

Testicular metastasis from colorectal carcinoma: A case report

Nader Aldossary, Hend Alshamsi, Riyadh T. Al Mousa

ABSTRACT

Introduction: Colorectal cancer is one of the most common cancers worldwide. Metastasis of colorectal cancer to the testis is very rare and only few cases were reported in literature in which a primary colorectal cancer metastasized to the testes. To date, only 42 cases of primary colon cancers metastasizing to testes were reported in literature. **Case Report:** A 47-year-old male who underwent palliative left hemicolectomy for metastatic colon adenocarcinoma in March, 2008 presented with painful right testicular swelling in April, 2009. He denied any lower urinary tract symptoms. Abdominal examination showed ascites with no evidence of tenderness. Genital examination revealed right testicular mass, around 3x2 cm in size, which was slightly tender with positive transillumination test. The left testis was normal. There was no evidence of scrotal skin changes and phallus was unremarkable. Tumor markers showed elevated carcinoembryonic antigen, but normal alpha fetoprotein, lactate dehydrogenase and beta human chorionic gonadotrophin. Scrotal ultrasound showed right testicular hypoechoic mass (2.1x1.7 cm) with irregular outlines. No fine needle aspiration cytology was done. Palliative

right radical orchidectomy was done through an inguinal approach. The histopathology showed metastatic moderately differentiated adenocarcinoma with mucinous differentiation. One week postoperatively he was transferred to the palliative care. **Conclusion:** Metastatic gastrointestinal adenocarcinoma to the urogenital tract especially the testis is extremely rare. However, it should be considered in any patient with similar presentation.

Keywords: Colorectal carcinoma, Testicular metastasis

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INTRODUCTION

Colorectal cancer is one of the most common cancers worldwide [1]. Colorectal metastasis is considered common especially in patients with recurrence [1]. The most common site for colorectal cancer metastasis is the liver, followed by the lungs, loco-regional, intraabdominal, retroperitoneal and peripheral lymph nodes [1]. Metastasis to the testes is considered very rare and only few cases were documented in literature of primary tumor of the colon metastasizing to testis. This is a report of colorectal carcinoma metastasizing to the testis and review of literature.

CASE REPORT

A 47-year-old male was diagnosed with colorectal adenocarcinoma on February 2008. His past medical and surgical histories were unremarkable. Left hemicolectomy and colostomy were done on March, 2008 and re-anastomosis surgery was done three months later. He received two cycles of chemotherapy but this did not control the disease and metastasis to liver and retroperitoneal lymph nodes on postoperative computed tomography scan of chest, abdomen and pelvis were found.

The patient was referred to the urology clinic on April 2009 with painful right testicular swelling of four months' duration. No lower urinary tract symptoms were found.

On physical examination, the patient appeared cachectic. He was vitally stable. Abdominal examination showed ascites with no evidence of tenderness. Genital examination revealed right testicular mass, around 3x2 cm in size, which was slightly tender with positive transillumination test. The left testis was normal. No evidence of scrotal skin changes. phallus is unremarkable. Complete blood count, renal function and coagulation profile were normal with negative urine culture. Tumor markers were done and showed CEA of 512 ng/mL (normal range 0–5 ng/mL), AFB of 2.51 ng/mL (normal range 1.09–8.04 ng/mL), LDH of 157 U/L (normal range 90–215 U/L) and β -hCG of <1.2 mIU/ml (normal range 0–5 mIU/ml). Scrotal ultrasound was done on November 2008 and showed right testicular hypoechoic mass with irregular outlines (2.1x1.7 cm) infiltrating scrotal wall with hydrocele (4x2.8 cm) (Figure 1). The left testis was normal in size, echogenicity and blood flow. A follow-up scrotal ultrasound on April 2009 showed increase in the size of the right testicular mass (3.8x2 cm) with calcific foci and hyper vascularity and increase in the size of the associated hydrocele. The left testis remained normal. No FNAC was done.

Palliative right radical orchiectomy was done through an inguinal approach. Intraoperatively, part of the spermatic cord was excised and scrotal skin was free of invasion. The patient was discharged in a stable condition. One week later he was transferred to Palliative Care and signed do not resuscitate (DNR).

Histopathology report revealed a metastatic moderately differentiated adenocarcinoma with mucinous differentiation. The tumor is partially cystic and seen at the spermatic cord resection margin (Figure 2). He was seen in the clinic of urology once after the procedure but unfortunately, he passed away 4 months later due to progression of his primary disease.

DISCUSSION

Metastatic carcinoma to the testis is very rare [1]. This is probably due to the unfavorable temperature of the scrotum as metastatic tumor cells find it difficult to survive in such environment as suggested by some researchers

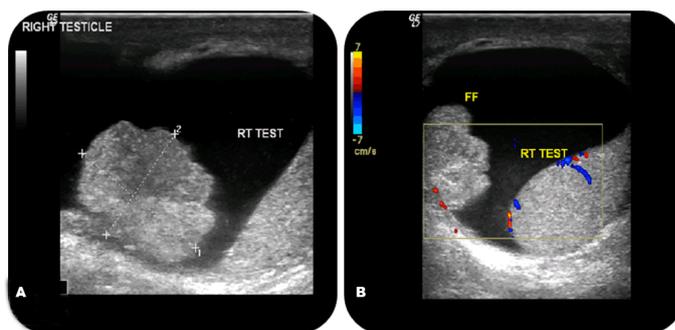


Figure 1: Scrotal ultrasound showing tumor of the right testis. Note also the associated hydrocele

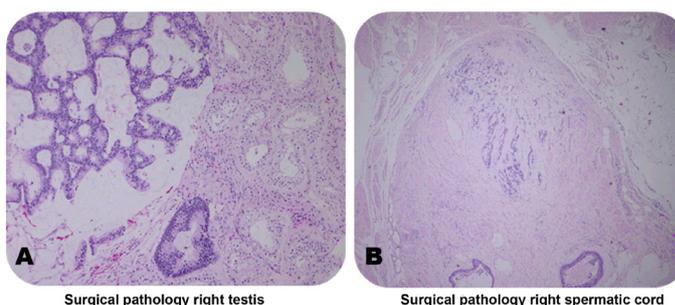


Figure 2: Metastatic moderately differentiated adenocarcinoma with mucinous differentiation. The tumor is partially cystic and seen at the spermatic cord resection margin (H&E stain, (A) x100, (B) x40).

[2]. The most common tumors that metastasize to the testis are: prostate (35%), lungs (18%), melanoma (18%), kidney (9%), and colorectal in less than 8% [3]. Since 1988, approximately 35 cases have been documented in the international literature for metastatic carcinoma to the testis [3]. The exact mechanism of spread to the testes is still not fully understood, but few theories have been suggested [4]. These include retroperitoneal lymph nodes/lymph canals involvement, direct involvement which may result in communicating hydrocele, arterial and venous embolization and retrograde sperm duct extension [4].

Most cases of metastases to the testes were discovered accidentally by autopsy, and only a few cases presented with communicating hydrocele and rarely as a solid tumor in testis [3]. In our case, the patient presented with both a communicating hydrocele and a solid mass of testis.

It is important to differentiate primary from secondary tumors of testis [4]. The differentiation is done mostly by histopathological evaluation of the resected tumor. Other differentiating factors are age at diagnosis, past history of any tumor, and imaging studies [4]. Determining the origin of tumor is nowadays done by immunohistochemistry (IHC); for example in colorectal metastasis to testis, the CEA and cytokeratin 20 (CK-20) staining are positive [4].

Early suspicion and diagnosis of such case allows palliative surgical intervention, which leads to relieving the patients' symptoms, controlling tumor growth and nowadays improving the survival of the patient. In this

case, the patient underwent surgery of the colon and post-operative chemotherapy which failed to control the disease. The patient developed metastasis to liver and retroperitoneal lymph nodes, and after one year he developed metastasis to the testis.

A previous literature review, from 1950 through January 2010, yielded 33 cases of testicular metastasis

from rectal or colonic carcinoma. Clinical information was not available for 2 of the 33 reported cases [4]. We reviewed literature further and added nine more cases from 2010–2017 making the total reported cases of testicular metastases from colorectal carcinoma 42 cases as given in Table 1 [1–37].

Table 1: Clinical characteristics of reported cases of metastatic colonic/rectal carcinomas to the testes

Ref.	Age of patient in years	Site of primary tumor	Clinical presentation	Other sites of metastasis at presentation	Testicular involvement is the presentation of colorectal cancer
Belsky and Konwaler [5]	25	Transverse colon	Bilateral testicular involvement at autopsy	Peritoneum; cervical, supraclavicular, inguinal lymph nodes	No
Price and Mostofi [6]	55	Descending colon	Left testicular swelling	Mesentery; pericolic nodes	No
Hunter and Hutcheson [7]	18	Cecum	Right testicular swelling	Appendix; mesentery, pericolic nodes	No
Bodon and Dressler [8]	31	Appendix	Right testicular swelling	Peritoneum	No
Hanash et al. [9]	64	Sigmoid colon	Right hydrocele	Skin	No
Hanash et al. [9]	39	Cecum	Right hydrocele	Not noted	No
Pienkos and Jablokow [10]	68	Rectum	Testicular involvement at autopsy	Not noted	No
Burger and Guthrie [11]	60	Colon (not specified)	Left hydrocele	Not noted	No
Cricco and Kandzari [12]	47	Cecum	Bilateral testicular swelling	Peritoneum	Yes
Moore et al. [13]	61	Cecum	Right testicular swelling	Pericolic nodes	Yes
Smallman and Odedra [14]	60	Sigmoid colon	Right hydrocele	Peritoneum	Yes
Powell et al. [15]	52	Sigmoid colon	Right testicular mass	Liver	No
Jubelirer [16]	51	Sigmoid colon	Left testicular mass	Cervical, pelvic and periaortic lymph nodes	No
Hojgaard Rasmussen and Schroder [17]	53	Ileum and transverse colon	Right hydrocele	Abdominal carcinomatosis	Yes
Meacham et al. [18]	32	Descending colon	Right testicular mass	Abdominal carcinomatosis	Yes
Almagro [19]	52	Cecum	Right testicular mass, Intestinal obstruction	Abdominal carcinomatosis	No
Parra et al. [20]	87	Sigmoid colon	Left-sided scrotal pain and swelling	Not noted	No
Kanno et al. [21]	56	Descending colon	Left testicular swelling	Not swelling	No
Bryan et al. [22]	75	Sigmoid colon	Right testicular mass	Liver	Yes
Polychronidis et al. [23]	63	Sigmoid colon	Left testicular mass	Liver, peritoneum	Yes
Rahman et al. [24]	50	Rectosigmoid	Right testicular mass	Not noted	No

Tiong et al. [25]	76	Sigmoid colon	Left testicular mass	Not noted	Yes
Charles et al. [26]	40	Sigmoid colon	Left testicular mass	Not noted	No
Moreno Anton et al. [1]	75	Sigmoid colon	Right testicular mass	Pancreas, spleen, retroperitoneal lymph nodes	No
Hatoum et al. [4]	65	Rectum	Right testicular swelling and pain	Lungs, liver	No
Ouellette et al. [27]	51	Ascending colon	Right testicular swelling and pain	Right iliac lymph nodes	No
McWeeney et al. [28]	72	Rectosigmoid	Right necrotic scrotal ulcer	Suspicious mesorectal lymph node	No
Ulbright and Young [29]	4 cases, age range 29-56, median 49	Colon (not specified)	Unilateral testicular masses, 2 right and 2 left	Not noted	Yes
Omar, H.A. [3]	43	Cecum and rectosigmoid	Right groin and scrotal pain	Pelvis, Liver	Yes
Verma N. [30]	35	Colorectal mass	Testicular mass, hydrocele, and ascites.	Not noted	Yes
Rampa M. [31]	Not noted	Sigmoid colon	Painless testicular nodule	Not noted	Yes
Moreno Anton F. [1]	74	Left sigmoid colon	Right testicular mass	Solid pancreatic mass, spleen, retroperitoneal lymph nodes	Yes
Venkitaraman R. [32]	71	Rectal	Right testicular nodule	Lungs, liver	No
Ji Zheng [33]	65	Ascending colon	Left testicular hydrocele	mesenteric lymph nodes	No
Chung-Yi Liu [34]	75	Rectosigmoid	Right testicular mass	Not noted	Yes
Marcin Ostapiuk [35]	76	Splenic flexure of the colon	Painless left testicular enlargement	Not noted	Yes
Salesi N. [2]	62	Not noted	Left testicular mass	lungs, mediastinal nodes, brain	Yes
Konstantinos Stamatiou [36]	58	Sigmoid colon	Right testicular mass	Not noted	No
Badereddin [37]	77	Descending colon	Left testicular hydrocele	Not noted	No

CONCLUSION

Metastatic colorectal carcinoma to urogenital tract is very rare and because of this the patients usually present late with advanced unresectable tumor. This must be kept in mind and physicians caring for these patients should be aware of this. A patient with history of previous colorectal carcinoma and similar presentation should raise suspicion of metastatic colorectal carcinoma to the testis. Surgery should be considered as palliative to relieve the patients' symptoms, control the tumor growth, and improve the survival outcome.

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Author Contributions

Nader Aldossary – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Final approval of the version to be published
Hend Alshamsi – Substantial contributions to conception and design, Acquisition of data, Drafting the article, Final approval of the version to be published
Riyad T. Al Mousa – Substantial contributions to conception and design, Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor of Submission

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Conflict of Interest

Authors declare no conflict of interest.

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