



## Loss of Fingerprint in a Rectosigmoid Cancer Patient with Grade 1 HFS: A Case Report and Literature Review

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### Abstract

**Background:** Capecitabine is an oral prodrug of 5-Fluorouracil (5-FU) which is converted to 5FU by a series of reactions which are catalyzed by different enzymes. The mechanism of action of capecitabine is the inhibition of DNA synthesis by the enzyme Thymidine Phosphorylase (TP). TP is found to be elevated in tumor cells in comparison to normal cells, thereby limiting its systemic toxicity. Although systemic toxicity is low, capecitabine can cause adverse reactions such as stomatitis, Hand Foot Syndrome (HFS), nausea, vomiting and rarely adermatoglyphia. Adermatoglyphia is a condition associated with loss of fingerprint.

**Case Report:** We have reported a case of 65-year-old male patient suffering from rectosigmoid cancer. He had complaints of increased stool frequency for greater than 6 months and complaints of blood and mucus in stool for 3 months. CT scan of abdomen revealed a growth at rectosigmoid junction. The patient undergone anterior resection laparotomy surgery. After surgery, patient showed multiple tumor deposits in the mesocolon region. The patient was managed with chemotherapy with oxaliplatin 200 mg and Tab. Xeloda 500 mg 3 tablets in the morning and 2 tablets in the night for 21 days. At the cycle 3 patient was unable to register in one of the government programs due to loss of fingerprint. After completion of chemotherapy, radiation therapy was started along with Tab. Xeloda.

**Conclusion:** As this case describes, patients receiving capecitabine have a rare chance for loss of fingerprint. There are other case reports which have reported that capecitabine associated adermatoglyphia is reversible i.e., the fingerprint will be normalized after stopping the therapy. Fingerprint is important as it is used for the identification purpose. There should be proper patient education for these patients and other alternative means of identification should be suggested.

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### Introduction

Capecitabine is an oral prodrug of 5-fluorouracil, which is converted to 5 fluorouracil by various reactions. Even though capecitabine have least systemic reactions, it can cause certain adverse reactions such as hand foot syndrome, stomatitis, nausea and vomiting. Dermatoglyphics also known as fingerprints are the presence of patterns of ridges and furrows at the fingertips. It is used for identification purposes. Adermatoglyphia is a condition of loss of fingerprints. There are certain case reports suggesting loss of fingerprint due to the use of capecitabine. This condition is less known among the patients and the care givers. There should be proper patient education about this adverse effect.

### Case Presentation

A 65-year-old male patient who was farmer, was presented in a clinic with complaints of abdominal pain. Colonoscopy was done at July 2021 and results showed grade 2 hemorrhoids and growth at rectosigmoid junction. Another colonoscopy was done and revealed circumferential lumen narrowing friable growth. CT scan of abdomen and pelvis on July 2021 showed a rectosigmoid growth with perilesional fat stranding. Surgical procedure anterior resection laparotomy and hemorrhoidectomy was done at august 2021.

Later patient was presented at other clinic with complaints of increased stool frequency. Histopathology revealed that patient have carcinoma rectosigmoid at stage T3N2. The biopsy revealed with multiple tumor deposit in mesocolon region.

He was then referred to our clinic. The plan of care proposed was radiation with concurrent chemotherapy. From September 2021 patient was advised with chemotherapy of plan CAPEOX. Inj.



**Figure 1:** Patient's loss of fingerprint at 5<sup>th</sup> cycle of chemotherapy.



**Figure 2:** Patient's fingerprint reappears gradually.

Oxaliplatin dose was given 200 mg in 500 ml normal saline and Tab. Xeloda 500 mg was given in a frequency 3 tablets in morning and 2 tablets at the night. The chemotherapy ended on February 2022 after 8 cycles of chemotherapy [1,2].

After the course of chemotherapy patient radiation therapy was started along with Tab. Xeloda. In between patient complained that he was unable to register in one of the government programs due to loss of fingerprint. The loss of fingerprint occurred at the 5<sup>th</sup> cycle of chemotherapy. At first, he had a hyperpigmentation of hand suggesting grade 1 HFS during his 3<sup>rd</sup> chemotherapy. Later the fingerprint began to lose gradually.

After 8 cycles of chemotherapy, the chemotherapy treatment stopped on February 2022. The radiation therapy was then started along with Tab. Xeloda. Tab. Xeloda is prescribed for 1 year. By the month of April, patient's hyperpigmentation on fingers was disappeared and the fingerprint started to reappear gradually without any intervention [3].

The ADR assessment was done using a Naranjo ADR scale and the score was found to be 8. This indicates the ADR as a probable reaction.

## Discussion

Dermatoglyphics also known as fingerprints, is the presence of ridges and furrows at the fingertips. Fingerprints are one of the essential tools required for the identification purposes. Adermatoglyphia refers to the loss of fingerprint.

Adermatoglyphia can be inherited or acquired. Inherited adermatoglyphia is an autosomal disorder caused by a point mutation of SMARCAD1 helicase gene. While, acquired adermatoglyphia is a condition caused by variety of reasons such as trauma, psoriasis, eczema, aging, chemotherapy and many more.

Capecitabine is an oral prodrug of 5 Fluorouracil. The conversion is catalyzed by many enzymes. 5FU is an antimetabolite that inhibits thymidine synthase. This enzyme is essential for DNA synthesis. Capecitabine is primarily used for treating many types of cancers such as breast cancer, triple negative breast cancer, gastric cancer, ovarian cancer, rectal cancer, etc.

Capecitabine have limited systemic reactions such as diarrhea, abdominal pain, nausea, vomiting, skin changes, etc. One of the main adverse reactions is the presence of Hand Foot Syndrome (HFS).

HFS is a condition characterized by skin reactions in the palms and soles. The main symptoms of HFS are redness, swelling, hyperpigmentation, desquamation on the hand and feet. World Health Organization has divided HFS into 4 grades based upon the symptoms and severity of the disease [4].

Exact cause of HFS is not known. Some hypothesis suggest that the metabolites of the drug get accumulated on the eccrine glands which results in the skin changes. Another hypothesis suggests that the drug causes overexpression of the Cyclooxygenase (COX) enzyme [5].

In our case the patient had grade 1 HFS characterized by hyperpigmentation and changes in nails. Patient's symptoms of HFS started from the 3<sup>rd</sup> cycle of chemotherapy. At the 5<sup>th</sup> cycle of chemotherapy patient's fingerprint has disappeared. Previous case reports that there is no correlation between the grade of HFS and loss of fingerprint. After a month of completion of chemotherapy, patient's fingerprint started to appear gradually (Figure 1 and 2).

## Conclusion

Capecitabine is a prodrug of 5 fluorouracil. Capecitabine is mainly used for treating many types of cancers such as rectal cancer, breast cancer and so on. The main adverse effect of this drug is hand foot syndrome. Another rare but evident adverse effect of this drug is loss of fingerprint. loss of fingerprint also known as adermatoglyphia, can be inherited or acquired. Acquired adermatoglyphia associated with chemotherapy is a reversible condition. This loss of fingerprint can cause inconvenience for patients. Fingerprint is a vital tool for identification purposes. This condition is less known among patients and the caregivers. Alternative means of identification should be suggested to these patients.

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