It warns us that:

First, we must strengthen awareness of drug risks. For commonly used drugs with potentially serious adverse reactions like NSAIDs, a standardized long-term medication management and monitoring process must be established, making risk disclosure and endoscopic screening institutionalized.

Second, we must be vigilant against cognitive bias. When managing patients with multiple chronic diseases, we must cultivate critical thinking and a holistic view, conducting a comprehensive differential diagnosis for any new symptom to avoid delaying the diagnosis of malignancy due to "diagnostic anchoring."

Third, we must reshape the physician-patient relationship. Integrate thorough communication, shared decision-making, and patient education into daily practice to build a partnership based on trust to jointly resist disease risks.

The path of medicine is like walking on thin ice. Every painful case should serve as a stepping stone for medical progress. Only through continuous reflection, learning, and improvement can we live up to the trust placed in us and prevent similar tragedies from recurring.

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