

## SCREENING OF GASTRIC CANCER IN LIVER TRANSPLANTATION PATIENTS: A CASE REPORT AND REVIEW OF LITERATURE

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### ABSTRACT

Liver and other solid organ transplant recipients are at an increased risk of developing several malignancies because of the immuno-suppressive treatment. Generally, patients who had a liver transplant have upper gastrointestinal tract complaints, which makes identification of gastric carcinoma symptoms in those patients difficult. A 58 years old liver transplant male patient presented to the hospital for his routine checkup and dyspeptic complaints. He had received a liver from a cadaver 18 months ago and his postoperative period had been uneventful. An esophagogastroduodenoscopy (EGD) revealed gastric cancer. A subtotal gastric resection with a D2 lymph node dissection was carried out. There was no recurrence during three years follow up. In order to make a timely identification of the occurrence of common malignancies such as gastric cancer, liver transplant recipients must be followed closely.

**KEY WORDS:** Liver transplantation; Gastric cancer, Immunosuppression.

Pak J Med Sci July - September 2010 Vol. 26 No. 3 733-735

### *How to cite this article:*

Dirican A, Unal B, Bassulu N, Ozgor D, Kayaalp C, Yilmaz S. Screening of gastric cancer in liver transplantation patients: A case report and review of literature. Pak J Med Sci 2010;26(3):733-735

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\* Received for Publication: November 23, 2009

\* Accepted: April 21, 2010

### INTRODUCTION

Liver and other solid organ transplant recipients are at an increased risk of developing several malignancies because of the immune-suppressive treatment.<sup>1</sup> The overall incidence of malignancy for a transplant recipient has been estimated to be 20% in the 10-year follow-up period.<sup>2</sup> Lymphoproliferative, oropharyngeal, skin, colon, and renal malignant tumors were reported after liver transplantation. There is not enough data relevant to the incidence of gastric cancer after liver transplantation. In United States, 33 gastric cancers were identified among 7,000 malignancies reported to the Israel Penn Transplant Tumor Registry, and 3 of the 33 were observed after liver transplantation.<sup>3</sup> Here, we report a patient with gastric cancer who had a liver transplant for cirrhosis of the liver.

## CASE REPORT

A 58-year old man who had undergone a liver transplant 18 months ago for end stage liver disease related to alcohol came to our outpatient clinic with dyspeptic symptoms. Before the transplant, he had a history of a repeated bleeding duodenal ulcer and esophageal varices which had been treated with endoscopic sclerotherapy. The liver graft was donated from a patient who had an intracranial tumor. The follow up of the patient after the successful transplantation was uneventful. An immunosuppressive agent, FK-506, was given at the optimal dose. He underwent EGD for the dyspeptic complaints which showed a mass located in the antrum of the stomach that had malignant characteristics. The histopathological report was adenocarcinoma. His physical examination was normal and there was no evidence of distant metastasis.

Based on these findings, an operation was performed. The incision was made from the previous median scar and extended to the inferior of the umbilicus. After the blunt dissection of the abundant adhesions between the transplanted liver and duodenum, the exploration showed a mass with 2x3 cm in size at the prepyloric area. The remaining organs such as liver, spleen, and pancreas were normal. Subtotal gastric resection with an adequate margin and

D2 lymph node dissection were carried out. There was no need for blood transfusion. Histopathologically, the tumor consisted of the extension of the adenocarcinoma to the serosal layer and seven perigastric lymph nodes metastasis (Fig: 1-2). The postoperative course was uneventful. He was discharged one week after the surgery. No recurrence has still been observed after 37 months of follow-ups.

## DISCUSSION

Newer immunosuppressive agents have steadily reduced the incidence of acute rejection, thus extending the life expectancy for allograft recipient. Following initial studies in the immunosuppressed transplant recipients, there is an increase up to fourfold in the malignant tumors.<sup>4</sup>

Non-graft related deaths in liver transplant recipients are due to cardiovascular disease followed by malignancies.<sup>5</sup> An increased risk of de novo malignancies after liver transplantation has recently been reported. Skin cancer has been identified as the most common solid tumor in the post-transplant patients.<sup>6</sup> Gastric cancer in post liver transplant patient is rare.<sup>7</sup>

Oo et al reported that there was a significant increase in the risk of cancer in liver allograft recipients. They found that the increased risk is greater in younger recipients than the older ones. According to that study, the patients who

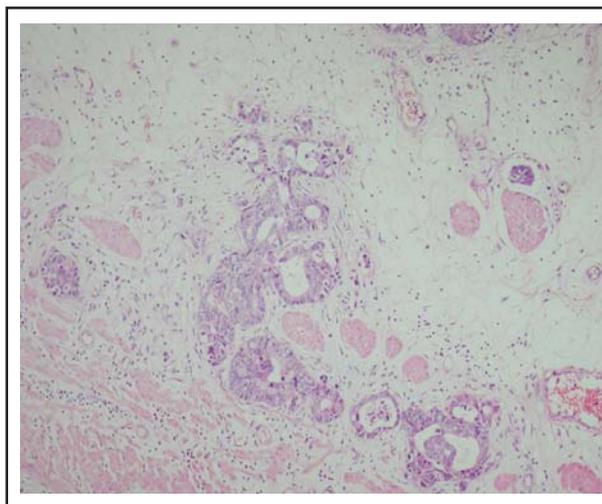


Figure-1: Gastric adenocarcinoma with serosal invasion and lymphatic infiltration.

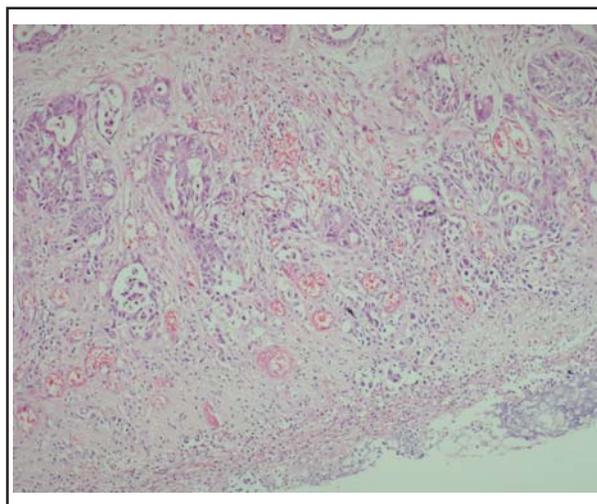


Figure-2: Gastric adenocarcinoma with mucosal ulceration.

had transplants for alcohol related cirrhosis had a higher risk of cancer than those transplanted for other indications.<sup>8</sup> Older age and the use of immunosuppression were noted to have profound risk of developing cancer after liver transplantation in another study.<sup>9</sup> Our patient was a 58 year-old man who had previous liver transplantation for alcoholic end stage liver disease.

S. Kenngott et al published an article about rapid development of esophageal squamous cell carcinoma after liver transplantation for alcohol-induced cirrhosis.<sup>10</sup> They emphasized screening of gastroesophageal tract at regular intervals for a possible malignancy in patients undergoing liver transplantation for alcohol related cirrhosis with a history of tobacco abuse. Our patient had alcohol related cirrhosis, but there was no evidence for malignancy in esophagus. Before transplantation, he had a history of bleeding of a duodenal ulcer and esophageal varices which were treated with endoscopic sclerotherapy. Pretransplantation and pertransplantation, no tumor was detected in the stomach.

It is still unclear whether a relationship exists between the immunosurveillance systems used for cancer patients and immunocompetent hosts.<sup>11</sup> In our patient, the infiltration of lymphocytes was seen around the perigastric tumor localization (Fig -1), but their function is still unclear, and that can be seen in all tumors. Another malignancy after liver transplant recipients is *Helicobacter pylori* associated gastric mucosae associated lymphoid tissue (MALT) lymphoma. Screening and treating *H. pylori* infection in selected transplanted patients may have benefits against MALT lymphoma.<sup>12</sup> It is because the *H. pylori* infection may promote carcinogenesis. However, our patient did not have any evidence for *H. pylori* infection.

In early stage of superficial gastric cancer, endoscopic submucosal resection may be a treatment option but in our patient, the mass was attached to the subserosal layer; so a subtotal gastrectomy with D2 lymph node dissection was the choice.

In United States, gastric cancer tends to be discovered at earlier stages in transplant recipi-

ents in comparison with the general population. This is because of close follow up of liver transplanted patients. With an early detection, their five year survival is better than in general population.<sup>3</sup> Close surveillance is essential in the patients treated with immunosuppressive drugs. In our patient, there was no routine screening for gastric cancer. Gastroscopy was performed due to the dyspeptic complaints of the patient during the follow-up after the transplantation.

The practitioners should be aware of the possibility for a gastric cancer in the patients who have a transplanted liver. In addition, we need a consensus on the optimal interval for screening the gastrointestinal tract in liver transplant recipients.

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