OPEN ACCESS Freely available online

Journal of Surgery and Anesthesia

Case Report

A Rare Combination of Synchronous Quadruple Primary Neoplasms: A Case Report and Literature Review

Ebrahim Khalid Al-Ebrahim*, Hatim Ali Al-Abbadi

ABSTRACT

The prevalence of multiple primary neoplasms (MPNs) is slowly increasing due to prolonged survival of cancer patients with advances in diagnostic and therapeutic modalities. We report an exceptional combination of quadruple primary neoplasms composed of right sided adenocarcinoma of the colon, renal cell carcinoma, teratoma of the ovary, uterine leiomyoma and pre malignant high grade cervix dysplasia. These combinations were not reported before.

Keywords: Multiple primary tumors; Quadruple; Colon cancer

INTRODUCTION

Multiple Primary Neoplasms (MPNs) is defined as the occurrence of two or more malignancies in the same individual without any relationship between the tumors either simultaneously or with an interval of time. According to the cancer registries in the national Cancer Institute, cancer survivors had a 14% higher risk of developing a new malignancy than the general population [1,2].

CASE PRESENTATION

A 71-year-old female presented to the emergency department with right lower quadrant colicky abdominal pain and constipation for 2 months. The pain was localized not radiated to the periumbilical area or other abdominal regions. The patient has a history of 15 kg weight loss in the last 6 months. No history of bleeding per rectum, No family history of cancers, No fever, No history of autoimmune disease or inflammatory bowel disease. No history of previous abdominal surgery. The systemic review revealed on and off back pain. The patient is a known case of diabetes mellitus and hypertension for 10 years. Abdominal examination showed tenderness in right lower iliac fossa, No palpable masses or organomegaly, No ascites. Normal bowel sounds.

Investigations revealed red blood cells 3.82 M/uL. Hematocrit 28.5%. Hemoglobin 8.8 g/dl. Mean cell volume 73.2, no leukocytosis, normal platelets count. Liver functions profile showed albumin 26 g/L. Normal liver enzymes. Normal kidney functions.

Computed Tomography (CT-Abdomen) showed Solid mass involving the ascending colon, cecum, terminal ilium and causing obstruction to the appendix which is abnormally distended and fluid filled, giving a picture of acute appendicitis. The mass was infiltrating surrounding fat and peritoneum with multiple regional lymphadenopathies. Three small ill-defined hypodense hepatic lesions are seen all are subcentimeter in size, these were suggestive of metastasize. An incidentally noted is a well-defined, solid, right renal mass measuring about 4 cm. most likely malignancy until proven otherwise, also incidentally noted is left adnexal well-defined fat containing mass measuring about 7cm (Figures 1-2).

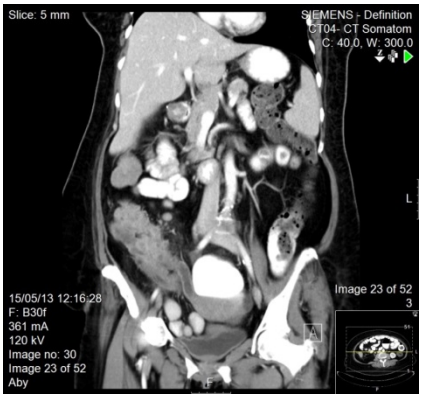

Figure 1: CT of the abdomen showing right ileocecal mass.

Faculty of Medicine, Department of Surgery, King Abdulaziz University, Jeddah, Saudi Arabia

*Corresponding author: Ebrahim Khalid Al-Ebrahim, Faculty of Medicine, Department of Surgery, King Abdulaziz University, Jeddah, Saudi Arabia, Tel: +96659625170; E-mail: e.alebrahim97@gmail.com

Received date: March 29, 2019; **Accepted date:** April 19, 2019; **Published date:** April 26, 2019

OPEN ACCESS Freely available online

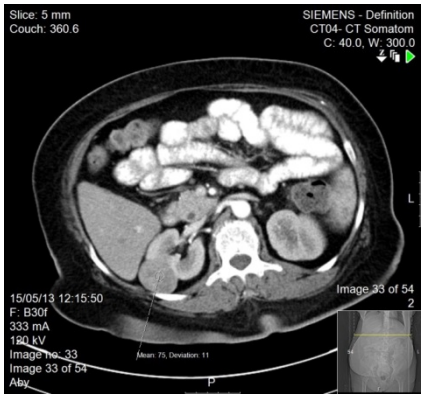

Figure 2: CT of the abdomen showing right kidney mass

Bone scan (Tc99m) was done and showed homogenous uptake with no evidence of bone metastasize. Colonoscopy was done and showed a fungating mass in ileocecal junction with biopsy taken. The patient underwent laparotomy where right hemicolectomy with the formation of stoma was done. The urologist performed right radical nephrectomy and the gynecologist did the hysterectomy and bilateral salpingo oophorectomy. Post-operative pathology showed 4 primary neoplasms and one premalignant condition.

- Invasive moderately differentiated adenocarcinoma of the right colon measuring 7 cm. Tumor invades through the muscularis propria into the fat reaching the serosal surface, margins were free. 3/29 lymph nodes are positive for metastasis. Acute malignant appendicitis
- Chromophobe renal cell carcinoma measuring 3.5 cm. Margins were free. Normal adrenal
- Left ovarian teratoma with immature elements, WHO grade 2 containing skin and thyroid tissue
- Uterine Leiomyoma of the myometrium .

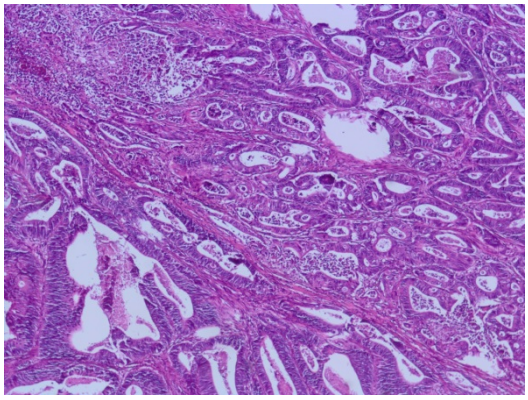

Figure 3: Histopathology showing adenocarcinoma of the colon.

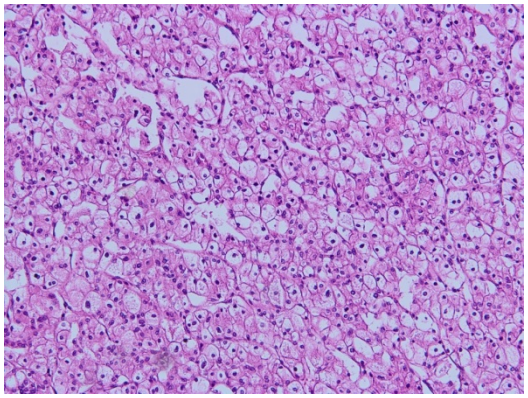

Figure 4: Histopathology showing renal cell carcinoma.

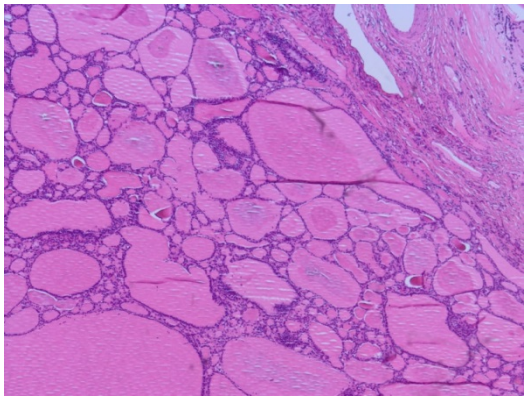

Figure 5: Histopathology showing Ovarian teratoma with thyroid tissue.

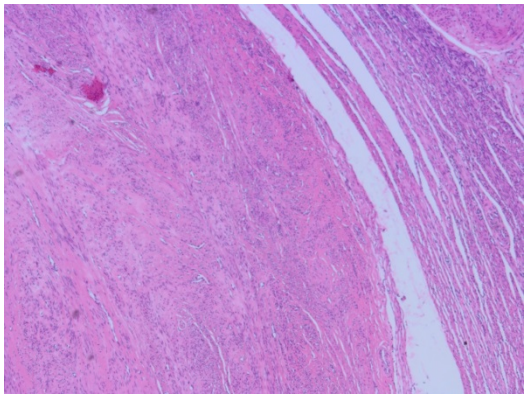

Figure 6: Pre-malignant high grade squamous dysplasia of the cervix CIN-2.

DISCUSSION

Colorectal Cancer (CRC) is the third most common cancer in the world with more than 1.2 million new cases diagnosed each year [3]. It's the most common malignant tumor in Saudi males [4].

In 1932, Warren and Gates [5] proposed the first definition of multiple primary cancer stating that: (a) each tumor must be malignant by histology;(b) each tumor must be anatomically distinct, and (c) the second tumor should not be a recurrence or metastasis of the first one. A synchronous cancer is defined as any cancer that occurs within six months of the first one whereas a metachronous cancer is one that occurs at least six months after the first cancer [6]. Our case presented with all four neoplasms and premalignant condition at the same time of presentation.

Second primary malignancy in males with renal cell carcinoma was found as high as 26.6% [7]. Most diagnosed synchronous double primary malignancies were lung cancer and head-neck cancers [8]. A review of 837 cases of colorectal carcinoma showed 32 cases (3.8%) of colorectal multiple primary malignant tumors in different parts of the colon and 11 cases (1.3%) of colorectal primary malignant tumor associated with extra colonic primary malignant tumor [9]. Cancer survivors have a 20% greater risk for developing a second primary malignancy than the general population [10].

A review of the recent literature indicates that MPNs appear more frequently in the upper digestive tract, respiratory system, head and neck region, or urogenital system; the reported incidence ranges from 2% to 10% [11]. Tianzhu He and colleagues report a case of double primary cancer combined of primary rectal carcinoma with renal cell carcinoma [12].

A review of the literature revealed no similar combination case of synchronous cancers with ovarian teratoma, uterine leiomyoma and cervical dysplasia. Table 1 showed extracolonic primary malignancies reported in recent literature. Metastatic disease has worse prognosis and survival rate than those with MPNs. There are many reports of successful multi Primary Neoplasms (MPNs) surgical resection [13]. Genetic factors, treatment exposure, alcohol abuse and environmental effect are among the etiological factors of MPNs It is reported that radiotherapy associates with 8% MPCs, and the remaining are correlated with lifestyle behaviors and smoking [14]. Any other tumor should not be expected as a metastasis. Synchronous or metachronous tumors may exist. Assuming the second primary malignancy as metastasis will change the prognosis and the goal of treatment from curative to palliative [15-35].

Table 1: Extracolonic primary malignancies reported in recent literature.

First	Second	Third	Fourth	Fifth	Sixth	References
Large B cell lymphoma	Colon	-	-	-	-	Yang JH [15]
Colon	Breast	-	-	-	-	Nitipir C [16]
Kidney	Colon	-	-	-	-	Li J [17]
Stomach	Colon	-		-	-	Mederos R [18]
Colon	Kidney (urothelial)	Mesothelioma	-	-	-	Huang Q [19]
Prostate	Lung	Colon	-	-	-	Feng Y [20]
Lung	Colon	-	-	-	-	Kurishima K [21]
Endometrium	Colon	-	-			Lee HJ [22]
Colon	Kidney	-	-	-	-	Babu MCS [23]
Lung	Colon	-	-	-	-	Shuayb M [24]
Prostate	Rectum	-	-	-	-	Watanabe R [25]
Colon	Mentle cell lymphoma	-	-	-	-	Pachajoa DAP [26]
Colon	Non-Hodgkin lymphoma	-	-	-	-	Diana A [27]
Prostate	Colon	-	-	-	-	Paola VO [28]
Colon	Thyroid	Kidney	-	-	-	Peng C [29]
Colon	Glottis	Esophagus	-	-	-	Martin PJM [30]

Fallopian tube	Breast	Colon	~	~	~	Martin PJM [31]
Colon	Bladder	~	~	~	~	Imagami T [32]
Esophagus	Stomach	Colon	Prostate	Colon	~	Arakawa K [33]
Stomach	Prostate	Colon	Bladder	Facial skin	Pancreas	Muto Y [34]
Breast	Colon	Kidney	~	~	~	Parekh JD [35]

CONCLUSION

Our case has two primary malignant neoplasms in the right colon, right kidney, and a third premalignant dysplasia of the cervix. The patient had liver and spleen metastasis most likely from the colon cancer. It also has two benign tumors in the ovary and myometrium. Surprisingly the ovarian teratoma contained thyroid tissue which can be a cause of occult hyperthyroidism. Unexpected event of Our patient that she survived 2 years after successful adjuvant management with a myocardial infarction as an immediate cause of death. Clinician should not only think of recurrence or metastatic lesion in presentation or during follow up period, but also occurrence of second or higher primary lesions in cancer survivors.

REFERENCES

1. Takalkar U, Asegaonkar BN, Kodlikeri P, Shilpa A, Brijmohan S.An elderly woman with triple primary metachronous malignancy; A case report and review of literature.; Int J Surg Case Rep.2013; 4:593-596.
2. Curtis RE, Freedman DM, Ron E, Ries LAG, Hacker DG.New malignancies among cancer survivors: SEER Cancer Registries;National Cancer Institute.USA.2017;1973-2000.
3. Centers for Disease Control and Prevention,Colorectal Cancer Statistics;2019.
4. Alsanea N, Abduljabbar AS, Alhomoud S, Samar A, Luai H; Colorectal cancer in Saudi Arabia: incidence, survival, demographics and implications for national policies,Ann Saudi Med.2015; 35:196-202.
5. Warren S, Gates O Multiple primary malignant tumors: A survey of the literature and a statistical study;Am J Cancer;1932; 16:1358-1414.
6. Lawniczak M, Gawin A, Jaroszewicz-Heigelmann H, Wiesława Rogoza M, Teresa S. Synchronous and metachronous neoplasms in gastric cancer patients: a 23-year study;World J Gastroenterol. 2014; 20:7480-7487.
7. Beisland C, Talleraas O, Bakke A, Norstein J Multiple primary malignancies in patients with renal cell carcinoma: a national population-based cohort study;BJU Int 2006; 97:698-702.
8. Suzuki T, Takahashi H, Yao K Multiple primary malignancies in the head and neck;A clinical review of 121 patients. Acta Otolar-Yngol Suppl;2012; 547:88-92.
9. Iarŭmov N, Toshev S, Angelov K, Lukanova TS, Gribnev P.Multiple primary carcinomas of the colon and associated extracolonic primary malignant tumors;Khirurgiia (Sofiia) 2007;4: 5-9.
10. Testori A, Cioffi U, De Simone M, Francesco B, Adriano V Multiple primary synchronous malignant tumors;BMC Res Notes 2015
11. Chun TY Coincidence of bladder and prostate cancer. J Urol. 1997;157: 65-67.
12. Babu MCS, Vikas A, Babu KG, Suma MN, Rajeev LK Synchronous primary cancers: Renal cell carcinoma and rectal cancer;J Cancer Res Ther 2019;15: 250-251
13. Okada M, Tsubota N, Yoshimura M, Miya-moto YOperative approach for multiple primary lung carcinomas. J Thoracic Cardiovasc Surg; 1998;115: 836-840.
14. Oeffinger KC, Baxi SS, Novetsky Friedman D, Chaya SM Solid tumor second primary neoplasms: Who is at risk, what can we do? Semin Oncol 2013;40: 676-689.
15. Yang JH, Lee J, Kim SB, Kim SH, Lee JK Synchronous diffuse large B-cell lymphoma of the small intestine and adenocarcinoma of the colon. Korean J Intern Med 2018;33: 438-441.
16. Nitipir C, Iulian S, Cristina O, Lucian A, Radu J Synchronous rectal and breast cancer in a 40-year-old woman. J Clin Invest Surg 2018;3: 95-99.
17. Li J, Zou Y, Wang B, Meng X, Sun X.Concomitant occurrence of primary renal Non-Hodgkin lymphoma and a colon cancer 2019;98: e14802.
18. Mederos R, Lamas JR, Ramos A, Farooq A, Farooq SK Simultaneous subtotal gastrectomy and right colectomy for synchronous gastric and colon cancer: A Case Report. Cureus. 2019;11: e3892.
19. Huang Q, He X, Qin H, Fan X, Xie M Triple primary malignancies in a patient with colorectal adenocarcinoma: A case report. Int J Surg Case Rep 2018;42: 34-37
20. Feng Y, Zhong M, Zeng S, Xiao D, Liu Y Metachronous triple primary neoplasms with primary prostate cancer, lung cancer, and colon cancer. Medicine (Baltimore).2018.
21. Kurishima K, Miyazaki K, Watanabe H, Shiozawa T, Ishikawa H Lung cancer patients with synchronous colon cancer. Mol Clin Oncol 2018;Volume 8 .
22. Lee HJ, Choi MC, Jang JH, Jung SG, Park H, Clinicopathologic characteristics of double primary endometrial and colorectal cancers in a single institution.;J Obstet Gynaecol.2018; 44: 944-950.
23. Babu MCS, Babu KG, Suma MN, Rajeev LK, Lokesh KN Synchronous primary cancers: Renal cell carcinoma and rectal cancer, j can res ther.2019;15: 250-251.
24. Shuayb M, Reza MS Prolonged survival with maintenance pemetrexed for a multiple primary malignancy. BMJ Supportive & Palliative Care .2019;9: 51-53.
25. Watanabe R, Ozawa A, Iseda T, Hatano H A case report of synchronous prostate cancer and rectal gastrointestinal stromal tumor and its management. J Urol 2019;2: 5.
26. Yu Q, Liu QY, Wei DM, Luo DZ Metachronous sigmoid carcinoma and mantle cell lymphoma in intestines. Case report in gastrointrology. Case Rep Gastroenterol 2019;13: 17-24.
27. Pachajoa DAP, Bruno AB, Alvarez FA, Viscido G, Mandojana F Multiple primary tumors: Colorectal carcinoma and non-Hodgkin's lymphoma. Int J Surg Case Rep.2018; 48: 92-94

28. Bruno MA, Pachajoa DAP, Alvarez FA, Viscido G, Mandojana F Multiple primary tumors: Colorectal carcinoma and non-Hodgkin's lymphoma. Int J Surg Case Rep 2018;48: 92-94
29. Paola VO, Otiniano PA, Medina JV, Zapata VAB Synchronous prostate and rectal cancer: A case report. Rep Pract Oncol Radiother.2018;23: 458-461.
30. Peng C, Li Z, Gao H, Zou X, Wanget X, Synchronous primary sigmoid colon cancer and primary thyroid cancer followed by a malignant tumor of the kidney: A case report of multiple primary cancer and review of the literature p: 17.2019.
31. Martin PJM Multiple primaries rising trend - A case series. 2019; 5:2.
32. Imagami T, Takayama S, Kurokawa S, Hattori T, Matsui R A rare case of for synchronous advanced cancer of ascending colon and urinary bladder with simultaneous laparoscopic resection: A case report 2018;53: 448-451.
33. Arakawa K, Hata K, Yamamoto Y, Nishikawa T, Tanaka T, Nine primary malignant neoplasms-involving the esophagus, stomach, colon, rectum, prostate, and external ear canal-without microsatellite instability: A case report. BMC Cancer.2018
34. Muto Y, Suzuki K, Kato T, Ichida K, Takayama Y, Multiple primary malignancies of six organs in a Japanese male patient: A case report. Mol Clin Oncol 2019;10: 511-515
35. Parekh JD, Kukrety S, Thandra A, Valenta C Multiple primary malignant neoplasms in an elderly patient. Cureus .2018;10: e2384.