Journal of Tumor Research

Elizabeth et al., J Tumor Res 2018, 4:2

Case Report Open Access

# Metachronous Pancreatic Adenocarcinoma in Patient with Prostatic Carcinoma, Multiple Primary Malignancies: Case Report

**Elizabeth Nicole Garzón Palacios*, Harry Dorn Arias and Henry Alejandro Carrión Celi**

*Department of General and Transplant Surgery, San Francisco University of Quito, Quito, Pichincha Ecuador*

***Corresponding author:** Elizabeth Nicole Garzón, Department of General and Transplant Surgery, San Francisco University of Quito, Quito, Pichincha Ecuador, Tel: (593) 98046928; E-mail: nikyecua94@hotmail.com

**Received date:** October 24, 2018; **Accepted date:** December 3, 2018; **Published date:** December 10, 2018

**Copyright:** © 2018 Palacios ENG, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## Abstract

Multiple primary malignancy is two or more primary tumors that are diagnosed simultaneous or metachronous. The incidence rises with advanced age and is more common in men despite the high rate of prostatic cancer and its co-occurrence with other type of cancer. Multiple primary malignancy is an increasingly frequent event due to the advance's diagnostic methods, but whenever found they arise questions of possible common etiologies or same pathogenic mechanisms. We reported a case of a 66 years old male patient presented with painless asymptomatic pancreatic mass which was found as an incidental finding in a check-up for surgery for prostatic adenocarcinoma, T3NOMO. A pancreatoduodenectomy was done and histopathological results showed a pancreatic adenocarcinoma, T1N0M0, and an intraductal papillary mucinous neoplasm, T1N0M0. The patient was diagnosed with a metachronous multiple primary malignancy. Few combinations are labelled as syndromes or showed a common genetic association; however, sporadic cases of multiple primary malignancy are relatively rare. Such a combination of prostatic carcinoma and pancreatic carcinoma is sparingly being reported.

## Introduction

Multiple Primary Malignancy (MPM) are two or more primary tumors that are diagnosed simultaneous or metachronous [1]. The incidence of MPM rise with advanced age and is more common in men despite the high incidence of prostatic cancer and its co-occurrence with other type of cancer [2]. In a study of 1,104,269 patients with cancer the reported prevalence of MPM was 0.73% to 11.7% [2]. Patients with cancer diagnosis have 20% more risk of having a second malignancy, compared with those that were never diagnosed [1]. According to the Warren and Gates parameters a MPM is characterized by: each tumor diagnosed tumor must have malignant characteristics; each tumor must be different from each other; and the possibility that one tumor is metastasis of the other must be excluded [3]. They are classified in two major groups based on time of diagnosis of each tumor. If tumor are diagnosed simultaneously or within a 6-month interval, they are called synchronous. If the interval is longer than 6 months, they are called metachronous [4]. The risk for metachronous tumor is slightly greater for women but synchronous malignancies are more common in men [5]. Here we present a patient with three primaries malignant tumors, with a metachronous prostatic adenocarcinoma, pancreatic adenocarcinoma and pancreatic intraductal carcinoma.

## Case Report

We report a case of a 66-year-old Hispanic man with a past medical history of diabetes mellitus type 2 for last four years currently on Metformin 850 mg twice daily, benign prostatic hyperplasia for last two years on Tamsulosin 0.4 mg once daily, and supraventricular arrhythmia for last two months on Bisoprolol 2.5 mg once daily. Surgical history also included an umbilical hernioplasty and a right hip arthroplasty. Among first degree family and relatives, there was history of prostatic cancer and diabetes. He denied alcohol, smoking or use of illicit drugs. Manuscript Click here to access/download; Manuscript; Manuscript Elizabeth Garzon.docx In June 2016, the patient presented burning urination and weak urinary stream, a transrectal prostate biopsy was taken due to a lesion suggestive of malignancy on physical examination and pelvic ultrasonography. Pathological examination showed a moderately differentiated acinar adenocarcinoma of prostate, Gleason 7, and surgery for total resection was suggested by the specialist. After 8 months the patient visited Department of Urology for a preoperative check-up for diagnosis of prostatic adenocarcinoma grade III, T3NOMO. At admission, his physical examination was unremarkable except for an enlarged prostate on rectal examination. Complete blood count findings were normal. Biochemical investigations revealed high specific prostatic antigen (6.07 ng/mL), high lipase (224 U/L) and normal amylase (92 U/L). His CT scan findings revealed an infiltrative lesion in the uncinate process of the pancreas, of approximately 32 mm of diameter (Figures 1 and 2).

The pancreatic lesion was likely to be a pancreatic carcinoma. Pancreaticoduodenectomy was done and the patient recovered well after surgery. Histopathology of resected mass located on the pancreas's head confirmed two types of malignancies: pancreatic adenocarcinoma and intraductal papillary mucinous neoplasm. There was no evidence of nodal metastasis and final pathological stage was T1N0M0. The patient afterwards received 6 cycles of adjuvant chemotherapy with Gemcitabine. Imaging studies performed shortly after chemotherapy showed there were no signs of disease progression regarding pancreatic cancer (Figure 3) but a bone scan indicated bone metastasis of the prostatic cancer, in the 7th rib and lumbar vertebrae LIII/IV (Figure 4), hereby complete hormonal blockage was started with Leuprolide acetate, Flutamide and Zoledronic acid.

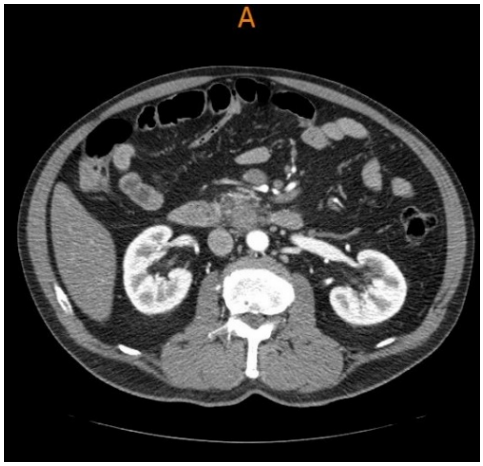


**Figure 1:** Contrast CT on transversal view shows pancreatic lesion in the uncinated process.

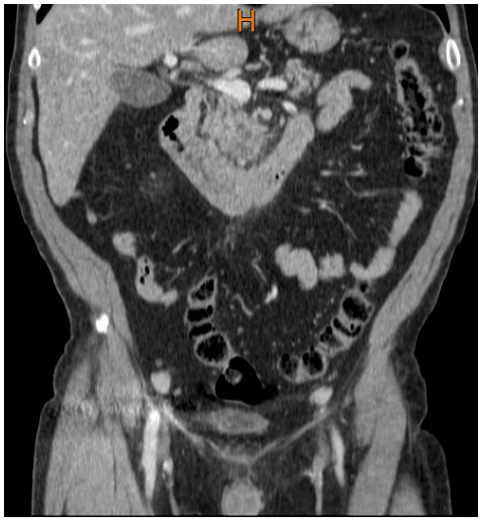


**Figure 2:** Contrast CT on coronal view shows pancreatic lesion in the uncinated process.

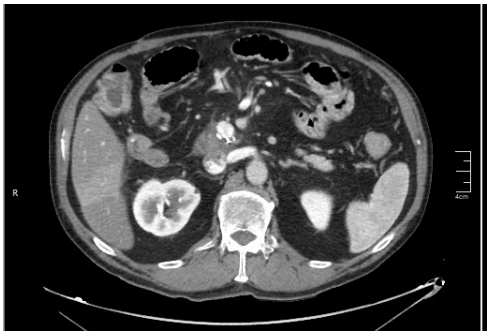

**Figure 3:** Contrast CT on transversal view which shows no disease progression.

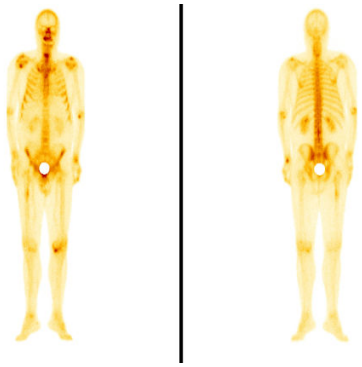

**Figure 4:** Bone scan shows subtle increased density in the ribs and vertebrae LIII/IV.

In addition, a multi-cancer panel genetic test was performed, 83 more prevalent cancer genes were analysed (Table 1) and after sequencing patient's genomic DNA results were negative for all analysed genes. Postoperatively patient is doing well with a follow-up period of one year with no evidence of disease progression.

| ALK | APC | ATM | AXIN2 | BAP1 |
|---|---|---|---|---|
| BARD1 | BLM | BMPR1A | BRCA1 | BRCA2 |
| BRIP1 | CASR | CDC73 | CDH1 | CDK4 |
| CDKN1B | CDKN1C | CDKN2A | CEBPA | CHEK2 |
| CTNNA1 | DICER1 | DIS3L2 | EPCAM | FLCN |
| GATA2 | GPC3 | GREM1 | HRAS | KIT |
| MAX | MEN1 | MET | MLH1 | MSH2 |
| MSH3 | MSH6 | MUTYH | NBN | NF1 |

| | | | | |
|---|---|---|---|---|
| NF2 | PALB2 | PDGFRA | PHOX2B | PMS2 |
| POLD1 | POLE | POT1 | PRKAR1A | PTCH1 |
| PTEN | RAD50 | RAD51C | RAD51D | RB1 |
| RECQL4 | RET | RUNX1 | SDHAF2 | SDHB |
| SDHC | SDHD | SMAD4 | SMARCA4 | SMSRCB1 |
| SMARCE1 | STK11 | SUFU | TERC | TERT |
| TMEM127 | TP53 | TSC1 | TSC2 | VHL |
| WRN | WT1 | EGFR | HOXB13 | MITF |
| NTHL1 | SDHA | FH | | |

**Table 1:** Multi-Cancer panel, genes associated with different types of cancer made on patient´s DNA.

## Discussion

Pancreatic Ductal Adenocarcinoma (PDAC) comprises 2-3% of all cancers in adults. These patients usually present late due to vague symptoms and only 10-20% of patients are amenable to cure by surgical resection. Although, exact factors for the development of PDAC are not known, common risk factors are age, smoking, obesity and chronic pancreatitis. Five percent of all cases of PDAC are associated with genetic disorders [6]. The patient does not have any of the known risk factors for developing pancreatic cancer and genetic testing was negative, making more prone a de novo mutation. Gerdes B et al. [7] analysed 69 patients with multiple malignancies and among them, 13 had PDAC with second primary malignancies. Nevertheless, the term second primary is not used homogenously in the literature. In the Connecticut Tumor Registry only tumors following pancreatic cancers are considered MPM [8], whereas other studies count simultaneous and metachronous cancers as MPM [9]. Due to the poor prognostic of most cancer patient's these different definitions lead to different frequencies of MPM. Hoar et al. reported a prevalence of less than 1% and Hruban et al. [9] observed almost 20% of MPM [3]. On the other hand, there are few cases in literature of pancreatic metastasis from prostate cancer, hence pancreatic tumors in patients with a history of nonpancreatic malignancy should be always considered to be a potential metastatic lesion at an unusual site and pathological confirmation is needed [10]. In our case histopathology of the mass confirm the presence of three different malignant primaries. There are several factors associated to the presence of a second or third primary malignancy, like Caucasian race, family history of malignancies and non-aggressive neoplasia [11]. The associated mechanisms to the development of MPM are classified in three categories: associated to the treatment of the first malignancy, associated to a syndrome and associated to epigenetics such as life style, environmental exposure and genetic mutation [6]. In the patient an association with epigenetics is more probable because he did not receive any treatment for the first primary malignancy and no known genetic mutation associated with neither of the three types of cancer was found in patient DNA analysis. In addition, the negative result for the multi-cancer panel genetic test in our patient is against other studies information which propose that the occurrence of multiple cancers in one individual is also suggestive of a genetic predisposition. Pancreas cancer increase both the risk of second primary malignancies and inherited predisposition [7]. But, in some families clustering of pancreatic cancer has been observed although the responsible gene defect has yet not been identified [9]. Goggins et al. detected germline mutations in the BRCA2 tumor suppressor gene in 7% of apparently sporadic pancreatic cancer patients [12,13]. After the genetic analysis preformed to the patient of the known cancer predisposing genes (e.g. TP53, CDKN2A, BRCA2), a de novo mutation might be possible.

## Conclusion

The diagnosis of an asymptomatic pancreatic cancer only occurs in 10-20% of the patients and only 80% had a surgically curable case. The diagnosis of MPM is more common because of the advanced technology for monitoring cancer patients around the world but the epigenetics factors need to be study in order to create new treatment methods for these patients and scrutinizing these patients might lead to the identification of predisposing gene defects to understand a shared genetic basis of different solid tumors. This article wants to create an awareness about the increasingly prevalence of multiple primary malignancies.

## References

1. Soerjomataram I, Coebergh J (2009) Epidemiology of multiple primary cancers. Methods Mol Biol 471: 85-105.
2. Demandante CG, Troyer DA, Miles TP (2003) Multiple primary malignant neoplasms: case report and a comprehensive review of the literature. Am J Clin Oncol 26: 79-83.
3. Howe HL (2003) A review of the definition for multiple primary cancers in the United States. Workshop proceedings in Princeton, New Jersey, Springfield (IL): North American Association of Central Cancer Registries.
4. Sakellakis M, Peroukides S, Iconomou G, Boumpoucheropoulos S, Kalofonos H (2014) Miltiple primary malignancies: a report if two cases. Chin J Cancer Res 26: 215–218.
5. Spratt J, Hoag M (1996) Incidence of multiple primary cancers per man-year of follow up: 20 years review from the Ellis Fischel State Cancer Hospital. Ann Surg 164: 775–784.
6. Prakashi S, Adithya G, Madaan V, Tandon V, Govil D (2018) Metachronous pancreatic adenocarcinoma in patient with renal cell carcinoma: a case Report. J Clin Diagn Res 12: PD01-PD02.
7. Gerdes B, Ziegler A, Ramaswamy A, Wild A, Langer P, et al. (2000) Multiple primaries in pancreatic cancer patients: indicator of a genetic predisposition?. Int J Epidemiol 29: 999-1003.

8. Hoar SK, Wilson J, Blot WJ, McLaughlin JK, Winn DM, et al. (1985) Second cancer following cancer of the digestive system in Connecticut, 1935-82. Natl Cancer Inst Monogr 68: 49-82.
9. Hruban R, Petersen G, Ha P, Kern S (1998) Genetics of pancreatic cancer-from genes to families. Surg Oncol Clin N Am 7: 1-23.
10. Jacob J, Chargari C, Bauduceau O, Fayolle M, Ceccaldi B, et al. (2010) Pancreatic metastasis from prostate cancer. Case Rep Med 2010: 1-2
11. Lynch HT, Smyrk T, Kern SE, Hruban RH, Lightdale CJ, et al. (1996) Familial pancreatic cancer: a review. Semin Oncol 23: 251-275.
12. Goggins M, Schutte M (1996) Germline BRCA2 gene mutations in patients with apparently sporadic pancreatic carcinoma. Cancer Res 56: 5360-5364.
13. Demandante C, Troyer D, Miles TP (2003) Multiple primary malignant neoplasms: case report and a comprehensive review of the literature. Am J Clin Oncol 26: 79-83.