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# Hypereosinophilia as a Preclinical Sign of Tongue Squamous Cell Cancer in a Gastric Cancer Patient with Complete Remission

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## ABSTRACT

Although parasitic infestations and allergic disorders are the most common causes of eosinophilia it may also accompany malignant diseases. Many studies suggested that eosinophilia is related to tumor dissemination or necrosis. We are presenting a case; 10 months after gastric carcinoma operation who had severe eosinophilia with bone marrow and skin infiltration that gave response to steroid therapy. After three months, tongue squamous cell carcinoma as a second malignancy occurred in our patient that the eosinophilia could be the preclinical sign of the second cancer.

Key Words: Gastric cancer, Adenocarcinoma, Eosinophilia, Tongue cancer, Squamous carcinoma.

## ÖZET

### Remisyonda Gastrik Kanseri Olan Bir Hastada Dilde Skuamöz Hücreli Kanserin Belirtisi Olarak Hipereozinofili

Her ne kadar allerjik ve paraziter hastalıklar eozinofilinin en sık sebepleri ise de, eozinofili malign hastalıklara eşlik edebilir. Çalışmalar bu durumda, eozinofilinin nedeninin tümörün yayılması veya nekrozu olduğunu göstermektedir. Bu makalede sunduğumuz olgu gastrik kanser ameliyatından 10 ay sonra kemik iliği ve ciltte ciddi eozinofili ve eozinofili infiltrasyonu göstermiş ve steroide yanıt vermiştir. Üç ay sonra ikincil malignite olarak dil skuamöz hücreli kanseri geliştiren hastada, eozinofilinin ikincil kanserin erken bulgusu olarak görüldüğünü düşünmekteyiz.

Anahtar Kelimeler: Gastrik kanser, Adenokanser, Eozinofili, Dil kanseri, Skuamöz kanser.

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## INTRODUCTION

The majority of the patients with eosinophilia are found to have atopy or, less often, drug hypersensitivity or a skin disease<sup>[1,2]</sup>. Eosinophilia is also demonstrated with malignant diseases such as malignant lymphoma, lung, cervix, gastrointestinal, renal, breast, head and neck carcinoma<sup>[3-6]</sup>. In this study we presented a case who had eosinophilia after gastric carcinoma operation that gave response to steroid therapy. After a time period a second primary tumor squamous cell carcinoma of tongue occurred in our patient.

## CASE REPORT

A-73-years old patient was accepted to our clinic with complaint of pruritus that began two months ago and resistant to antihistaminic therapy. Well differentiated gastric adenocarcinoma was diagnosed ten months ago and total gastrectomy was performed and adjuvant 400 mg/m<sup>2</sup> weekly 5-fluorouracil was administered for six months. In physical examination excoriations due to pruritis, papular lesions and at right posterior cervical region a tender, mobile, 1.5 x 1 cm diameters lymph node was found. Performance status according to ECOG was 1. White blood cell count was 18 x 10<sup>9</sup>/L, Hb 11.3 g/dL, hematocrit 33.3% and platelet 456 x 10<sup>9</sup>/L. In blood smear percentages of leukocytes were; 21% neutrophil, 13% lymphocyte, 52% eosinophil, 8% monocyte, 6% basophil. Absolute eosinophil count was 9.5 x 10<sup>9</sup>/L. The biochemical parameters were normal. According to the skin punch biopsy; there were markedly lymphocyte and eosinophil infiltration around the vessels at superficial dermis. The lymph node biopsy was reported as reactive lymph node. Eosinophil was 15% of nuclear cells in bone marrow. There was significant increase in immunoglobulin (Ig) E level (969 mg/dL, normal range 0-100). In echocardiography systolic functions were normal and no restrictive change was detected. There was no sign of parasitic or infectious disease. Recurrence of gastric carcinoma was not detected. There was no eosinophilic infiltration in review of gastric cancer tissue. We started methyl prednisolone 60 mg/day and continued the same dose for two weeks, then tapered the dose gradually. There was significant symptomatic response to the steroid therapy also total leucocytes and eosinophil count decreased and neutrophil and eosinophil rate in peripheral blood came to normal range (Figure 1). After the third month of therapy an enduration developed at the root of the

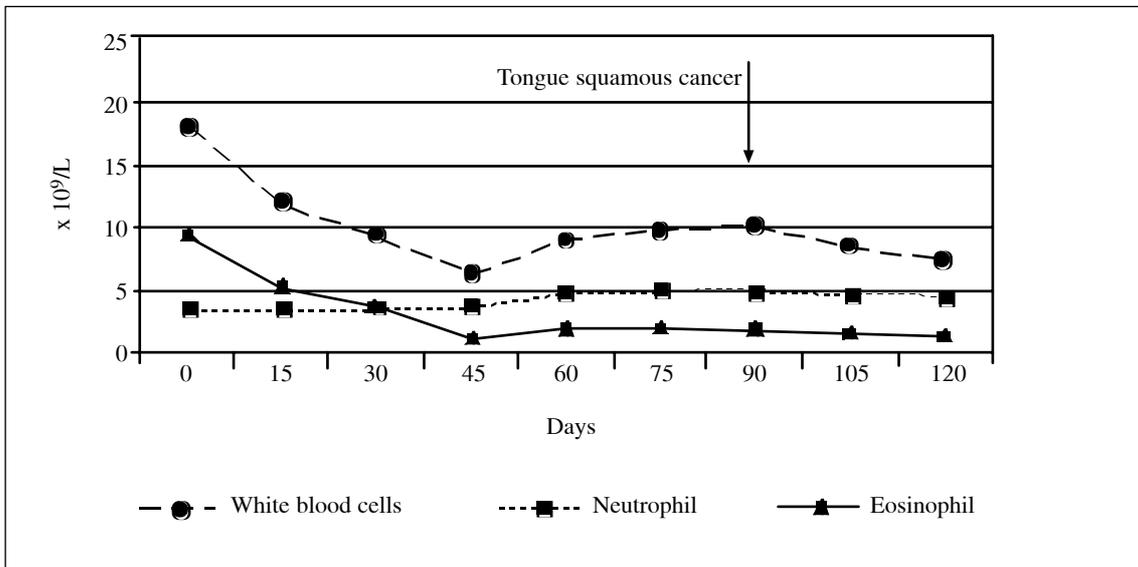
tongue. By biopsy a second primary malignancy, squamous cell carcinoma of the tongue was diagnosed. There was no history of smoking and alcohol intake that may be cause of tongue and stomach cancer. Peripheral blood count was in normal range in this period. Tumour associated eosinophilia was not detected in tumour tissue. After three cycles of induction chemotherapy with cisplatin (75 mg/m<sup>2</sup> one day) and 5-fluorouracil (1000 mg/m<sup>2</sup> one-five days) the patient achieved complete remission. He didn't accept surgery, so curative radiotherapy was given. At 12<sup>th</sup> month of tongue cancer, we detected a mass in liver with 5 x 6 cm diameter. The patient didn't accept liver biopsy and further treatment. In this period we didn't detect eosinophilic recurrence. The patient died due to hepatic failure at 15<sup>th</sup> month of tongue cancer.

## DISCUSSION

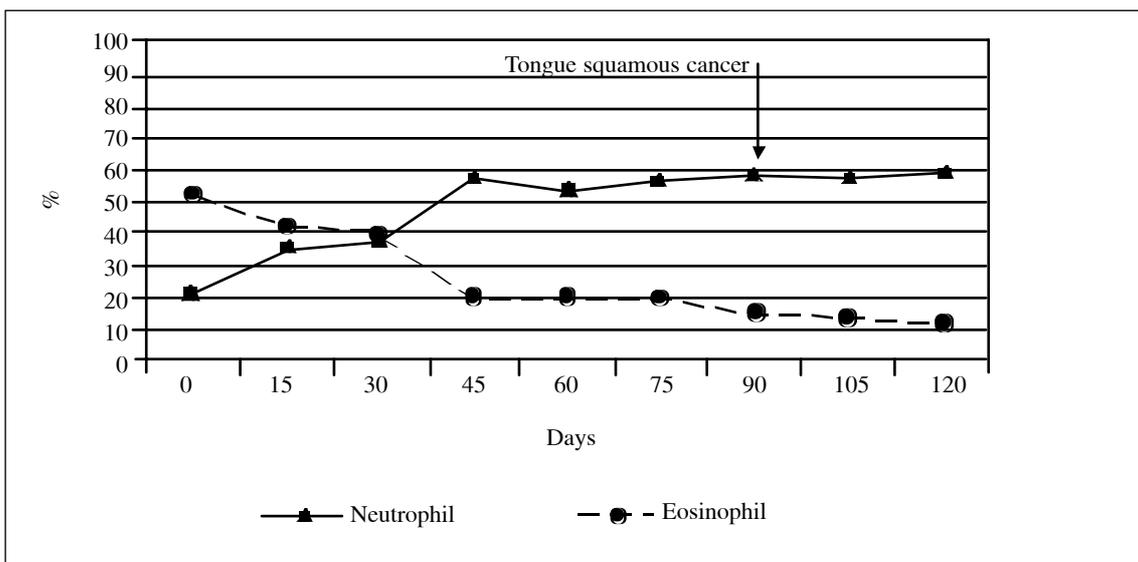
The etiology of eosinophilia has a wide spectrum. Many hematological diseases are associated with eosinophilia such as myeloproliferative diseases, pernicious anemia and idiopathic hypereosinophilic syndrome that characterized by peripheral hypereosinophilia and involvement of soft tissues such as heart and liver<sup>[1,2]</sup>.

Eosinophilia may be seen with different histological types of malignant tumors. Lymphoid malignancies like Hodgkin disease, eosinophilic leukemia, bronchogenic carcinoma and cervix, gastrointestinal and renal tumors are associated with eosinophilia. Eosinophilia was reported nearly 0.5% among 2000 cancer patients with different histological types<sup>[3-7]</sup>.

Although the first data was published in 1890, relationship between gastric tumors and eosinophilia couldn't be demonstrated because of being rare<sup>[4,5,8,9]</sup>. Poorly differentiated gastric carcinoma and eosinophilic infiltration in gastric tissue was reported from Japon<sup>[5]</sup>. The patient had peripheral eosinophilia (22%) and postoperative count was reduced (5%). Eleven months later peripheral eosinophilia again occurred and tumor metastasis was demonstrated at the same time. Iwasaki K et al studied on 647 patients with gastric cancer to show the prognostic relationship between gastric cancer and eosinophilia and found that eosinophilic infiltration in gastric tissue was related with good prognosis, but they found no correlation between tissue eosinophilia and peripheral eosinophilia<sup>[4]</sup>. Grigoloto et al reported a gastric carcinoma whose histopatho-



**Figure 1A.** The change in white blood cells, neutrophil and eosinophil count after treatment of eosinophilia with prednisolone was shown in the figure.



**Figure 1B.** The change in neutrophil and eosinophil rate on peripheral blood smear after treatment of hyper eosinophilia at 10<sup>th</sup> month of diagnosis of gastric cancer.

logy was adenocarcinoma with squamous cell differentiation with massive eosinophilic tissue infiltration in a patient with peripheral blood eosinophilia<sup>[9]</sup>.

Tumor-associated tissue eosinophilia (TATE) is described in squamous cell carcinomas of oral cavity, larynx, vulva, penis, scrotum and anus. TATE is suppo-

sed to be associated with good prognosis for head and neck squamous cell carcinoma. Circulating eosinophilia occurred in patients with metastatic stage and a poor prognosis<sup>[10-13]</sup>.

Paraneoplastic syndromes are a group of disorders associated with specific neoplasm that have signs and

symptoms that cannot be ascribed to local tumor invasion or its metastases. These syndromes are the result of a wide variety of tumor-derived biologic mediators. Hematological paraneoplastic syndromes are seen such as erythrocytosis, anemia, granulocytosis, eosinophilia, thrombocytosis, thrombophlebitis, coagulopathies and disseminated intravascular coagulopathy.

We detected eosinophilia in peripheral blood in a gastric cancer patient with complete remission. Three months later we diagnosed tongue squamous cell carcinoma as second primary malignancy. Eosinophilia may be a preclinical sign of second cancer as paraneoplastic syndrome.

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