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Ectopic kidney urothelial carcinoma with lower rectum adenocarcinoma: A case report

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ABSTRACT

Bladder cancer (BC), one of the urothelial carcinoma (UC) and colorectal cancer (CRC) are Lynch syndrome's manifestations. In this case report, a 56 years old woman was admitted to ER with intermittent, progressive and colicky abdominal pain for 6 months associated with a change in bowel habit and bleeding per rectum, anorexia and weight loss. Rectal examination revealed a nodular, easy to bleed mass from anal verge. MRI revealed left ectopic pelvic kidney with soft tissue enhancing lesion in the lower calyx. Patient was underwent low anterior resection and left nephrectomy after which she was decided to complete on adjuvant XRT and chemotherapy. The comorbidity of UC and CRC in this patient in spite of being of low risky group being a non-smoker female has strongly prove the existence of the lynch syndrome and may replace the molecular confirmation. Therefore genetic investigation of all her relatives for presence of causative genetic abnormalities is mandatory, a project we are currently working on to enable proper medical intervention in the proper time.

Keywords: Ectopic kidney, UC, CRC, Woman

1. INTRODUCTION

Bladder cancer (BC) is one of the most frequent types of cancer encountered in the urogenital tract (Minoli et al., 2020; Vikas et al., 2020). Its responsibility for a 549,000 new cases and 200,000 death/year worldwide has makes it the 10th most common type of cancers (Bray et al., 2018). Bladder cancers are of various type including urothelial carcinoma, squamous cell carcinoma, small cell carcinoma, adenocarcinoma and sarcoma, among which carcinoma of the tract covering is the cause of most cases (Minoli et al., 2020). This urothelial carcinoma type of bladder cancer can emerge in any part of the urine passage covered with urothelium but it is confined predominantly in the lower part (bladder, urethra) and rarely in the upper tract (pelvis, ureter) (Rouprêt et al., 2015).

Smoking and male gender are among the high risk elements in addition to exposure to industrial chemicals, ethnicity and age (American Cancer Society, 2014). Of this urothelial bladder cancer, the cancer type confined to the bladder lining (non-metastatic) represents about 75% of all new cases (Kamat et al., 2016), while the metastatic type of the bladder cancer, beside other types of BC representing about 25% of cases (Robertson et al., 2017). Half of the metastatic type patients have a life expectancy less than 5 years meanwhile above 90% of non-metastatic patients life expectancy is extended after 5 years after the treatment (Knowles & Hurst 2015). Induction of a mutation in the colon germ line DNA mismatch repair (MMR) genes results in colon cancer development called the autosomal dominant hereditary cancer of the colon and rectum with minimal polyps numbers or lynch syndrome (Lynch et al., 2009), which is usually detected as either microsatellite instability in certain DNA sequences or loss of immunostaining for the respective protein (Hartmann et al., 2003).

Extra colonic cancer is a common incident with Lynch type cancer development and patients may be presented mainly with extra colonic malignancy (Roupret et al., 2008). Lynch syndrome is the genetic background of about 2–3% of all cancer cases of colon-rectum segment (Bhalla et al., 2013) and is connected with different type of neoplasms including carcinoma of the urinary passage lining, specifically of early portion the of urinary tract (Roupret et al., 2008; Mork et al., 2015). In spite of its low incidence in female, we currently reporting a case of urothelial carcinoma in the ectopic kidney's renal pelvis associated with lower rectum adenocarcinoma in a 56 years old woman.

2. CASE PRESENTATION

A 56 year old female patient known case of DM on medication with no past surgical history and no history of food or drug allergies was presented to ER complaining of Intermittent, progressive and colicky in nature abdominal pain for six months. With no aggravating or relieving factors, this pain was combined with a disturbance in bowel habit and bleeding per rectum, history of anorexia and weight loss of 10kg. No other systemic indications of surgical importance. On examination, patient was conscious and alert with all her vital signs being within normal. Abdomen was soft and lax, no palpable mass, no organomegaly. DRE showed a mass around 4 cm from anal verge, nodular and easy to bleed. Haematological investigations showed: WBC 6.9, HB 12.8, PLT 178, Creatinine 105, Urea 6.5. No tumor markers. Pan CT done for metastatic screening and showed no classical pulmonary or hepatic deposits. Sagittal T2W1 showed post contrast enhancement that revealed left side ectopic pelvic kidney with the lower pole soft tissue mildly enhancing mass lesion seen casting the lower calyx with heterogeneous dominantly dark signal in T2 W1 (figure 1).

Patient was sent to urology after the CT finding and they did cystoscopy for her and biopsy was taken from left renal pelvis. Patient case was discussed in the tumor committee and decision was taken for low anterior resection and left nephrectomy (figure 2). Patient underwent ultra-low anterior resection with diversion loop ileostomy with left nephroureterectomy and specimens were sent for histopathology that revealed non-invasive papillary low grade urothelial carcinoma in renal pelvis of ectopic kidney (figure 3) and papillae with fibrovascular cores lined by neoplastic cells (figure 4). This papilla showed mild architectural disorder, mitotic figure and mild nuclear pleomorphism in high power examination (figure 5). Histopathlogical examination of the excised rectal mass revealed; rectal invasive adenocarcinoma with neoplastic glands infiltrating the rectal wall (figure 6). Patient was discussed again postoperatively in tumor board and decision was made for adjuvant XRT and chemotherapy.

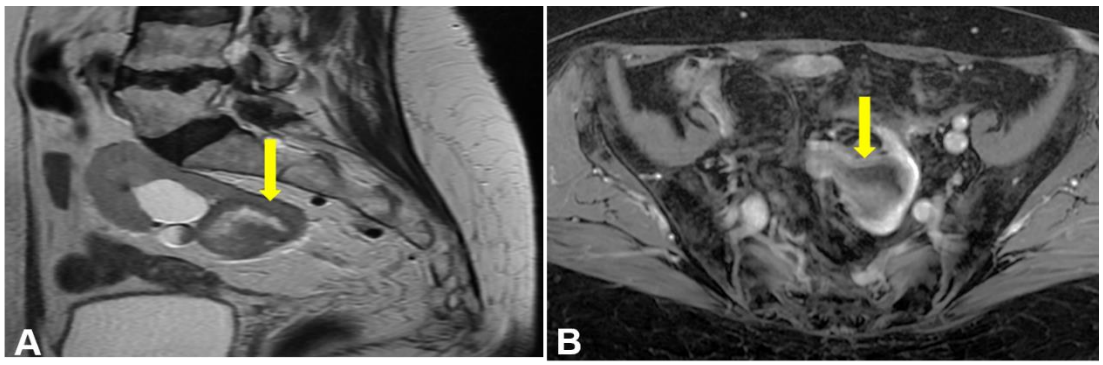

Figure 1 (**A)** sagittal T2W1 and **(B**) axial T1W1 showing circumferential neoplastic wall thickening of mid portion of the rectum with no sizable exophytic soft tissue component (yellow arrow)denoting T2 (T2N1). (Arrow head) denoting tiny perirectal lymph nodes. Rectal carcinoma T2 N1 M0

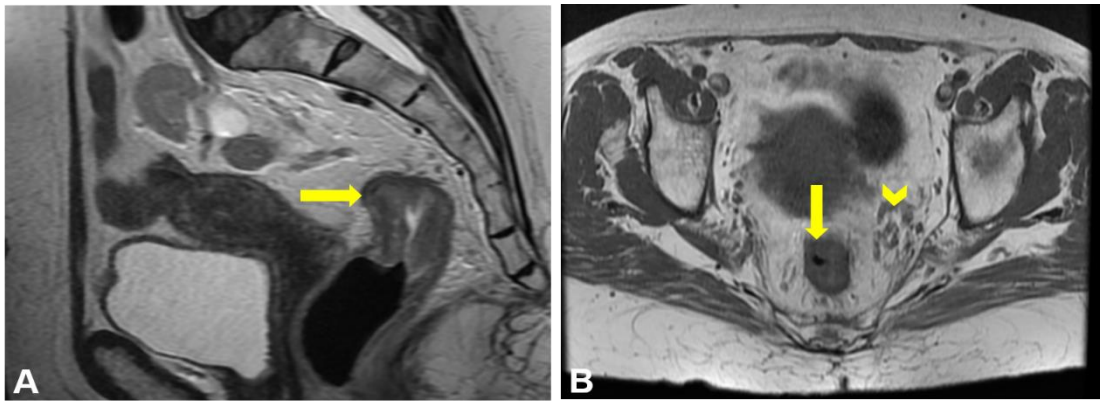

Figure 2 sagittal (A) T2W1 and B axial T1W1 showing post contrast enhancement that revealed left side ectopic pelvic kidney with the lower pole soft tissue mildly enhancing mass lesion seen casting the lower calyx with heterogeneous dominantly dark signal in T2 W1 (Yellow arrow)

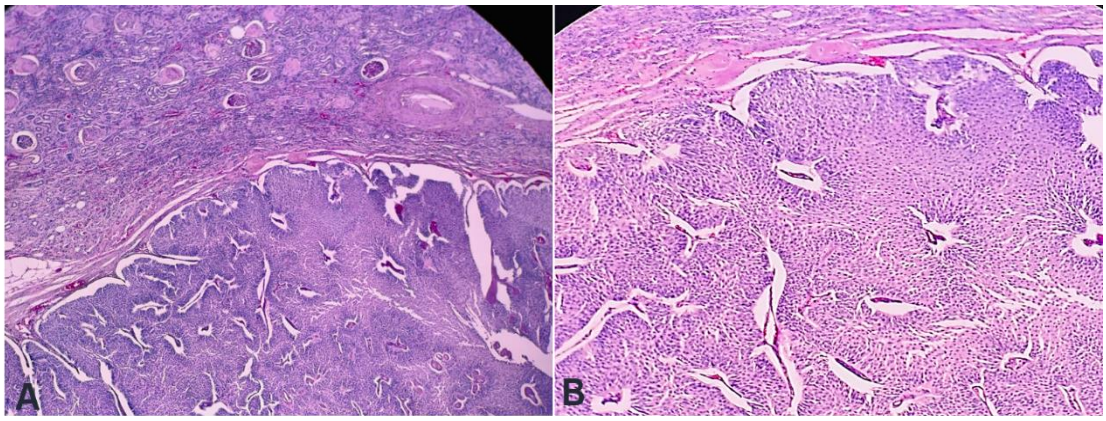

Figure 3 Renal pelvis of ectopic kidney. (A) Low power showing non-invasive papillary low grade urothelial carcinoma. Papillae with fibrovascular cores lined by neoplastic cells (B) High power showing papilla with mild architectural disorder, mitotic figure and mild nuclear pleomorphism.

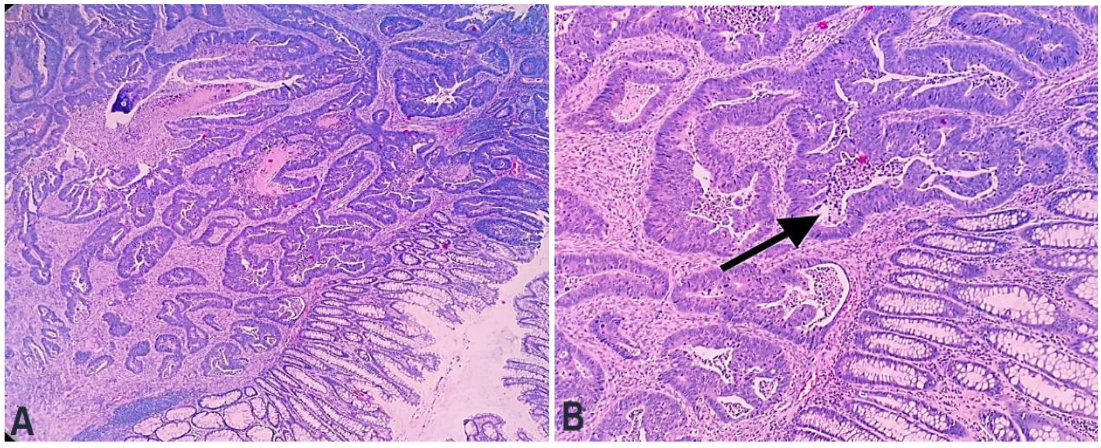

Figure 5 Rectal invasive adenocarcinoma with (A) low power showing neoplastic glands infiltrating the rectal wall. (B) High power showing: characteristic intestinal type features (pencillate nuclei, purple cytoplasm, rounded glands) Glands show dirty necrosis (arrow).

3. DISCUSSION

Colorectal carcinoma due to hereditary reasons is caused mostly by the Lynch described type of colorectal cancer being the genetic base of about 2–3% of all new colorectal carcinomas (Bhalla et al., 2013). Urothelial cancer which is the third most frequent cancer the hereditary cancer families (Lynch et al., 1990), may be encountered in some instance associated with ectopic kidney. Renal ectopic reported in this presented, case is a common congenital anomalies occurred during intra-uterine development due to failure of ascent of the kidney from the pelvis.

The worldwide incidence of renal ectopia is about 1/1000 in different ectopic locations (Gleason et al., 1994), among which pelvic renal ectopia incidence is approximately 1/2200 to 1/3000 necropsies (Oyinloye et al., 2020) therefore, the pelvic renal ectopia presented in the current case is considered a rare condition. Although renal ectopia is generally not life-threating but in a considerable part of its occurrence, it is linked with other complications of lynch syndrome.

In the currently reported case, the concomitant occurrence of the colorectal cancer (CRC) and UC of the early portion of the urinary tract is in consistence with previous reports stating that colorectal carcinoma and UC of the early portion of the urine passage are the highest rated malignant tumor occurs in viscera that can be identified in the subset of the lynch syndrome known as Muir–Torre syndrome that was identified to have MSH2 mutation (Giardiello et al., 2014; Roupret et al., 2008; Ericson et al., 2003). The association between urothelial carcinoma and the lower CRC in this reported case may indicate the presence of MMR as a manifestation of the Lynch syndrome. Indeed, deficient mismatch repair (dMMR) reached a 15 % in sporadic CRC of Thai patients (Korphaisarn et al., 2015).

The currently investigated case is considered one of the low risk group because of being female, non-smoker and have no history of exposure to industrial chemicals (American Cancer Society, 2014). However, lynch syndrome patients commonly are not in need for the expected risk inducers to develop urothelial carcinoma (Sijmons et al., 1998; Roupret et al., 2008). Moreover, the patients of this genetic predisposition are already recognized of possess about 20% chance of growing UC in the early urinary canal in the long run (Van der et al., 2010).

Although lynch syndrome need to be confirmed by the molecular investigation, the comorbidity of UC and CRC in this patient may strongly confirm the presence of the lynch syndrome and may replace the molecular confirmation. The appearance of a single lynch syndrome's manifestation in any individual may necessitate the genetic investigation of all his relatives for the causative genetic abnormalities (loss of MMR protein or lynch syndrome), a project we are currently working on. This genetic screening of here family members may enables a proper medical intervention in the proper time.

4. CONCLUSION

Although the main complain of this patient was intermittent, progressive abdominal pain for 6 months with bowel habit changes and bleeding per rectum, anorexia and weight loss. Absence of the known classical tumor predisposing causes in this woman may shift the investigator thinking fare from tumor presence. However the precise clinical examination and whole body screening with CT and MRI revealed renal ectopia and presence of UC and CRC that were considered as lynch syndrome's manifestation. This concurrent occurrence of such two lynch syndrome's manifestation may be taken as substitute for the genetic screening.

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Informed consent

Oral and written informed consent had been got from the woman reported in this case.

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Conflict of interests

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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