

Periampullary Carcinoma with Obstructive Jaundice: A Case Report

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Abstract: Periampullary carcinoma (PAC) is a kind of cancer disease; arising from the head of the pancreas, the distal common bile duct and the duodenum. The most common clinical manifestation of PAC is jaundice, which occurs due to obstruction of the biliary tract by the tumour. In the current study, we report that a 61-year-old female patient who presented with complaints of jaundice, generalized itching, and yellowish discoloration of urine for the past one and half months. She also experienced melena for two days prior to hospital admission. The patient had previously sought a treatment for jaundice at home with no significant improvement. Further, she had also some other common health issues such as dyspepsia, anorexia, and weight loss. After overall clinical examinations and treatments, results of this study found that the patient displaying symptoms of PACs and obstructive jaundice (OJ), and their risks. The current study suggest that need more advanced medical equipments, clinical facilities and practices for diagnosing and providing further essential treatments to control, prevent and cure the health issues caused by PAC and OJ.

Keywords: Human being, Periampullary carcinoma, Ampulla of Vater, Obstructive jaundice, Whipple's surgery.

INTRODUCTION

Periampullary carcinoma (PAC) is a cancer that forms near the ampulla of Vater; an enlargement of the ducts from the liver and pancreas where they join and enter the small intestine. Typically, PACs are tremendously rare and aggressive forms of gastrointestinal malignancy; arising ~ 2 cm of the major papilla in the duodenum. It is encompassing of four different portions namely ampullary (ampulla of Vater), biliary (intrapancreatic distal bile duct), pancreatic (head-uncinate process) and duodenal (mainly from the second portion), affects the periampullary region of the duodenum in human beings. (Sarmiento *et al.*, 2001; Kamarajah, 2018; Sivesh *et al.*, 2021). Generally, the PAC patients show no symptoms until they reached an advanced stage. It's antagonistic nature severely causes jaundice, abdominal pain, and unintentional weight loss (John *et al.*, 2024). In relation to jaundice, obstructive jaundice (OJ) is a specific type of jaundice, which develops due to a narrowed and/or blocked bile or pancreatic duct, preventing the normal drainage of bile from the bloodstream into the intestines. The hepatocellular jaundice also occurs due to the damage and/or dysfunction of liver cells causing hepatitis, cirrhosis and hepatic cancer (Liu *et al.*, 2023). The PAC with OJ is a malignant condition near the ampulla of Vater, which leads to biliary obstruction. This condition typically presents with jaundice, pruritus, and other vague symptoms, which can delay diagnosis.

Moreover, the PACs include varieties of cancer types such as ampullary cancer, pancreatic adenocarcinoma, distal cholangiocarcinoma, and duodenal cancer, present diagnostic and management challenges due to their aggressive nature and nonspecific symptoms (Gupta *et al.*, 2024). Recently, we have clinically tested and studied the rare complaint of PAC on 61-year-old female patient. The present study is aimed to report our research findings on the rare disease PAC with OJ.

PATIENT: CASE REPRESENTATION

The current case study examined a 61-year-old female patient who presented to the Meenakshi College of Nursing, Meenakshi Academy of Higher Education and Research, Chennai. West K.K. Nagar, Chennai - 600 078, Tamil Nadu, India with complaints of jaundice, generalized itching, and yellowish discoloration of urine. Further, she was also experienced melena for two days prior to hospital admission. The patient had previously sought a treatment for jaundice at home with no significant improvement. Due to the severity and persistence of her symptoms, a comprehensive diagnostic evaluation was undertaken to determine the underlying cause. Further, there was no previous history of cancer or other major cancer related issues in her family (hereditary) background. After overall clinical

monitoring and medical treatment, results of this study were found that the patient displaying symptoms of PACs with OJ risks (Figure 1).

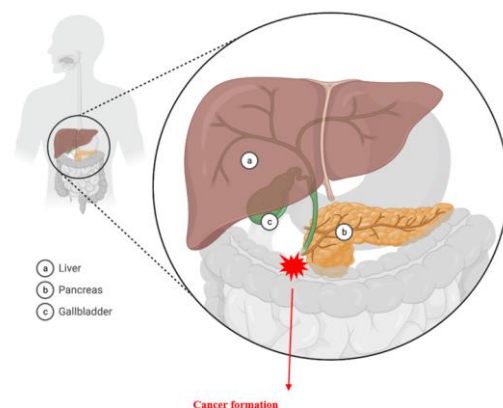
RESULTS AND DISCUSSION

The results obtained from this study found that she has severely been suffering from PAC with OJ for the last few years. Despite its low incidence, representing only 1-2% of all gastrointestinal cancers, PAC presents significant management challenges due to its anatomical location and late-stage diagnosis (Nakamura *et al.*, 2019). The overall physical examination revealed yellow discoloration of the skin and sclera, dry skin with scratch marks, and tenderness in the upper abdominal quadrant which might be due to PAC and OJ (hepatic dysfunction). Moreover, the patient was conscious and oriented, visibly uncomfortable due to generalized pruritus and over body mass index (BMI). Further, the bile culture test also confirmed the presence of *Escherichia coli* and endoscopic biopsy of the periampullary region reported chronic duodenitis with ulceration. Similar responses were found, and strongly corroborates with findings of Prakash (2024). The other study on echocardiogram revealed an ejection fraction of 60%, indicating normal left ventricular function, along with findings of mild tricuspid regurgitation. After preoperative preparation, including nothing by mouth (NPO) status for six hours, blood reservation, and a coagulation profile, the patient underwent a pylorus-preserving pancreaticoduodenectomy (Whipple procedure).

The procedure was conducted through a makuuchi incision, revealing multiple retro-pancreatic and common hepatic lymph nodes, and an ampullary mass. The surgery was involved hepaticojejunostomy and duodenojejunostomy, followed by bilateral drainage tube placement. Postoperatively, the patient was managed with an epidural catheter placed at the T10-T11 level for pain control and a central venous catheter for intravenous access and nutrition. A jejunostomy feeding tube was placed to ensure enteral nutrition. She was started on a high-protein diet to aid recovery. Medications included antibiotics, analgesics, antipyretics, and proton pump inhibitors. Post-surgery, the patient was monitored closely for complications. Her urinary output was maintained via a Foley catheter, producing 1700 ml in 24 hours. Drainage from her bilateral tubes totaled 80 ml, and jejunostomy drainage showed 50 ml of bile-stained fluid. She continued to experience upper abdominal pain, affecting her sleep, with reported sleep durations of 4-5 hours per night.

What makes this case unique is the combination of PAC with OJ in the absence of clear malignancy in histopathological findings. Despite an advanced presentation of OJ and gastrointestinal symptoms, the initial biopsy from the ampullary region did not reveal malignancy, a rare occurrence. Moreover, the patient responded poorly to prior native treatments, which may

have delayed definitive medical care, complicating her clinical picture further. This underscores the importance of timely diagnostic and surgical intervention in such complex cases. Further histopathological analysis is warranted to rule out malignancy definitively. In addition to this, alterations of biochemical parameters in blood such as hyperbilirubinemia, hypoglycemia, hyponatremia, hypokalemia, hyperproteinemia, and hypoalbuminemia were observed significant level. Similar findings were found by Sivesh *et al.* (2021) and Vaghela *et al.* (2024). Their findings strongly corroborate with the results of our study. Laboratory tests were conducted to investigate the cause of the jaundice and abdominal pain. The results revealed that elevated levels of total and direct bilirubin, indicative of cholestasis or impaired bile flow. The alanine aminotransferase (ALT) and aspartate aminotransferase (AST) are typically present in the liver, and any damage to liver leads to release of these enzymes into blood stream due to necrosis and death of liver cells. Liver function tests showed significant alterations on ALT and AST levels, both of which are markers of hepatic injury and suggestive of biliary obstruction or inflammation (Nemcsok and Boross, 1982). In this study, the serum levels of ALT and AST were elevated, further supporting the diagnosis of biliary obstruction. The higher level of bilirubin due to the liver's inability to metabolize or excrete it into bile appropriately (Liu *et al.*, 2023). These findings, in conjunction with the patient's clinical symptoms, pointed towards a potential malignancy affecting the biliary tract. The present findings strongly corroborate with the results of Bertuccio (2021), Sivesh *et al.* (2021) and Vaghela *et al.* (2024). This case demonstrates the complexity of diagnosing PAC, especially in patients with unclear initial histopathological findings. Early detection and surgical intervention remain key factors in improving patient outcomes. The combination of comprehensive postoperative care, infection control, and nutritional support was essential for the patient's recovery.



(Periampullary carcinoma (PAC))

Figure 1. Illustration of PAC formation in human body near the parts of digestive system (liver, pancreas, small intestine and gallbladder).

CONCLUSIONS

Collectively, the results of the present study concludes that the patient was significantly diagnosed with PAC and OJ, which is very rare malignancies with an aggressive course of disease in young adults; thorough evaluation of genetic disorders should be performed on young individuals diagnosed with PAC. At present, a safe method for treating PAC is Whipple's pancreaticoduodenectomy. As many of the recent studies has reported that many research works should be focused on early detection, minimally invasive surgical techniques, and new therapeutic agents to improve management and patient quality of life. And also, the current study emphasizes the importance of a multidisciplinary approach in managing PAC and OJ. Further, it needs improved screening methods for early detection with low cost to cure the condition. Advancements in biomarker research could aid in earlier diagnosis and better disease management (Bertuccio, 2021) since there is no way to prevent ampullary cancer types. Moreover, high-quality studies, clinical trials and treatment techniques are still needed for improving the status of the current practices in this field.

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