Translational Research in Urology

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Case report

Pancreatic Adenocarcinoma Presenting with Biliary Ureteral Stones: A Case Report

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HIGHLIGHTS

- Pancreatic cancer is common with meager survival rates, and early diagnosis can increase the chance of survival.
- This case highlights the crucial role physicians play in primary and emergency settings in investigating subtle or secondary presentations and encourages a higher degree of suspicion for less common disease manifestations.

ARTICLE INFO

Receive Date: 13 February 2022
Accept Date: 14 June 20222
Avaliable online: 06 November 2022
DOI: 10.22034/TRU.2022.329008.1102

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ABSTRACT

Introduction
Calcium oxalate, phosphate, struvite, uric acid, and cysteine make up the majority of urinary stones. Moreover, only 0.5 -3.5 percent of urinary stones have a different composition. A thorough history, physical examination, along with urinary stone analysis helps to diagnose the cause of rare urinary stones.

Case presentation
We report here the case of a 68-year-old patient with a history of radical We herein report a case of pancreatic cancer with the unusual presentation of renal colic and ureteral stones. After removing the stones with ureterolithotripsy, the stone analysis revealed bilirubin crystal composition. Upon further follow-up, the patient has diagnosed with adenocarcinoma of the head of the pancreas.

Conclusions
This case highlights the importance of stone analysis, while many urologists do not consider this, and this is my result in miss diagnosis of some dangerous diseases that may present with the uncommon presentation.

Keywords: Renal Stone; Pancreatic Adenocarcinoma; Ureteral Stone; Biliary

Introduction

Calcium oxalate, calcium phosphate, struvite, uric acid, and cysteine make up the majority of urinary stones. Moreover, only 0.5 -3.5 percent of urinary stones have different compositions. A thorough history, physical examination, and urinary stone analysis help diagnose the cause of rare urinary stones (1). Pancreatic cancer is the 12th most common cancer and the 7th leading

cause of cancer-related deaths worldwide (2). The most common initial presentation is pain, followed by jaundice, dyspepsia, and weight loss. Other less common signs and symptoms may include nausea and vomiting, abdominal mass, or pruritus, depending on the tumor site. Due to these non-specific symptoms and their insidious course, the disease is usually detected at late stages, and almost all patients die from it. An earlier diagnosis, therefore, can lead to earlier intervention and improve overall survival (3). Here we present a case of pancreatic adenocarcinoma with the unusual presentation of renal colic and ureteral stones composed of bilirubin crystals.

Case presentation

A 62-year-old man presented to the emergency department complaining of right-sided colicky flank pain that had started two days prior. Upon admission, the patient was pale and slightly jaundiced. He had no other relevant physical findings, past medical history, or family or drug history.

Subsequent ultrasound imaging revealed two calculi measuring 5*7 and 5*5 mm on the distal part of the right ureter, with concomitant right hydronephrosis. Afterward, the patient underwent transurethral ureterolithotripsy with rigid ureteroscopy, and the stones were removed from the distal ureter. The stones had a green appearance and were sent for analysis (Table1). Further investigation revealed elevated total and direct serum bilirubin, prothrombin time, CEA, and CA 19-9 levels (Table 2), and a computed tomography (CT) scan of the abdomen with contrast revealed a 25 mm mass at the head of the pancreas (Figure 1). Unfortunately, the patient had no previous imaging that could be useful compared to the new ones.

After discharge, the patient underwent Whipple surgery and was immediately started on chemotherapy with gemcitabine plus S-1. At 12 months after the surgery, the patient died of complications related to the tumor spread, leading to bowel obstruction.

Discussion

Early diagnosis and treatment of pancreatic cancer are crucial in determining disease outcomes. Nevertheless, most symptoms the patients initially present with are either vague or non-specific. Among these signs and symptoms, jaundice has the highest positive predictive value. It is, therefore, the most likely presentation which could lead us to an earlier diagnosis, provided that the primary care physician has enough expertise and is attentive to performing a thorough physical examination (3). In this case, although our patient did not complain of any more common symptoms of pancreatic cancer, a minimal degree of jaundice and scleral icterus was evident upon his first physical examination, which warranted further investigation. Kidney stones inflict an estimated 9% of individuals at least once in their lifetimes and have had an increasing trend of prevalence in recent years (4).

A system to classify renal stones gives us more unified data to better understand the nature of an underlying illness. To classify different types of kidney stones in terms of composition, we need to agree on two premises: firstly, the categories of stone composition are mutually exclusive, meaning that a stone of several components will be classified into only one category, and secondly, a stone made of a rare compound and another more common compound is classified by the rare compound (5). Therefore, the stones' primary composition in this patient will be classified as bilirubin.

After an extensive literature review, we did not find any reports of renal stones with a biliary composition; nor any case of pancreatic cancer presenting initially with renal colic. On the other hand, pancreatic cancer and renal calculi can coincide in multiple endocrine neoplasias (MEN) 1 patients as these patients are susceptible to pancreatic, pituitary, and parathyroid carcinomas, where high serum calcium levels can lead to oxalate stone formation (6-8). In our case, serum calcium levels were normal (9.5 mg/dL), and the patient mentioned no other relevant family history or past medical history. Nevertheless, a full workup of his pituitary and parathyroid function could have led us to understand the mechanism behind such a

Table 1. Analysis of renal calculi composition

Composition	Percentage
Calcium oxalate	30%
Calcium phosphate	28%
Calcium bilirubinate	22%
Bilirubin	15%
Calcium carbonate	5%

Table 2. Lab results on follow-up testing after the operation

Test	Result	Unit	Normal Range
ALP	417	U/L	80-306
Bilirubin (total)	4.0	mg/dL	0.1-1.2
Bilirubin (direct)	1.8	mg/dL	<0.3
Amylase	18	U/L	<100
Na	132	mEq/L	135-145
K	3.7	mEq/L	3.5-5.5
Ca	9.5	mg/dL	8.5-10.4
PTT	39	Seconds	25-40
PT	13.3	Seconds	11-14
INR	1.1	-	Control = 12.6
CEA	6.90	µg/L	Non-smoker: <3.8 Smoker: <5.5
CA-19.9	601.8	U/mL	<39

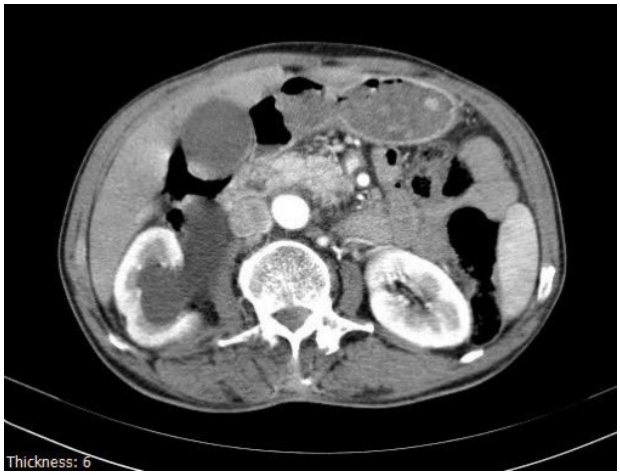

Figure 1. Computed tomography (CT) scan of the abdomen with contrast revealed a 25 mm mass

presentation better. We also propose a possible role for a factor secreted by tumor cells to initiate a cascade of events leading to stone formation.

Conclusions

This case highlights the importance of stone analysis; while many urologists do not consider this, this may result in a missed diagnosis of some dangerous disease that may present with an uncommon presentation.

Authors' contributions

HD and MM researched the literature and conceived the study. FN and MKH were involved in protocol development, patient recruitment, and data analysis. ZA and SD, and AK wrote the first draft of the manuscript. All authors reviewed and edited the manuscript and approved the final version of the manuscript.

Acknowledgements

None.

Conflict of interest

The author declares that there is no conflict of interest.

Funding

There is no funding.

Ethical statement

Our case reports are based on CARE guidelines, and the patient's parent agreed to report his case after signing the written informed consent.

Data availability

Data will be provided on request.

Abbreviations

µg/dL	Micrograms per decilitres
CA	Carbohydrate antigen
CEA	Carcinoembryonic antigen
CT	Computed tomography
mm	Millimetre
MRI	Magnetic resonance imaging

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How to cite this article

Dialameh H, Mirmoghtadaei M, Ali Z, Khalili M, Namdari F, Karami A. Pancreatic Adenocarcinoma Presenting with Biliary Ureteral Stones: A Case Report. Translational Research in Urology. 2022 Nov;4(4):154-157.
DOI: 10.22034/TRU.2022.329008.1102
URL: https://www.transresurology.com/article_159493.html