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A late presentation of gastric malignancy in samoa

Kimberley McDonald* Folototo Leavai

***Kimberley McDonald**
Medical Student, Newcastle University, United Kingdom
Email: k.p.mcdonald1@newcastle.ac.uk

Abstract

Background: Gastric cancer is responsible for approximately 1 in 12 deaths worldwide, making it the third leading cause of death from cancer. It is more common in individuals in high risk groups, including obesity, high salt diet, *Helicobacter pylori* infection, and a positive family history, amongst others. Furthermore, gastric cancer typically presents at an advanced stage due to the first symptoms being non-specific. Therefore, early diagnosis is key for an improved prognosis.

Case Presentation: This is a case of a 62-year-old Samoan female presenting with a one-month history of an aching gastric pain, vomiting, and gradual weight loss, with a firm, tender, palpable mass extended across most of the abdomen. A diagnosis of gastric malignancy was confirmed on endoscopy.

Discussion: Making an early diagnosis of gastric malignancy is difficult due to the most common presenting symptoms being non-specific. This difficulty can be exacerbated by factors such as patients seeking alternative treatments first, the cost of healthcare, and limited resources making monitoring of risk factors and diagnosis challenging – all of which are issues in less developed countries, such as Samoa. Therefore, the presentation of gastric malignancy is often easy to miss and, unfortunately, is in its late stages when diagnosed.

Conclusion: Gastric malignancy should more readily be considered in individuals with epigastric discomfort, particularly those in high risk groups, such as in areas where *Helicobacter pylori* infection may not be successfully identified and treated. Early diagnosis of gastric cancer is crucial for curative treatment to be implemented; therefore, more work needs to be performed in public education/awareness, particularly in developing countries.

Keywords

gastric malignancy; *Helicobacter pylori*; late presentation

Introduction

Gastric malignancy is a relatively common malignancy, accounting for 5.7% of new cancer diagnoses across 185 countries in 2018 [1]. However, more strikingly, gastric malignancy was the cause of mortality in 8.2% of cancer deaths, making it the third most common cause of death from cancer [1]. Contributing to its mortality is the advanced stage of disease at diagnosis due to the usual presentation being asymptomatic or non-specific symptoms, such as weight loss, anaemia, vomiting, and epigastric discomfort [2]. Unsurprisingly the earlier the diagnosis the better the prognosis as treatments can be offered earlier [3].

Early diagnosis can be hindered by a variety of factors, particularly in less developed countries such as Samoa. We present a case of an older Samoan female who presented with non-specific symptoms and was diagnosed with gastric malignancy 11 days after admission and died the day after diagnosis. Some of the factors surrounding a late presentation will be further explored in this case report.

Case Presentation

The patient is a 62-year-old Samoan female presenting to accident and emergency in Samoa with a one-month history of an aching epigastric pain, vomiting, and gradual weight loss on a background of treated hypertension and type 2 diabetes mellitus. The patient reports worsening symptoms over the month and finally presents to hospital due to an inability to tolerate food. Additional symptoms included small volumes of post-menopausal bleeding, dysuria, and an increased urinary frequency. The patient denies any fever or chills, melaena, haematemesis, or change in bowel habits.

The patient is a non-smoker and does not consume any alcohol. She has an unremarkable family history.

On examination, the patient was alert, comfortable, and orientated to time, place, and person but had pale conjunctivae and palms. She was slightly tachycardic (heart rate 121 beats/minute) but otherwise her observations were unremarkable. On abdominal palpation, a large, firm, tender mass was felt down the right side of her abdomen extending into the left upper quadrant. There was no palpable lymphadenopathy. There were no significant findings on cardiovascular or respiratory examination.

On-admission, blood tests showed hyponatraemia, low creatinine, and pancytopenia - the anaemia was confirmed as a megaloblastic anaemia due to B12 and folate deficiency on a blood film. Urinalysis was performed due to the urinary symptoms and confirmed a urinary tract infection with E.coli which was sensitive to several antibiotics, and treated. At this time, the working diagnosis was malignancy likely gynaecological because of the post-menopausal bleeding.

Results

From here several investigations were performed to determine the cause of the patient's symptoms. Firstly, the patient had an abdominal ultrasound which showed hypoechoic soft tissue thickening throughout the peritoneal region with moderate ascites. The liver, gallbladder, pancreas, and kidneys were

unremarkable. The pelvic organs were unable to be visualized on the ultrasound scan. For further information a CT of the abdomen and pelvis was performed. The CT confirmed unremarkable findings in the liver, gallbladder, and kidneys. The whole peritoneum showed a diffuse thickening and nodular appearance with multiple enlarged mesenteric lymph nodes. The report from the abdominal CT suggested gastric malignancy with extensive peritoneal metastases. Malignancy of other organs was difficult to identify on this study. Following on from this and for diagnostic purposes, an endoscopy was performed, the findings of which confirmed a primary gastric malignancy with extensions into the lower oesophagus and potential metastases.

Unfortunately, the patient died on day 11 of admission – 1 day after her diagnosis of gastric malignancy was confirmed and before any specific treatment could be offered.

Discussion

As previously mentioned, and highlighted in this case, gastric malignancy is associated with a high mortality, largely due to the late stage of disease at presentation.[3] However, as with most cancers, pre-malignant lesions have been noted. These include atrophic gastritis, intestinal metaplasia, and dysplasia. Detection and monitoring of these lesions endoscopically will help to detect gastric malignancy at an earlier and more curable stage [5]. This has formed the basis for screening for individuals older than 40 years of age for gastric malignancy in high-incidence countries, such as Japan and Korea.[5] Although ideal to screen all individuals endoscopically for gastric malignancy this is not feasible in many countries, due to the low-incidence of disease or the expense associated with the test [2,5]. Samoa is one such country where screening in this way is not feasible and, therefore, other plans are required to help reduce the impact of gastric malignancy.

One such area that could instead be focused on is *Helicobacter Pylori* infection. Recurrent and untreated *Helicobacter pylori* infection significantly increases the risk of gastric malignancy [4]. *Helicobacter pylori* is a gram-negative bacteria that selectively colonizes the gastric epithelium in approximately 50% of the world's population [4]. Most people are asymptomatic with *Helicobacter pylori* infection; however, a small proportion develop site-specific diseases, including peptic ulcer disease, gastric adenocarcinoma, and mucosa-associated lymphoid tissue lymphoma.[4] Therefore, eradication of *Helicobacter pylori* significantly decreases the risk of gastric cancer in infected individuals.[4] Consequently, targeting resources at *Helicobacter pylori* infection to improve diagnosis and management in less developed countries, such as Samoa, will help to reduce the incidence of gastric malignancy. Focusing on *Helicobacter pylori* infection may be an easier target to set in less developed countries, which will still have an impact on gastric malignancy cases. In Samoa, *Helicobacter pylori* can be diagnosed using rapid urease tests (Campylobacter-like organism test). This test is not always readily available in Samoa and when the tests have run out, histology testing on biopsies can be performed instead. Due to resource limitations, many patients are instead diagnosed based on their clinical symptoms. As *Helicobacter pylori* infection is frequently asymptomatic, it is likely that many patients are affected and without a diagnosis ever being made do not know, regardless of the availability of diagnostic testing. Consequently, they are at an increased risk of gastric malignancy and this may have

played a role in this case as the patient did not undergo *Helicobacter pylori* testing at any point before this admission.

Secondly, more resources could be allocated to public education in the hope that if patients are more of aware of their symptoms, they may seek medical care earlier. Risk factors for gastric malignancy include, pernicious anaemia, prior gastric surgery, family history of malignancy, smoking, high salt intake, obesity, and infections (such as *Helicobacter pylori* and EBV) [5]. Targeting public health campaigns towards raising awareness of the modifiable risk factors for gastric malignancy as well as highlighting the importance of seeking medical care early may help to reduce the number of individuals who, like in the case presented, are presenting at an advanced and incurable stage of disease.

Finally, the use of available resources may impact the diagnosis of disease. In this case the patient first underwent an ultrasound, before being scheduled for a CT abdomen and endoscopy. In Samoa there are limited guidelines available to aid in the investigation and management of patients with malignancy. In the UK, patients would be sent for an urgent endoscopy within 2-weeks to assess for stomach cancer,[6] with further CT scans being performed later for staging of disease. In this case, the patient received an additional ultrasound of the abdomen that potentially was not required. Therefore, there was the potential to save some healthcare resources in an already limited system. However, the patient did not present in such a way that would have met the UK urgent referral criteria, and therefore, would have been unlikely to go straight for endoscopy. Furthermore, it is only in hindsight that gastric malignancy is suspected. At the time of presentation gynaecological malignancy was the more likely working diagnosis due to the patient having post—menopausal bleeding and an abdominal mass. Again, using UK NICE guidelines, it is suggested that all women with a pelvic/abdominal mass should be investigated for ovarian malignancy. These investigations include blood tests for CA125 but also an ultrasound scan of the abdomen and pelvis.[7] Furthermore, this Samoan woman could have also been urgently investigated with an ultrasound scan of the abdomen to rule out endometrial cancer as she was older than 55-years-old presenting with post-menopausal bleeding.[7] This could, therefore, explain why the abdominal ultrasound was performed first. In practice, in Samoa, the ultrasound scan was performed before the CT scan or endoscopy because gynaecological malignancy was suspected initially, but also because of the limited resources available. The most readily available imaging investigation at that time was an ultrasound scan. Therefore, by performing the ultrasound scan, more information could be collected without the patient having to wait longer. Following, the ultrasound of the abdomen it was evident that this patient was unlikely to have a gynaecological cancer, and instead gastric malignancy was more likely. This then spurred further investigations to be completed, including a CT of the abdomen and endoscopy to confirm the diagnosis. For these reasons, all three imaging techniques were utilized in order to provide the most appropriate care to the patient.

Conclusion

Gastric malignancy should be considered as a diagnosis in all individuals presenting with long-term non-specific gastrointestinal symptoms, particularly individuals who are high-risk due to their lifestyle or potentially untreated *Helicobacter pylori* infection. An increased awareness of both doctors and the public

may help to reduce the number of individuals presenting with advanced stage disease. Mass screening endoscopically is the most favorable option, if possible, to diagnose gastric cancer early or even in its pre-malignant stage. However, this is not feasible in many countries, particularly less developed countries with fewer resources, but also those which have a lower incidence of disease. Instead a target towards diagnosis and treatment of *Helicobacter pylori* infection may be more beneficial to reduce not only the incidence of gastric cancer, but also of peptic ulcer disease, whilst providing symptomatic relief to patients with symptoms as a result of their *Helicobacter pylori* infection. Finally, the development of guidelines in the investigation and management of gastric malignancy should be a priority in more resource-limited countries to ensure adequate care of patients but also reduce the performance of unnecessary investigations in specific patient groups.

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Authors Information: Kimberley McDonald[1]* Dr. Folototo Leavai[2]
[1]Medical Student, Newcastle University, United Kingdom
[2]Acute Internal Medicine, Tupua Tamasese Meaole Hospital, National University of Samoa, Samoa

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