Detection of JC Polyomavirus Tumor-Antigen in Gastric Carcinoma, a report from IRAN

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Introduction

Although the global incidence of gastric cancer has been declined dramatically over the recent few decades, it is still a common cancer in different parts of the world. It has been scientifically suggested that some oncogenic viruses like JCV might play a role in Gastric carcinogenesis. The viral transforming protein, T-antigen (T-Ag) has the ability to bind and inactivate tumor suppressor proteins including p53 and pRb that might lead to malignant outcome, though its role might vary in different geographic parts due to viral distribution and other habits resulting in GI cancer.

The aim of present study was to investigate the presence of JCV T-Ag sequence and its expression in cancerous and non-cancerous adjacent gastric tissues in Iranian patients.

Methods

Thirty one sample pairs of formalin fixed paraffin embedded (FFPE) tissue specimens of gastric cancer and adjacent non-cancerous tissues (ANCT) were investigated on the basis of Real-time polymerase chain reaction. Samples were also subjected for the immunohistochemistry examination using an anti-T-Ag monoclonal antibody.

Results

Real time experience followed by sequencing revealed JCV sequences in 17 (54.84%) of gastric cancer tissues and in 10 (32.25%) of non-cancerous gastric mucosa (OR=1.7).

Immunohistochemical study also showed the presence of T-Ag in nuclear compartment. (Fig. 1)

References

- Shin SK, Li MS, Fuerst F, Hotchkiss E, Meyer R, Kim T, Goel A, Boland CR: Oncogenic T-antigen of JC virus is present frequently in human gastric cancers. Cancer 2006, 107(3):481-488.
- Murai Y ,Zheng HC, Aziz HOA, Mei H, Kutsuna T, Nakanishi Y, Tsuneyama K, Takano Y: **High JC virus load in gastric cancer and adjacent non-cancerous mucosa**. *Cancer science* 2007, **98**(1):25-31.
- Malekzadeh R, Derakhshan MH, Malekzadeh Z: **Gastric cancer in Iran: epidemiology and risk factors**. *Arch Iran Med* 2009, **12**(6):576-583.

Discussion

These data indicate, for the first time, presence of JC virus in gastric carcinoma samples in our socioeconomic region. These findings provide a summative, supportive data for a possible role of JCV T-Ag in carcinogenesis of gastric malignancy.

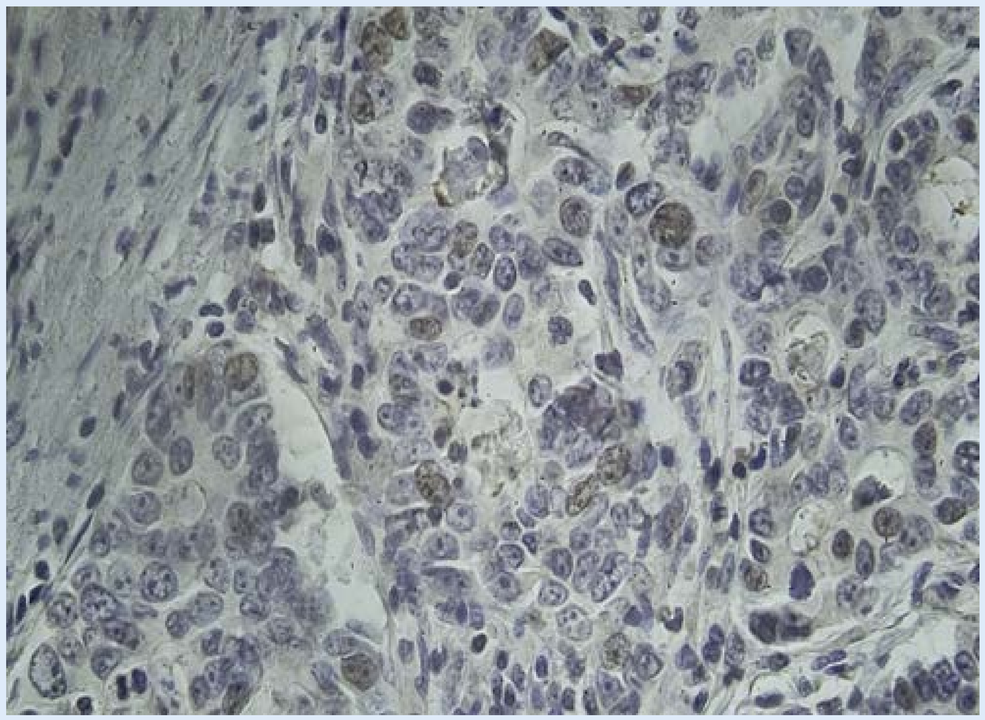


Figure 1. Representative immunohistochemical slide (400x) showing positive staining in the nuclei of gastric tumor cells (grade II).

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