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A stitch in time saves nine! A case report of spontaneous duodenal perforation in advanced pancreatic cancer

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Abstract

Acute abdomen is a common presentation in the emergency department, requiring prompt evaluation, diagnosis, and treatment. This case report highlights how simple diagnostic tools can facilitate early detection of abdominal pain caused by duodenal perforation—a rare complication in patients with locally advanced pancreatic cancer. We present a novel case of a 62-year-old male with locally advanced pancreatic cancer who developed acute abdominal pain. The diagnosis of intestinal perforation was made at a Specialist Palliative Care clinic within a tertiary cancer centre. An erect abdominal X-ray revealed free air under the diaphragm, pointing to bowel perforation. The patient underwent emergency surgical exploration, which confirmed a duodenal perforation and was managed with a palliative gastrojejunostomy. While point-of-care ultrasound (POCUS) was not used in this case, we emphasize its potential utility as a bedside tool in the emergency setting for early evaluation of acute abdomen. It can aid in differentiating between conditions such as bowel obstruction, perforation, intussusception, abscesses, or large masses compressing vital structures—many of which may not be visible on a plain abdominal X-ray. This case underscores the importance of early clinical evaluation and the use of accessible diagnostic tools (POCUS) in the timely management of acute abdomen, particularly in complex cancer cases.

Keywords Acute abdomen, Emergency department, Palliative care, Point of care ultrasound (POCUS)

Introduction

With an aging population and ongoing advancements in the treatment of both malignant and non-malignant diseases, there is a growing number of patients living with advanced or end-stage chronic conditions that require acute medical care [1].

Acute abdominal pain, one of the most frequent presenting complaints in the emergency department (ED), is defined as non-traumatic pain lasting less than seven days. It presents a diagnostic challenge due to its wide range of potential causes. The most common aetiologies include gastroenteritis and nonspecific abdominal pain, followed by conditions such as cholelithiasis, urolithiasis, diverticulitis, and appendicitis [2]. Palliative Medicine Point-of-Care Ultrasound (PM-POCUS) is invaluable for promptly diagnosing the above several causes [2]. It can improve patient satisfaction, enhance diagnostic accuracy, reduce length of stay, expedite symptom relief, and minimize complications in this vulnerable patient population [1].

Our aim is to emphasize on the diagnosis of acute abdomen being important point for further management of symptoms and act promptly for its management. We present the first case report on a patient with locally

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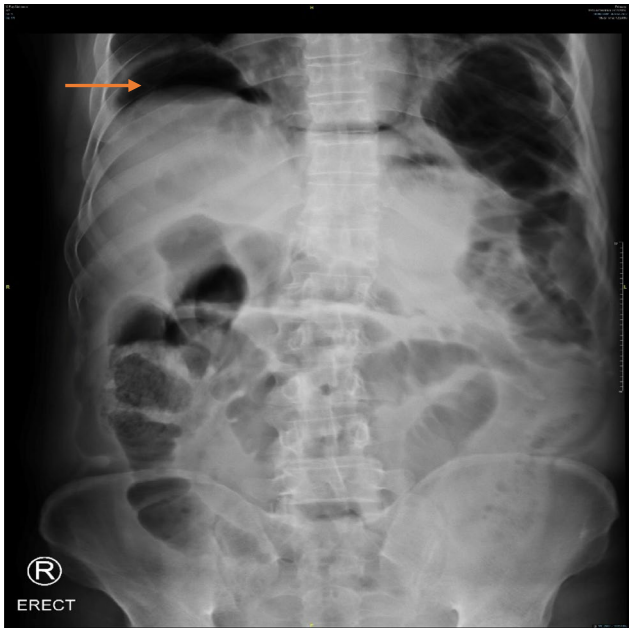

Fig. 1 X ray abdomen erect film. This X ray shows that there is air under the right cusp of the diaphragm, pointing to possibility of perforation

advanced pancreatic cancer presenting with an acute abdomen, diagnosed with intestinal perforation by a Specialist Palliative Care clinic (SPC) at a tertiary care cancer centre.

Case report

A 62 years male retired labourer and chronic alcoholic for 30 years was diagnosed with adenocarcinoma pancreas encasing the main portal vein and infiltrating the duodenum. The joint clinic decision was taken to give neoadjuvant chemotherapy of 8 cycles 5-Fluorouracil, oxaliplatin, irinotecan followed by hypo fractionated radiotherapy of 25 Gy, 5 fractions.

Patient presented to the emergency department with severe epigastric pain that was unresponsive to standard analgesic regimens. He was hemodynamically stable on admission. Physical examination revealed localized tenderness in the right hypochondriac and epigastric regions.

The initial differential diagnosis included liver abscess, bowel obstruction, gastrointestinal perforation, intussusception, and a large intra-abdominal mass compressing vital structures. A cardiac cause for the abdominal pain was ruled out. Based on clinical assessment, a provisional diagnosis of acute abdomen was made, and the patient was referred to the Department of Palliative Medicine for optimization of pain management. Concurrent symptoms included persistent vomiting and constipation.

An erect abdominal X-ray (Fig. 1) demonstrated free air under the right hemidiaphragm, suggestive of hollow viscus perforation. Emergency surgical consultation was obtained, and the patient was taken for exploratory laparotomy by the surgical oncology team. Intraoperatively, a duodenal perforation was identified. It was managed with an omental patch repair, and a palliative gastrojejunostomy was performed to bypass the obstruction.

Postoperatively, the patient developed a burst abdomen, which was managed conservatively. He remained under regular follow-up with the surgical and medical oncology teams for continuation of palliative chemotherapy. Despite these efforts, the patient succumbed to gram-negative sepsis one month later, following chemotherapy administration.

Discussion

Here a patient who presented to the ED with acute abdomen and an abdomen erect Xray can diagnose a red flag of abdominal obstruction or perforation, thus emphasising the need of simplistic investigations. In future POCUS can become the first diagnostic tool that can be used bedside as a handy measure in palliative care setting before subjecting the patient to further higher imaging modalities [3].

A study comparing bedside ultrasonography (US) and X-ray for detecting small bowel obstruction (SBO) in the emergency department found that US had higher sensitivity (91%) and specificity (84%) for detecting dilated bowel, whereas X-ray had lower sensitivity (46.2%) and specificity (66.7%), with 36% of cases being non-diagnostic. These findings highlight the superior sensitivity of US in identifying SBO, particularly for dilated bowel, while emphasizing the limitations of X-ray in certain cases [4].

While CT is the primary imaging modality for diagnosing small bowel perforation and related acute abdominal conditions, sonography remains a valuable initial tool—especially for localized symptoms—due to its non-invasive, radiation-free nature. Familiarity with sonographic signs is important for emergency department residents to support early diagnosis and timely intervention [5].

The use of bedside ultrasound within a Specialist Palliative Care (SPC) unit in future will enhance patient care by facilitating timely assessment and management of common issues, potentially reducing inpatient stay duration and improving overall care efficiency [6].

In previous literature only iatrogenic causes of duodenal perforation in advanced cancer setting is noted [7, 8]. In this case, a spontaneous perforation occurred and dedicated team of surgical oncologist and palliative care professionals were involved providing holistic care to the patient and his family in the form of good symptom control, psychosocial support and addressing supportive care needs.

Conclusion

This case report emphasizes that a simple investigation such as an erect abdominal X-ray can play a crucial role in achieving a timely diagnosis, even within a Specialist Palliative Care (SPC) setting. This case also emphasizes the role of POCUS in ED to rule out such acute abdominal conditions. Duodenal perforation in the context of locally advanced pancreatic cancer is rare but remains a potential complication.

Such unexpected events significantly impact a patient's quality of life, functional status, and overall prognosis, and therefore require immediate medical attention. This case underscores the importance of POCUS, which could be a valuable tool in near future and thorough evaluation for any patient presenting to the emergency department with sudden-onset abdominal pain. Early clinical assessment, supported by appropriate diagnostic tools and timely intensive care, is essential for optimal patient management.

Abbreviations

ED	Emergency department
SPC	Specialist Palliative Care
PM-POCUS	Palliative Medicine Point-of-care- ultrasound
POCUS	Point-of-care- ultrasound
US	Ultrasonography
SBO	Small bowel obstruction
CT	Computed tomography scan

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Authors' contributions

I.J.S. contributed for the conception, design, drafted the work and was a major contributor in writing the manuscript. R.S.T. helped in creation of case report flow, design and revised the draft. J.D. contributed in the conception, editing and modifications in the draft. S.P. contributed in design, acquisition and case interpretation. All authors read and approved the final manuscript.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

We have obtained a written patient consent from the patient for using his clinical information and images to be reported in the journal. Ethic approval need was waived off for a case report study.

Consent for publication

My manuscript contains demographic and disease data from an individual patient, so consent was obtained by the patient for using it.

Competing interests

The authors declare no competing interests.

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