Case Report

Prolonged Complete Response after Neoadjuvant Capecitabine-Gemcitabine for a Locally Advanced Pancreatic Adenocarcinoma: A Case Report

CN Ekwunife, SE Enendu, C Okorie, S Lemchi, IG Nnadi[1], OC Iwuagwu[2]

Departments of Surgery and [1]Histopathology Federal Medical Centre, Owerri, Nigeria, [2]Department of Radiology, Human Race Medical Centre, Owerri, Nigeria/London North West University Hospitals NHS Trust, United Kingdom

Received: 25-May-2022;
Revision: 26-Jun-2022;
Accepted: 28-Jul-2022;
Published: 18-Nov-2022

Abstract

Background: Pancreatic duct adenocarcinoma is increasing in incidence without appreciable decrease in overall survival despite decades of heightened research. Its mortality rate approaches its incidence rate. We report a case of carcinoma of the pancreas that had complete response from adjuvant chemotherapy. **Case Presentation:** A 39-year old male radiographer presented with a 3-month history of progressively worsening epigastric pain radiating to the back, associated with history of weight loss, anorexia, and jaundice. Abdominal CT scan showed a mass in the head of pancreas. A Whipple's operation was planned for the patient. However, intraoperatively, the head and body of the pancreas were found to have been taken over by the tumor, which encased the portal vein as well. Multiple core needle biopsies of the pancreas were taken. Cholecystojejunostomy, gastrojejunostomy, and jejunojejunostomy were then done. Histopathologic analysis of the specimen revealed a well-differentiated adenocarcinoma of the pancreas. He was commenced on 28-day cycle of gemcitabine 1000 mg/m^2 on Days 1, 8, and 15 plus capecitabine 830 mg/m^2 on Days 1–14. Repeat CT scan done after the 4th cycle showed no residual tumor in the pancreas. He has been in good health after 36 months follow-up, having received eight cycles of chemotherapy. He was counseled on resection of the pancreas, but he declined. **Conclusion:** Complete radiologic response may rarely occur after adjuvant chemotherapy for locally advanced adenocarcinoma of the pancreas. This does not, however, imply a cure of the disease.

Keywords: *Adenocarcinoma, chemotherapy, pancreas, radiologic response, response*

Introduction

Pancreatic duct adenocarcinoma has a dismal prognosis. It is a cancer that is increasing in incidence without appreciable decrease in overall survival, despite decades of heightened research.[1] Its lethality can be appreciated by the fact that its mortality rate approaches its incidence rate.[2] The disease burden is more in developed countries, where an aging population is a major contributing factor. In the United States, it is the 4th leading cause of cancer-related death; and it has been postulated that it could rise to second by 2030.[3] Although Western Africa is one of the regions with the lowest global incidence of this disease, the rate is close to 3% of all cancers.[4,5] Surgical resection offers the only chance for its cure, but 80%–90% of patients present with locally advanced or metastatic disease precluding resection with curative intent.[6] Survival is even more remote in developing countries where patients present much later in the course of the disease and where adjuvant chemoradiation services may be suboptimal.

Access this article online

Quick Response Code:

Website: www.njcponline.com

DOI: 10.4103/njcp.njcp_369_22

Address for correspondence: Dr. CN Ekwunife, Department of Surgery, Federal Medical Centre, Owerri, Nigeria.
E-mail: chrisekwunife@yahoo.co.uk

How to cite this article: Ekwunife CN, Enendu SE, Okorie C, Lemchi S, Nnadi IG, Iwuagwu OC. Prolonged complete response after neoadjuvant capecitabine-gemcitabine for a locally advanced pancreatic adenocarcinoma: A case report. Niger J Clin Pract 2022;25:1945-8.

Case Presentation

A 39-year old male radiographer presented with a 3-month history of progressively worsening epigastric pain radiating to the back. There was associated history of weight loss and anorexia. He had been under the care of a hematologist on account of chronic anemia. However, the later development of jaundice and pruritus necessitated a referral to the Surgery Department.

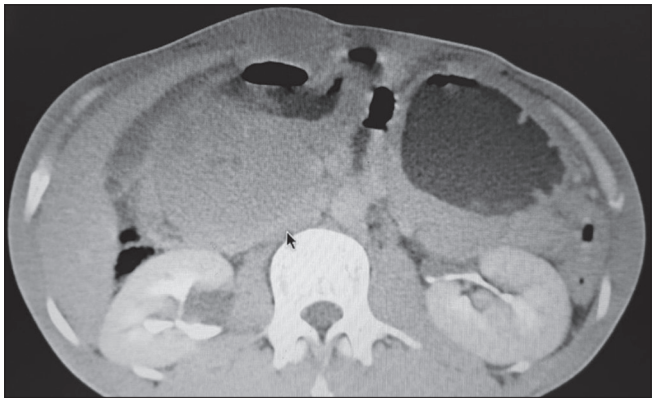

Figure 1: Pretreatment axial contrast enhanced CT of the abdomen demonstrating large pancreatic head mass displacing bowel loops

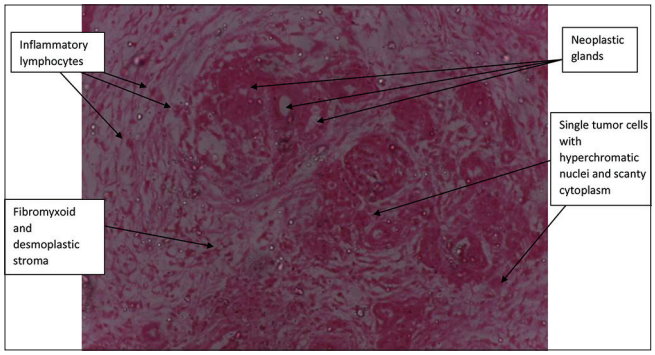

Figure 2: Photomicrograph of hematoxylin and eosin-stained pancreatic tissue section

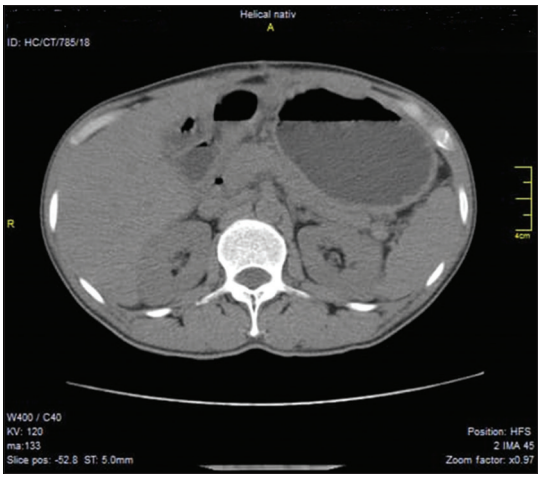

Figure 3: Posttreatment axial unenhanced CT of the abdomen demonstrating resolved pancreatic head mass

The patient did not have any significant past medical history nor family history of malignancies. He does not smoke cigarettes, but takes less than five drinks of alcohol per month. Clinical examination revealed a hard immobile irregular epigastric mass, measuring 6 cm in its widest diameter, in an asthenic young man. Investigations showed Hb = 8.3 g/dl, INR = 2.81 and serum albumin 4.7 g/dl. An abdominal CT scan (4 Slice Siemens Somatom S4) showed a mass in the head of pancreas [Figure 1]. Magnetic resonance cholagiopancreatography also showed the mass in the head of pancreas. Anemia was corrected and vitamin K administered, with the intent at performing pancreaticoduodenectomy. Intraoperatively, the head and body of the pancreas were found to have been taken over by the tumor, which also encased the portal vein. Ascitic fluid was estimated at 700 ml. The tumor was adjudged to be unresectable. Multiple core needle biopsies of the pancreas were taken. Cholecystojejunostomy, gastrojejunostomy, and jejunojejunostomy were then performed. Postoperative recovery was uneventful. Histopathologic analysis of the specimen revealed a well-differentiated adenocarcinoma of the pancreas [Figure 2]. He was commenced on 28-day cycle of gemcitabine 1000 mg/m^2 on Days 1, 8, and 15 plus capecitabine 830 mg/m^2 on Days 1–14. Repeat CT scan done after the 4th cycle showed no residual tumor in the pancreas [Figure 3]. The carbohydrate antigen (CA) 19-9 level then was 10.7 (<35) IU/ml; but at 27 months postoperatively it has reduced to 7 IU/ml. He has been in good health and Eastern Cooperative Oncology Group performance status has remained zero. No chemotherapeutic dose reductions have been made. He has been followed up for 36 months and given eight cycles of chemotherapy. He was counseled on resection of the pancreas but he declined, being content with the care already received.

Discussion

Chemotherapy is the standard treatment for inoperable locally advanced pancreatic duct carcinoma (LAPC). The landmark PRODIGE 4 trial demonstrated that combination of oxaliplatin, irinotecan, fluorouracil, and leucovorin (FOLFIRINOX) almost doubled the median overall survival of patients with metastatic disease to 11.1 months against 6.8 months in those receiving gemcitabine.[7] This has been extrapolated for use in managing locally advanced disease. However, a major drawback of the regimen is the higher incidence of grade 3 and 4 neutropenia, which necessitates a greater recourse for growth factor support. We utilized the gemcitabine and capecitabine combination because it is a reasonable option in LAPC, where advantage of one

regimen over another has not been evident.[8] Optimal primary tumor control to enable surgical resection could be achieved with intensified consolidation chemoradiotherapy.[9] However, access to radiotherapy services in our setting is very poor; and the patient did not get any neoadjuvant radiotherapy.

The peculiar biology of adenocarcinoma of the pancreas accounts for the relatively poor results of its chemotherapy. The tumor is very hypoxic, hypocellular, and hypovascular.[1] There has, however, been a few reports on complete response of locally advanced pancreatic cancer from chemotherapy. Most of the reports have used FOLFIRINOX regimen, unlike our index case where gemcitabine and capecitabine combination were used.[9-13] In the neoadjuvant setting, pathological complete response (pCR) has been documented in 4.5%–5.9% after FOLFIRNOX treatment.[13] Ideally, a follow-on surgical resection should be done in order to achieve adequate local-regional tumor control, and in rare cases confirm pCR.

Multidetector computed tomography is the imaging of choice in the detection and staging of pancreatic cancer, although endoscopic ultrasound, magnetic resonance imaging and positron emission tomography (PET scan) might provide complementary or additional information.[14] PET scan is not available in our region. Where operative risk is high, or where a patient declines surgical re-exploration, as in our case, the evaluation of complete response might be dependent on imaging studies. It is noteworthy, however, that the achievement of complete response does not equate to cure of the disease.[13,15] Our follow-up duration of 36 months may not have been long enough, but it is quite significant given the pathology of the disease and the limited resources in our environment.

Our patient developed very early onset pancreatic cancer. Patients rarely develop pancreatic cancer before 45 years and median age at diagnosis is 70 years. The patient also does not have any of the established risk factors associated with pancreatic cancer: family history, diabetes mellitus, obesity and tobacco use. Heavy alcohol consumption, however, may be more associated with very early onset pancreatic cancer.[16] The index patient takes alcohol sparingly. It is putative, however, whether exposure to radiation as a radiographer contributed to the early onset of the disease.

Conclusion

This study describes the experience in the management of a rare case of complete radiologic response in a locally advanced pancreatic adenocarcinoma in a resource-poor environment. It highlights the challenges in the access to modern imaging tools and the modest attempt to provide standard therapy to a disease that has very poor prognosis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Authors' contributions

CNE, SEE, CO, and SL managed and followed up the patient. SL and CO wrote the case presentation and edited the manuscript. CNE and SEE supervised the team, wrote the introduction and discussion parts of the manuscript. IGN analyzed the histopathology specimen as well as conducting a literature search and review. OCI analyzed all the radiographic images, did the reporting and edited the manuscript. All authors read and approved the final manuscript.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Tempero M. Pancreatic adenocarcinoma: The emperor of all cancer maladies. J Oncol Pract 2016;12:29-30.
2. Wu W, He X, Yang L, Wang Q, Bian X, Ye J, *et al.* Rising trends in pancreatic cancer incidence and mortality in 2000-2014. Clin Epidemiol 2018;10:789-97.
3. Rahib L, Smith BD, Aizenberg R, Rosenzweig AB, Fleshman JM, Matrisian LM. Projecting cancer incidence and deaths to 2030: The unexpected burden of thyroid, liver, and pancreas cancers in the United States. Cancer Res 2014;74:2913-21.
4. Awodele O, Adeyomoye AA, Awodele DF, Fayankinnu VB, Dolapo DC. Cancer distribution pattern in south-western Nigeria. Tanzan J Health Res 2011;13:125-31.
5. Ilic M, Ilic I. Epidemiology of pancreatic cancer. World J Gastroenterol 2016;22:9694-705.
6. Oberstein PE, Olive KP. Pancreatic cancer: Why is it so hard to treat? Therap Adv Gastroenterol 2013;6:321-37.
7. Conroy T, Desseigne F, Ychou M, Bouche O, Guimbaud R, Becouarn Y, *et al.* FOLFIRINOX versus gemcitabine for metastatic pancreatic cancer. N Engl J Med 2011;364:1817-25.
8. Balaban EP, Mangu PB, Yee NS. Locally advanced unresectable pancreatic cancer: American society of clinical oncology clinical practice guideline summary. J Oncol Pract 2017;13:265-9.
9. Mukherjee S, Hurt CN, Bridgewater J, Falk S, Cummins S, Wasan H, *et al.* Gemcitabine-based or capecitabine-based chemoradiotherapy for locally advanced pancreatic cancer (SCALOP): A multicentre, randomised, phase 2 trial. Lancet Oncol 2013;14:317-26.

10. Mathew BM, Daas AY, Centeno BA, Hoffe S, Valone T, Patel M, *et al.* Lessons learned from a complete remission of advanced metastatic pancreatic ductal adenocarcinoma. Clin Adv Hematol Oncol 2012;10:340-43.
11. Gostimir M, Bennett S, Moyana T, Sekhon H, Martel G. Complete pathological response following neoadjuvant FOLFIRINOX in borderline resectable pancreatic cancer—A case report and review. BMC Cancer 2016;16:786.
12. Yang J, Lim T, Kim T, Han S, Lee S, Kim H, *et al.* Long term complete response of unresectable locally advanced pancreatic cancer after CCRT and Gemcitabine Chemotherapy. Korean J Pancreas Biliary Tract 2016;21:209-15.
13. Luu AM, Hoehn P, Vogel SR, Reinacher-Schick A, Munding J, Uhl W, *et al.* Pathologic complete response of pancreatic cancer following neoadjuvant FOLFIRINOX treatment in hepatic metastasized pancreatic cancer. Visc Med 2019;35:387-91.
14. Lee ES, Lee JM. Imaging diagnosis of pancreatic cancer: A state-of-the-art review. World J Gastroenterol 2014;20:7864-77.
15. Pozza G, Tonello A, Patane G, Paladina I, Valmasoni M, Merigliano S, *et al.* Complete pathologic response to chemotherapy (FOLFORINOX) is not equivalent to cure: Case report and review of the literature. Clin Oncol 2016;1:1146.
16. McWilliams RR, Maisonneuve P, Bamlet WR, Petersen GM, Li D, Risch H, *et al.* Risk factors for early-onset and very-early-onset pancreatic adenocarcinoma: A pancreatic cancer case-control consortium (PanC4) Analysis. Pancreas 2016;45:311-6.