A CASE REPORT OF METACHRONOUS METASTATIC TESTICULAR CANCER OF COLORECTAL ORIGIN

Kadhim Faruq Namiq [a], Fadhil Ahmed Mohaildeen [b], Shalaw Hamaali Abdalla [a], Mateen Maarouf Mansour [c] and Kawa Abdallah Mahmood [d]

Submitted: 8/1/2017; Accepted: 10/7/2018; Published 15/10/2018

ABSTRACT

Metastatic testicular neoplasm is rare and carries poor prognosis compared to primary germ cell tumours. Colorectal cancers usually metastasize to the liver, lungs, skeletal system, brain and adrenals, whereas only 8% of all metastatic testicular lesions are from colorectal cancer origin. Several histopathological features and mechanisms of metastasis to the testicles have been stated in the literature.

INTRODUCTION

Colorectal cancer (CRC) is the second and third most common cancers in females and males, respectively [(1)]. It usually metastasizes synchronously or metachronously to the liver, lungs, skeletal system, brain, adrenals and rarely to the testis. Prostate cancer is known to be the most common primary tumour metastasizing to the testis, whereas testicular metastasis from CRC origin accounts for only 8% of all metastatic testicular lesions [(2-4)]. In a study of 127 patients with testicular metastasis, it has been shown that presence of extensive lymphatic and vascular invasion, interstitial pattern and sparing of seminiferous tubules in older patients are suggestive of metastatic rather than primary testicular cancer [(5)]. In this paper, we aim to report a case of metachronous testicular metastasis from primary rectal adenocarcinoma.

Keyword: *Colorectal cancer, Testicular metastasis, Chemotherapy.*

---

[a] Hiwa Cancer Hospital, Directorate of Health, Sulaimani.
Correspondence: dr.kazimfaruq@yahoo.com
[b] Sulaimani Polytechnic University, Technical College of Health, Sulaimani.
[c] Department of Histopathology, Shorsh General Hospital, Sulaimani.
[d] Department of Surgery, College of Medicine, University of Sulaimani.

CASE REPORT

A 31-year-old man presented with history of bloody diarrhea for two weeks duration associated with unintended weight loss and lower backache. Clinical examination was unremarkable apart from blood-stained fecal materials on digital rectal examination. Total colonoscopic examination revealed ulcerated partially obstructing hemorrhagic malignant looking rectal mass 10 centimeters above the anal verge (Figure 1). Biopsy from the lesion showed moderately differentiated (Grade II) intestinal type adenocarcinoma of the rectum. CT-scan of the chest and upper abdomen were normal and MRI of the pelvis showed irregular circumferential rectosigmoid wall thickening with few regional malignant looking lymph nodes (LN) enlargement.

Low anterior resection was performed with omentectomy. Histopathological examination of the specimen was consistent with the above diagnosis with evidence of regional LNs and omental metastases (stage IV: pT4 pN2 pM1). Postoperative carcino-embryonic antigen (CEA) was 2.71 ng/ml (preoperative CEA was not available). The patient received palliative 5-Fluorouracil based combination chemotherapy with bevacizumab (FOLFOX + Bevacizumab) for 12 cycles and showed complete response to the treatment followed by single agent chemotherapy (Capecitabine + Bevacizumab) for several cycles after which the patient refused to receive further treatment.

The patient represented after three years with abdominal pain and distention associated with right side testicular pain and swelling. Clinical examination revealed enlarged tender right testis. Scrotal ultrasonography and whole body 18F-FDG PET/CT scan showed evidence of recurrent local, regional and distant metastases including the visceral peritoneal surface, omentum, mesenteric fatty planes, right scrotum and right testis (Figure 2). Total colonoscopic examination and tumour markers levels (CEA, Alfa-fetoprotein, Beta human chorionic gonadotropin and carbohydrate antigen 19-9) were normal. The patient underwent right orchiectomy (Figure 3), appendectomy and incisional biopsy from the omental masses that revealed moderately differentiated metastatic adenocarcinoma intestinal type to the right testis, spermatic cord and omentum (Figure 4). The diagnosis was further confirmed using immunohistochemistry showing positive Cytokeratin 20 and CDX2 and negative Cytokeratin 7. Postoperatively, the patient was put on a second line palliative chemotherapy protocol with good clinical and radiological responses.

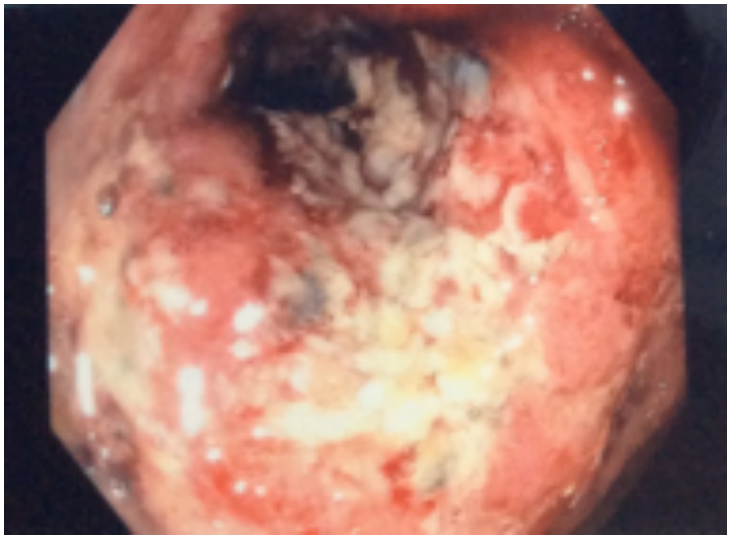

Figure 1. Colonoscopic appearance of ulcerated partially obstructing hemorrhagic malignant looking rectal mass at initial diagnosis.

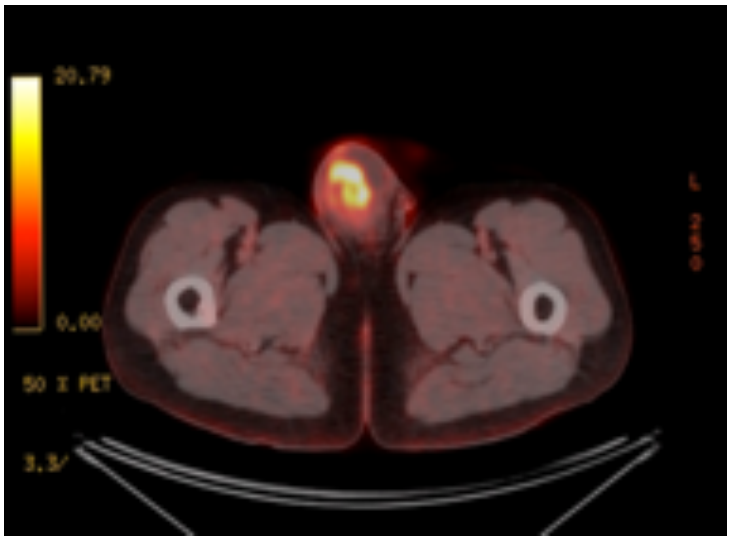

Figure 2. Whole body 18F-FDG PET/CT scan showing hypermetabolic right testicular lesion.

DISCUSSION

Testicular metastasis of CRC origin is rare and isolated secondary testicular lesion on presentation is even rarer. A possible explanation of rarity of the metastatic testicular cancer is the lower temperature of the scrotum compared to the rest of the body that creates an unfavorable environment for the survival and proliferation of metastatic cells in the testes [6]. Although this is not always the case, patients with primary germ cell tumours are known to present at an earlier age compared to metastatic testicular cancers. A study of 59 patients with secondary testicular tumours stated a mean age of 57 years, whereas patients with primary germ cell tumours have a mean age of 31 years [5, 7].

In general, patients with germ cell tumours have a better prognosis compared to metastatic testicular neoplasms with the latter having an overall survival of 9.1 months only [8]. In the study of Haupt et al. only 15% of the cases revealed bilateral testicular metastases. The Histopathological features of extensive vascular and lymphatic invasions, interstitial pattern and sparing of seminiferous tubules in older patients are suggestive of metastatic rather than primary testicular cancers [5]. Although the exact mechanism of testicular metastasis from CRC origin is unknown, several theories have been described in literature including: a) retrograde venous extension or embolism, b) retrograde lymphatic extension, c) arterial embolization and d) direct tumour invasion [9]. The concept of retrograde lymphatic spread that is consistent with the clinical and radiological presentation of our case has been stated in many studies, however Bodon et al. supports spread through the spermatic veins for primary gastrointestinal cancers [10, 11].

Presence of 'the blood-testis barrier' as an impermeable site for cytotoxic chemotherapies is described to play role in metastatic testicular relapse after chemotherapy. This includes physico-chemical barrier, efflux pump and immunological barrier [12]. Majority of the comparable reported cases have demonstrated testicular metastases as an initial manifestation of the disease, while our case is a late testicular and systemic relapse of a survived stage IV rectal cancer patient. The question of whether solitary testicular relapse has a more favorable prognosis compared to systemic relapse, as in our case, needs to be investigated by pooled analysis of the survival of comparable reported cases.

In conclusion, testicular metastasis is quite uncommon particularly from colorectal origin. The prognosis is generally worse than the primary germ cell tumour. Although rare, it should be taken into consideration, especially in patients with history of non-testicular malignancies. Surgery and chemotherapy can be considered to improve survival outcomes.

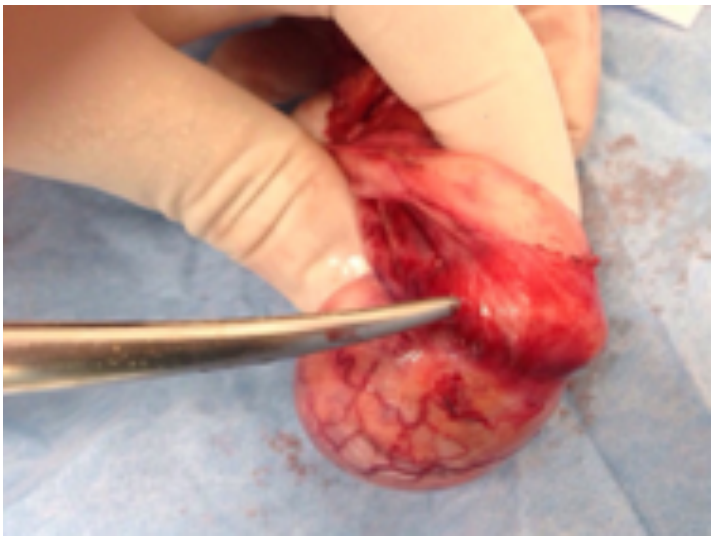

Figure 3 . Gross appearance of resected right testis with metastatic neoplasm involving the testis and spermatic cord.

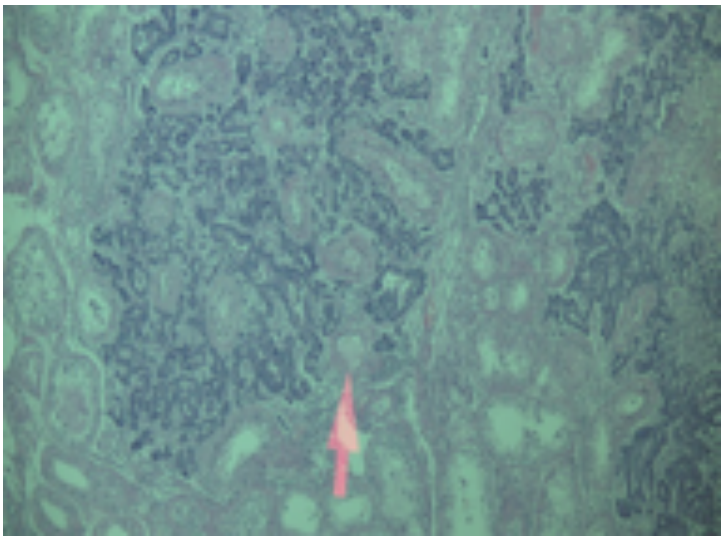

Figure 4. Histopathological examination of the orchiectomy specimen showing infiltrating adenocarcinoma-intestinal type with mucous production (H&E C100).

REFERENCES

1. Ferlay J, Soerjomataran I, Dikshit R, Eser S, Mthers C. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. International Journal of Cancer 2015;136(5): E359-386. Doi: 10.1002/ijc.29210. [Epub 2014 Oct 9.]

2. Tiong HY, Kew CY, Tan KB, Salto-Tellez M, Leong AF. Metastatic testicular carcinoma from the colon with clinical, immunophenotypical, and molecular characterization: Report of a case. Diseases of the colon & rectum. 2005 Mar 1;48(3):582-5.

3. Jubelirer SJ. Metastatic colonie carcinoma to the testes: case report and review of the literature. J Surg Oncol 1986;32:22–4.

4. Dutt N, Bates AW, Baithun SI. Secondary neoplasms of the male genital tract with different patterns of involvement in adults and children. Histopathology 2000;37:323–31.

5. Haupt HM, Mann RB, Trump DL, Abeloff MD. Metastatic carcinoma involving the testis. Clinical and pathologic distinction from primary testicular neoplasms. Cancer. 1984 Jan 1;54(4):709-14.

6. Salesi N, Fabi A, Di Cocco B, Marandino F, Pizzi G, Vecchione A, et al. Testis metastasis as an initial manifestation of an occult gastrointestinal cancer. Anticancer Res 2004;24:1093-6.

7. Bredael JJ, Vugrin D, Whitmore WF. Autopsy findings in 154 patients with germ cell tumours of the testis. Cancer 1982; 50:548-551.

8. Algaba F, Santaularia JM, Villavicencio H. Metastatic tumor of the epididymis and spermatic cord. European urology. 1983;9:56-9.

9. Verma N, Babu S, Kushwaha JK, Singhai A. Testicular metastasis of colorectal carcinoma: an unusual presentation. BMJ case reports. 2013 Feb 25;2013.

10. Thompson GJ, Pilcher Jr F. Carcinoma of the Vas Deferens: Report of a Case1. The Journal of Urology. 1935 Dec 1;34(6):714-7.

11. Bodon GR, Dressler JA. Metastatic carcinoma of right testicle from primary carcinoma of the appendix. The Journal of urology. 1967 May 1;97(5):885-7.

12. Venkitaraman R, George M, Weerasooriya S, Selva-Nayagam S. Late solitary testicular metastasis from rectal cancer. Journal of cancer research and therapeutics. 2010 Jan 1;6(1):89