Case report article

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Synchronous primary carcinomas of the rectosigmoid colon and prostate: A case report

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Abstract

The concurrent diagnosis of dual primary malignancies is uncommon, yet it appears to be on the rise, likely attributable to enhancements in screening methodologies. We present a case involving a 74-year-old male patient who was admitted due to hematuria. Diagnostic imaging and subsequent pathological evaluations confirmed the presence of two separate primary tumors in distinct organ systems. The patient underwent surgical intervention for the excision of both neoplasms and is currently under regular post-operative surveillance. This clinical case underscores the necessity for clinicians to be vigilant regarding the potential for simultaneous primary malignancies, as highlighted by a review of pertinent literature. Such cases can inform and enhance clinical awareness and decision-making in similar scenarios.

Keywords: prostate cancer, colorectal cancer, multiple primary malignant tumours, synchronous tumours.

1. INTRODUCTION

In men diagnosed with prostate cancer, screening colonoscopy has demonstrated a colorectal cancer detection rate exceeding 3% [1]. A comprehensive analysis conducted by Jacobs et al. [5] from 1988 to 2017, involving 31,883 prostate cancer patients, identified only 54 individuals (0.15%) with synchronous tumors. Although the concurrent presentation of prostate and colorectal cancers remains infrequent, its incidence appears to be rising, likely attributable to advancements in screening modalities [3]. The management of patients harboring both prostate and colon cancer poses considerable challenges for clinicians. We present a noteworthy case of a patient with synchronous prostate cancer and sigmoid colon cancer that invaded the bladder, who successfully underwent surgical intervention at Binh Dan Hospital.

2. CASE PRESENTATION

A 74-year-old male patient was admitted to Binh Dan Hospital with symptoms of bright red blood in the urine for 2 weeks, accompanied by dull pain in the lower abdomen, difficulty defecating, and yellow stools. Clinical examination showed mild pain in the lower abdomen, no palpable mass on the abdominal wall and rectal examination, ECOG score was 1 point, anesthesia examination with ASA score was 3 points. Personal history: gastritis, hypertension, no history of surgical disease. Family history: no related disease recorded. A computed tomography (CT) scan revealed a significant neoplasm located on the posterior wall of the left side of the bladder, measuring 77 x 55 mm. There were continuous lesions present in the sigmoid colon and rectum, measuring 39 x

151 mm. Additionally, there was heterogeneous enlargement of the prostate, which had a varying size and included microcalcifications measuring 53 x 46 mm in diameter. No metastatic lesions were observed.Laboratory evaluations showed elevated levels of prostate-specific antigen (PSA =65ng/ mL), carcinoembryonic antigen (CEA=73 ng/mL), and cancer antigen 19-9 (CA 19-9 = 58 U/mL), with other preoperative tests within normal limits.

Cystoscopy demonstrated a large wart-like tumor, approximately 70 x 80 mm, occupying a substantial portion of the bladder. Histopathological analysis of the biopsy revealed urothelial carcinoma with glandular differentiation, the potential of secondary malignancy cannot be excluded. With an elevated PSA level, the patient underwent transrectal prostate needle biopsy under ultrasound guidance and was diagnosed with prostate adenocarcinoma. Histological results of prostate biopsy: Prostate carcinoma, moderate differentiation, Gleason score 7 (4+3).

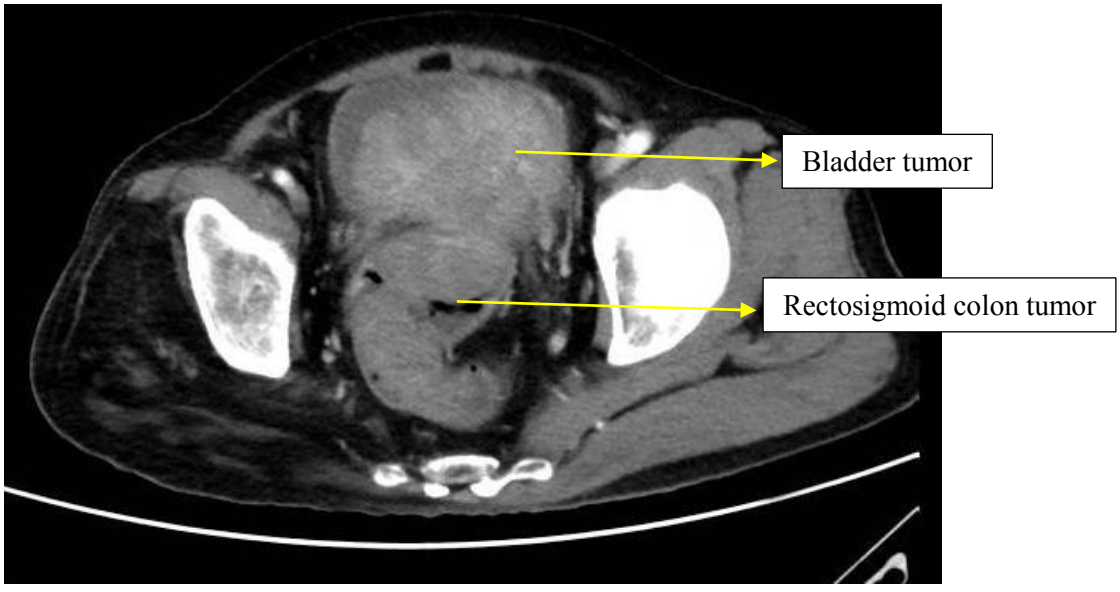

Figure 1. Preoperative MSCT image of the patient

The surgical intervention was scheduled, during which the urology team executed bilateral ligation of the internal iliac arteries, followed by total cystoprostatectomy including excision of the seminal vesicles. The ureters were brought to the skin surface. Concurrently, the general surgery team resected the segment of the sigmoid colon containing the tumor, closed the lower end, and established a Hartmann-type colostomy with the proximal end. The patient underwent open surgery that lasted 240 minutes. There were no postoperative complications, and the patient was discharged on the 10th day after surgery. Following the discharge, the patient was monitored for 24 months, during which they received 6 cycles of chemotherapy. Throughout this period, no late complications, recurrences, or deaths were recorded. Postoperative pathology confirmed the presence of two primary tumors: moderately differentiated prostate adenocarcinoma and grade 2 rectal adenocarcinoma, which exhibited invasion through the serosa and was classified as pT4bN1bM0 stage IB according to AJCC 8th edition guidelines. Given the absence of distant metastases in follow-up evaluations, a plan for adjuvant systemic treatment for the prostate cancer, encompassing hormonal therapy and chemotherapy, was established.

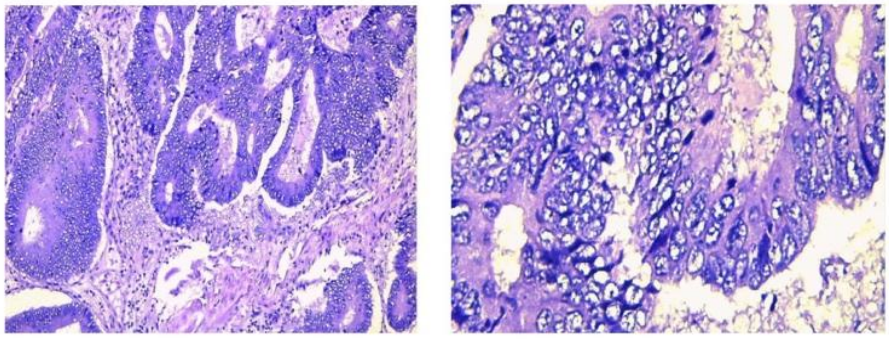

Figure 2. Pathological results of prostate biopsy

The findings indicate a moderately differentiated adenocarcinoma that is fully infiltrating the bladder wall, with secondary involvement not excluded at this stage. It is recommended that immunohistochemical staining be performed using the following five markers: Beta-catenin, CK7, CK20, CDX2, and GATA3 (BLOCK: G1 A1).

Regarding the prostate tissue, the diagnosis is moderately differentiated prostate carcinoma, with a Gleason score of 7 (4+3). Examination reveals the presence of tumor in two lobes (left greater than right) and two seminal vesicles. Notably, the margins of the urethral resection area are free of malignant cells.

Regarding the ureters (left and right), no malignant cells were identified.

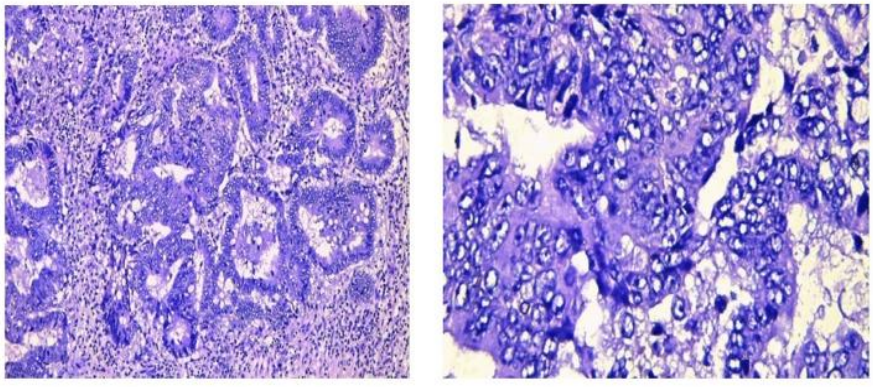

Figure 3. Postoperative pathological results of colon tissue

Large polyp: classified as grade 2 adenocarcinoma, demonstrating invasion beyond the serosal layer with metastatic involvement of 3 out of 12 lymph nodes sampled.

Small polyp: identified as a branch duct adenoma of the intestine, presenting with high-grade dysplasia; the tumor base still contains dysplastic cells. Notably, both edges of the excised specimen are free of malignant cells.

3. DISCUSSION

The incidence of synchronous prostate and rectal cancer is documented at 0.4%, escalating to 1% when considering prostate and sigmoid-rectal colon malignancies, as indicated by Kavanagh et al. (2012) [2]. It remains essential for clinicians to maintain a high index of suspicion for concurrent primary prostate and rectal adenocarcinomas, especially given the potential for diagnostic delays.

Notably, while approximately 75% of older men exhibiting elevated PSA levels present with benign biopsy outcomes, the discovery of a concomitant rectal mass warrants further investigation [6]. In our case, the presence of sigmoid-rectal colon adenocarcinoma alongside elevated PSA levels raised the possibility of synchronous primary prostate adenocarcinoma, which was subsequently confirmed through needle biopsy and postoperative histopathological assessment.

In recent years, improved survival rates for patients diagnosed with these tumors have been observed due to early detection, improved diagnostic techniques, and the use of novel therapies [8]. Although the coexistence of prostate and colorectal cancer has been widely described, the pathophysiology of this association remains controversial. The coexistence of these tumors in families may be due to a combination of both genetic and environmental factors, with environmental exposures occurring earlier in life being important. However, more research is needed to determine the relative contributions of shared genes and environment to the risk of both cancers [9].

Most available data are on patients with synchronous tumors. Of note, this situation is expected to increase in the coming years due to improved life expectancy, increased screening programs for both malignancies, and increased use of pelvic magnetic resonance imaging [10]. Therefore, colorectal cancer screening has recently been proposed in men ≥ 45 years of age with newly diagnosed non-metastatic prostate cancer before treatment [10]. Some authors have suggested that the prognosis of patients with synchronous colorectal and prostate cancer depends mainly on the progression of the colorectal cancer and that the median follow-up period may be too short to assess the oncological outcome of prostate cancer [11].

The patient presented with symptoms of lower abdominal pain and hematuria. Abdominal and pelvic computed tomography (CT) scans revealed a mass in the left posterior wall of the bladder, which was in continuity with the rectal sigmoid colon. Cancer screening tests showed elevated levels of CEA and CA 19-9, suggesting the possibility of colorectal carcinoma. Additionally, the patient had an elevated PSA index and underwent a transrectal needle biopsy of the prostate, guided by ultrasound, which confirmed the presence of prostate adenocarcinoma.

It is possible that the direct invasion of the primary rectal carcinoma into the prostate gland may have released PSA from the prostate tissue, leading to an increase in serum PSA concentration. However, computed tomography and a direct comparison of pathological sections did not support this diagnosis.

In Japan, advancements in diagnostic modalities have contributed to an increased incidence of synchronous rectal and prostate cancers. Management strategies for synchronous malignancies depend on tumor staging and the patient's overall health. Recommendations in the literature advocate for low anterior resection paired with retropubic prostatectomy as a viable and efficacious technique [7]. Our patient underwent radical prostatectomy alongside sigmoid colectomy with tumor resection.

A critical aspect of management is the accurate identification of metastatic lymph node origins, which plays a pivotal role in tailoring prostate cancer treatment protocols and optimizing patient outcomes. Survival rates for low- to intermediate-risk prostate cancer range from 75% to 86%, in contrast to a mere 34% for high-risk categories [4]. There is currently no standardized treatment approach for patients with multiple synchronous malignancies, whether within or outside the gastrointestinal tract. Some

medical centers prefer concurrent surgeries within a single operative session, whereas others opt for a sequential surgical approach. Advocates of multidisciplinary surgical strategies posit that this methodology can minimize the total number of procedures, this contributes to a reduction in mortality rates, reducing the inter-surgical interval, and facilitating the prompt initiation of adjuvant therapies.

4. CONCLUSION

This uncommon situation highlights the tendency for colorectal and prostate cancers to co-occur in older men. Treatment necessitates a multidisciplinary and personalized approach.

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