



Rare but Marvelous Efficacy of Neoadjuvant Chemotherapy for Adenocarcinoma of Rectum: A Case Report

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Abstract

Background: The Neoadjuvant Chemotherapy (NACT) has been proved to reduce tumor early micro-metastatic focus, reduce tumor stage and increase probability of sparing sphincter, and even decrease risk of recurrence in Locally Advanced Rectal Cancer (LARC). Here, we reported a case of locally advanced rectal cancer that was rare extremely sensitive to NACT and reached pathological Complete Response (pCR) after only 3 courses of preoperative chemotherapy with CAPOX.

Case Report: A married 60-year-old male was diagnosed with locally advanced rectal cancer (cT3N2). He achieved pathological complete response after three courses of preoperative neoadjuvant chemotherapy with CAPOX. There were no clinically significant adverse reactions during entire chemotherapy period. Until now (February, 2022), the patient was still alive without any signs or symptoms of tumor recurrence.

Conclusion: In conclusion, we documented an extremely rare case of LARC that developed pCR after only preoperative 3 courses of CAPOX. In addition, we provided a recommendation to employ early genetic detection to guide preoperative chemotherapy protocol. We should select appropriate NACT regimens according to different genotype of LARC and evaluate the effect of chemotherapy in time.

Keywords: Locally advanced rectal cancer; Neoadjuvant chemotherapy; Pathological complete response; Genetic detection

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Received Date: 03 Apr 2022

Accepted Date: 22 Apr 2022

Published Date: 29 Apr 2022

Citation:

Zhao Z, Yao Y, Fan MJ, Wang F. Rare but Marvelous Efficacy of Neoadjuvant Chemotherapy for Adenocarcinoma of Rectum: A Case Report. *Clin Oncol*. 2022; 7: 1912.

ISSN: 2474-1663

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Abbreviations

NACT: Neoadjuvant Chemotherapy; pCR: pathological Complete Response; LARC: Locally Advanced Rectal Cancer; RC: Rectal Cancer; BMI: Body Mass Index; TNT: Total Neoadjuvant Chemotherapy; MDT: Multidisciplinary Treatment

Introduction

Rectal Cancer (RC) remained vital cause of tumor-related deaths of digestive tract malignancies worldwide [1]. With an estimated 732,210 new cases of RC in worldwide in 2020, and 339,022 expected deaths, RC comprises approximately 35% of all colorectal cancer. Up to now, surgical resection was considered as the cornerstone of curative treatment for RC. As for locally advanced rectal cancer (LARC, commonly defined as T3 or T4 primary or nodal metastases), preoperative Neoadjuvant Chemotherapy (NACT) has been shown to lead to an increase in sphincter sparing operations and better quality of life as a result of consistent tumor down staging, as well as a significantly higher rate of pathologic complete response with decreased risk of local recurrence [2,3]. According to the guidelines for RC treatment, the consensus of NACT was 5-FU based chemotherapy [4,5]. And capecitabine was widely used in clinic practice because of its convenient application, compliance, therapeutic effect and safety. In addition, Capecitabine combined with Oxaliplatin (CAPOX) and oxaliplatin combined with fluorouracil and calcium folate (FOLFOX) have been proven to be effective in clinical trials [6]. On the other hand, considering of decreasing micro-metastases and toxicity rates, earlier reversal of diverting ileostomy, higher pathological Complete Response (pCR) rate and enhancing complete (R0) resection rates, clinical trials have been performed, referred to as Total Neoadjuvant Therapy (TNT) [7,8]. Unfortunately, there are few valid and sensitive biomarker has been proved to predict NACT or TNT of LARC therapeutic effect. Here, we reported on a most successful NACT case in our institution and provided our recommendation and discussion.

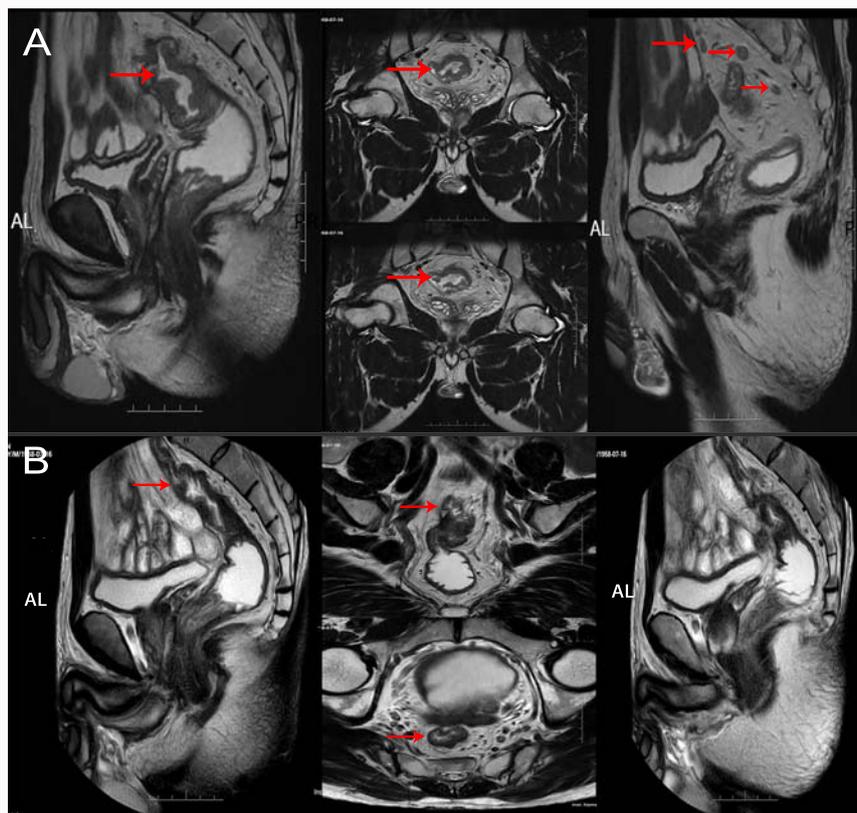


Figure 1: The examination of MRI. A) The MRI before 3 courses of chemotherapy with CAPOX. B) The MRI after 3 courses of chemotherapy (AL: Long-Axis Position).

Case Presentation

A married, 60-year-old male felt increased number of bowel movements for 1 year prior to consultation. He had no significant medical history. Physical examination revealed no obvious positive sign. His Body Mass Index (BMI) was 23.66 kg/m². The colonoscopy showed that about 15 cm away from the anal edge, there was a bulging mass with uneven surface, ulceration, easy bleeding, and narrow lumen. The pathological section diagnosed adenocarcinoma of rectal mucosa. The preoperative MRI showed that the distal end of the tumor was 12.2 cm away from the anal edge, and the invasion length of rectum was 5.5 cm, and muscular layer and serosal layer were invaded, and some enlarged lymph nodes were observed in mesorectum, and the largest lymph node diameter was 0.9 cm (T3N2) in November 2018 (Figure 1A). And next, after Multidisciplinary Treatment (MDT) discussion in our institution, the patient received 3 courses of CAPOX chemotherapy. There were no clinically significant adverse reactions during entire chemotherapy period, and overall compliance to the treatment was excellent. Subsequently, the reexamination MRI showed that the distal end of the tumor was 12 cm away from the anal edge, and the invasion length of rectum was 5.5 cm, and muscular layer was invaded, and no lymph nodes metastasis were observed in mesorectum (T3N0) in February 13th, 2019 (Figure 1B). Then, the patient underwent the resection of the rectal cancer with mesorectal excision. Finally, the surgery pathological section revealed that the tumor was completely eliminated and only an ulcer (1.5 cm × 0.7 cm) was left in February 25th, 2019 (Figure 2). Furthermore, there were 15 benign hyperplasia lymph nodes detected. The patient was still alive with no evidence of tumor recurrence until now (February, 2022).

Discussion and Conclusion

With deepening of rectal cancer comprehensive therapy, doctors focused on preoperative instead of postoperative chemotherapy gradually. The preoperative neoadjuvant treatment has been shown to reduce tumor early micro-metastatic focus, reduce tumor stage and increase probability of sparing sphincter, and even increase pCR rate and decrease risk of recurrence [9]. Furthermore, the use of total neoadjuvant chemotherapy in treatment of LARC was recently revolutionized at ASCO 2020 virtual meeting by RAPIDO and PRODIGE 23 trials [6,10]. Both trials all demonstrated that TNT could statistical significantly decrease in relapses as well as an increase in pCR, compared to NACT. However, due to the heterogeneity of tumor and individual differences, patients subjected to chemotherapy showed different sensitivity and tolerance. In this report, the patient was rare extremely sensitive to NACT and reached pCR after only 3 courses of chemotherapy with CAPOX. Unfortunately, there were still lacking relevant researches that focused on identifying biomarkers that facilitated rapid and easy prediction of sensitivity to chemotherapy and directed the individual choice of treatment for patients. Furthermore, early genetic detection can be used to test for inherited disorders, tumor mutations and even to explore biomarkers for predicting sensitivity of different chemotherapy regimens according to different genotype of LARC. We provided a recommendation to employ early genetic detection to guide preoperative chemotherapy protocol. We should select appropriate NACT regimens according to different genotype of LARC and evaluate the effect of chemotherapy in time.

In conclusion, we reported a case of LARC, which was rare

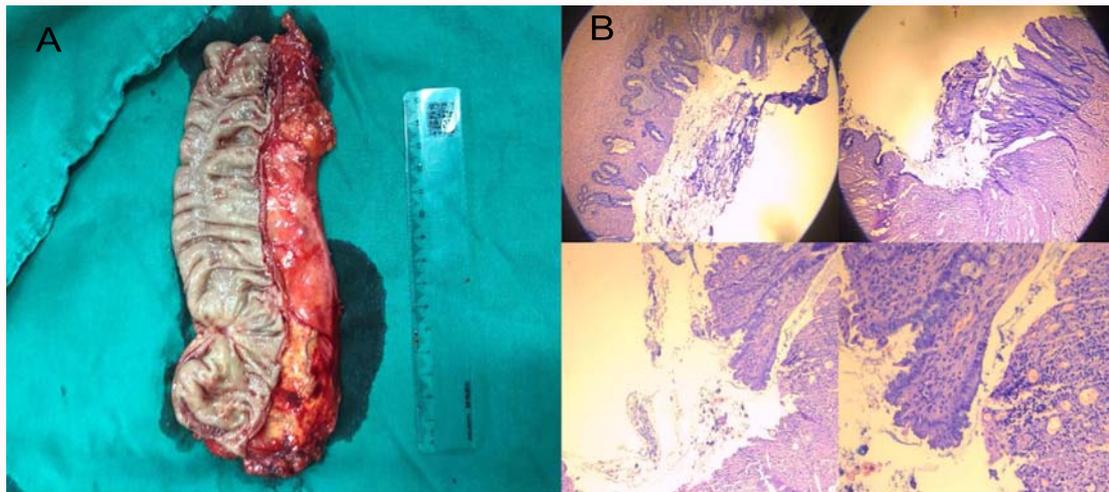


Figure 2: A) The excised rectal specimen. B) The pathological sections and diagnosis.

extremely sensitive to NACT and reach pCR after receiving three courses of CAPOX. Furthermore, the tumor samples should be saved properly before preoperative neoadjuvant treatment for relevant mechanism research or exploring predictive biomarkers for chemotherapy in the future.

Acknowledgment

We thank the relatives of the patients for allowing us to share their medical history and clinical course.

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